### MICHIGAN STATE UNIVERSITY

# 09/26: Design Day Booklet Production Process

### The Capstone Experience

Dr. Wayne Dyksen James Mariani

Department of Computer Science and Engineering Michigan State University

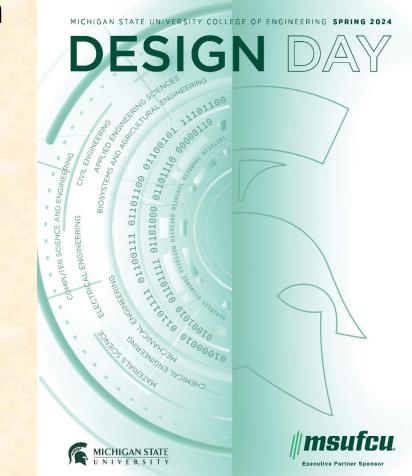
Fall 2024



From Students... ...to Professionals

# **Design Day Booklet**

- Professional Publication
  - Corporate Relations
  - Alumni Relations
  - Recruiting
  - Keepsake for You
- Contents
  - Schedule of Events
  - Project Descriptions



# **The Capstone Experience**

- Professional Publication
  - Corporate Relations
  - Alumni Relations
  - Recruiting
- Contents
  - Capstone Projects
  - Academic Year



From Students...to Professionals





## **Team Project Page**

- Template Distributed by Dr. D.
  - Sponsor's "Official" Name
  - Sponsor Logo
  - Project Title
  - MSU Team Photo
  - MSU Team Members' Names
  - Corporate Sponsors' Names
  - Headers and Footers
  - Posted On <u>Downloads</u> Page
- Template Completed by Team
  - Project Description
  - Artwork
  - Use Microsoft Windows Office 365 Version of Word.

#### Volkswagen Group of America VW Car-Net Electric Vehicle Route Planner

Wolkswagen Group of America is the North American operation of the world's leading automobile manufacturers. They are comprised of 8,000 employees in the United States and sell their vehicles through a 1,000-strong dealer network.

Electric vehicles are one of the latest innovations in the automobile industry. Volkswagen, who just released their first electric vehicle, the 10.4, want a way to show potential customers the benefits of electric vehicles compared to gas powered vehicles as well as address and correct some of the common misconceptions many people have about electric vehicles.

Our VW Car-Net Electric Vehicle Route Planner application is displayed in Volkswagen dealerships and educates potential car buyers about the benefits of buying an electric vehicle.

A major concern many buyers have about electric whicles is the car's range and charging options available on the road. Our application generates driving routes for gas whicles and electric vehicles that stop at charging stations. Buyers can compare these various with respect to route length, route path, fuel costs and carbon emissions.

Our application also allows for extensive customizability including sliders to adjust starting battery charge, climate control, temperature and weather conditions to account for the effects these factors have on battery consumption.

Our Electric Vehicle Route Planner helps assuage the fears of potential electric vehicle buyers by showing them that their daily routine will have minimal disruptions, and significant benefits if they switch to an electric vehicle.

Our Electric Vehicle Route Planner is developed as an Android application that utilizes API calls to handle route altering attributes and route generation. Our application is written in Kotlin.



Michigan State University Team Members (left to right)

Volkswagen Project Sponsors

Shelly Desmet Auburn Hills, Michigan

**Computer Science and Engineering** 

Igor Efremov Auburn Hills, Michigar

Frank Weith Auburn Hills, Michigan

Rochester Hills, Michigar Erich Hairston Fast Lansing, Michigan

sse Ile, Michigan

Andrew Smigielski

Zosha Korzecke

Michael Lin

Ann Arbor, Michigar

East Lansing, Michigan

Joev Kelly

PAGE 45

The Capstone Experience

# Team's Job

- Read instructions <u>carefully</u>.
- Check everything.
- Use Microsoft Windows Office 365 version of Word.
- Make a checklist.
- Write the project description.
- Read the instructions <u>carefully</u>.
- Provide the artwork.
- Read the instructions <u>carefully</u>.
- Update the project description and artwork.
- Make a checklist.
- Check everything 100 times.
- Read the instructions <u>carefully</u>.

Note: Many slides in this deck are "reference slides," hence wordy.

# **Project Description**

[1 of 3]

- Newspaper / Magazine Style
- Target Audience == General Public
- Do NOT Start...
  - "Our project is..."
  - "Our sponsor asked us to..."
  - "Our project aims to..."
- Use present tense throughout.
- Write as though your project is complete.
  - It works.
  - Your sponsor is using it.
- Fill the entire textbox, no less, no more.
- Read Past Examples
  - The Capstone Experience Booklet
  - Previous Design Day Booklets (<u>Design Day > Booklet</u>)
  - MSU Men's Basketball

# **Project Description**

- Beginning
  - Sponsor Overview
  - 2 to 3 Lines
- Middle
  - The Problem & Your Solution (Never write anything negative about your sponsor.)
  - Magazine Style
  - Understandable by Non-Technical Person
- End
  - Technical Jargon
  - 2 to 3 Lines

[2 of 3]

# **Project Description**

[3 of 3]

olkswagen Group of America is the North American operation headquarters and subsidiary of the Volkswagen Group, one of the world's leading automobile manufacturers. They are comprised of 8,000 employees in the United States and sell their vehicles through a 1,000-strong dealer network.

Electric vehicles are one of the latest innovations in the automobile industry. Volkswagen, who just released their first electric vehicle, the ID.4, want a way to show potential customers the benefits of electric vehicles compared to gas powered vehicles as well as address and correct some of the common misconceptions many people have about electric vehicles.

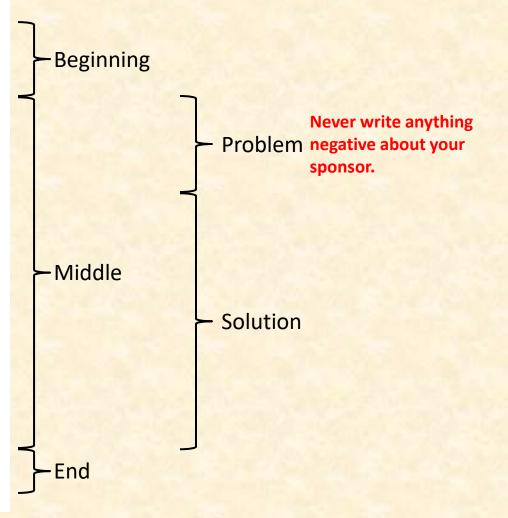
Our VW Car-Net Electric Vehicle Route Planner application is displayed in Volkswagen dealerships and educates potential car buyers about the benefits of buying an electric vehicle.

A major concern many buyers have about electric vehicles is the car's range and charging options available on the road. Our application generates driving routes for gas vehicles and electric vehicles that stop at charging stations. Buyers can compare these various routes with respect to route length, route path, fuel costs and carbon emissions.

Our application also allows for extensive customizability including sliders to adjust starting battery charge, climate control, temperature and weather conditions to account for the effects these factors have on battery consumption.

Our Electric Vehicle Route Planner helps assuage the fears of potential electric vehicle buyers by showing them that their daily routine will have minimal disruptions, and significant benefits if they switch to an electric vehicle.

Our Electric Vehicle Route Planner is developed as an Android application that utilizes API calls to handle route altering attributes and route generation. Our application is written in Kotlin.



#### **Example Project Description: Spartan Basketball Player Timer**

Michigan State University's Men's Basketball is elite, one of the top programs in the NCAA.

NCAA Division I basketball is very competitive. Although it may not be apparent to the casual observer, every detail of each game is carefully planned and scripted.

One aspect of a game plan is that of playing times. For each player, the coaches determine target times for how long he can play at a stretch, how long he needs to rest before playing again, and the total amount of time he should play in a game.

Developed with Coach Tom Izzo, our Spartan Basketball Player Timer is used by the basketball staff on the bench during the game.

When a player enters the game, his playing time is displayed with a solid green background. When his target playing time goes under two minutes, it is displayed in yellow. When the time goes below zero, it is displayed in red.

The color coding of times provides visual cues that can be seen by the coaches at a distance. If there are many yellow or red boxes, the coaches begin to plan substitutions.

A game summary for all the players can be displayed at any time whether the game clock is running or stopped.

Our software runs on a Microsoft Windows Tablet PC about the size of a traditional clipboard only slightly thicker. With no mouse or keyboard, all input is done with a pen.

Spartan Basketball Player Time is written in Visual Basic. The underlying database is Microsoft Access.



### [1 of 6]

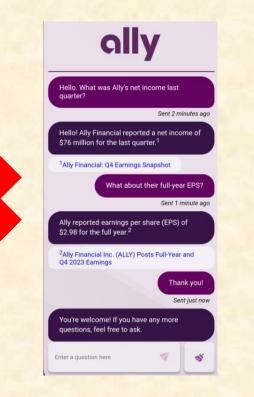
- Read the instructions <u>carefully</u>.
- Must be of Your Working Software
- Take 2 to 3 screenshot(s) of working software.
  - Use eye-catching examples.
  - Avoid boring or trivial things.
    - Splash Screens
    - o Login Screens
- Fill up the entire artwork space. Whitespace is bad!
- Overlap artwork if necessary.
- Include "framing" for web and mobile apps.
  - Browser with Window Frame
  - iPhone, iPad
  - Android Phone or Tablet
  - NOT Laptop or Desktop (Why not?)
  - See <u>https://mockuphone.com</u>.
  - Eliminate frame shadows.

### [2 of 6]

- Read the instructions carefully. ← Have I mentioned this yet?
- Add borders if necessary.
  - If Blends Into White Background
  - Create a single PNG for each piece of artwork using PowerPoint.
  - Read the instructions.
- Capture and provide very high-resolution images.
- Preserve aspect ratios.
- Crop to eliminate transparent "borders."
- Eliminate all surrounding "whitespace."
- Use <u>paint.net</u> for turning solid white space into transparent space and cropping.
- See examples.
  - The Capstone Experience Booklets in Lab
  - Design Day Booklet Feedback, Fall 2022
  - Design Day Booklet Feedback, Spring 2023
  - Design Day Booklet Feedback, Fall 2023
  - Design Day Booklet Feedback, Spring 2024
  - Previous Design Day Booklets (<u>Design Day > Booklet</u>)
  - MSU Men's Basketball

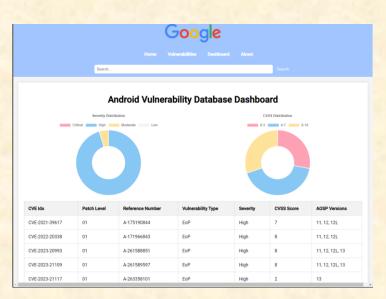
[3 of 6]

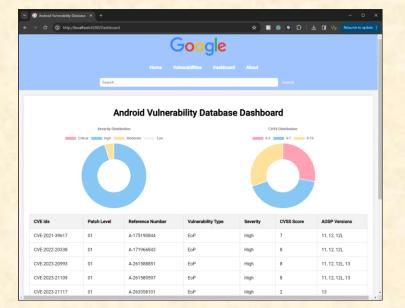
### **Embedded Mobile App**



3	ssepm∻ti • *
	Hello. What was Ally's net income last quarter?
	Sent 2 minutes ago
	Hello! Ally Financial reported a net income of \$76 million for the last quarter. <sup>1</sup>
	<sup>1</sup> Ally Financial: Q4 Earnings Snapshot
	What about their full-year EPS?
	Sent 1 minute ago
	Ally reported earnings per share (EPS) of \$2.98 for the full year. <sup>2</sup>
	<sup>2</sup> Ally Financial Inc. (ALLY) Posts Full-Year and Q4 2023 Earnings
	Thank you! Sent just now
	You're welcome! If you have any more questions, feel free to ask.
E	nter a question here 🛛 🚀

### **Embedded Browser App**



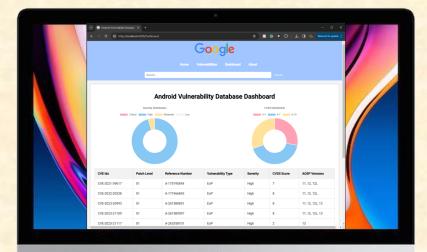




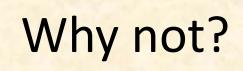


[5 of 6]

### **Embedded Browser App**



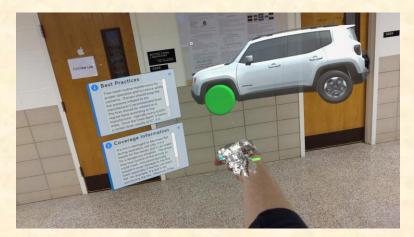






[6 of 6]

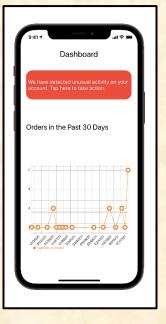
## Non-Embedded VR/AR App





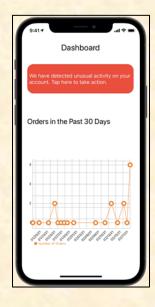


[6 of 6]









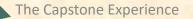
Too Much Solid White Whitespace

What's wrong with solid white whitespace? Two Things...

Too Much Transparent Whitespace

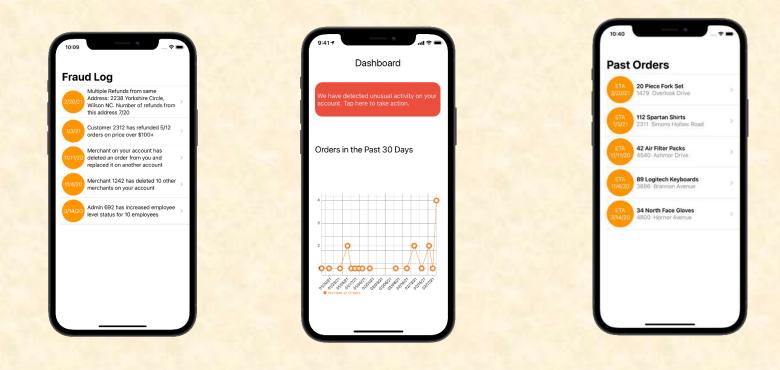
What's wrong with transparent whitespace?

Nicely Cropped Transparent Whitespace



# **Artwork Whitespace Issues**

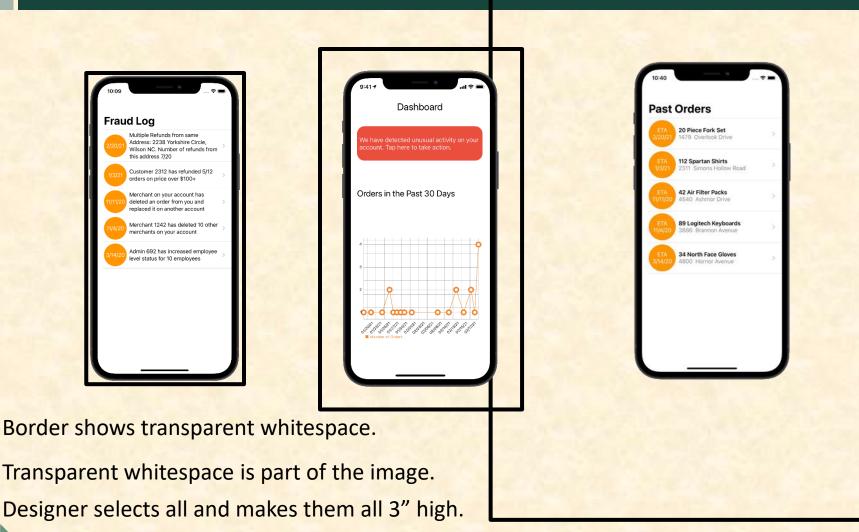
[1 of 3]



Look Identical

Key: Think about our graphical designer inserting your artwork (png files) into InDesign and then resizing them all to the same height and positioning them.

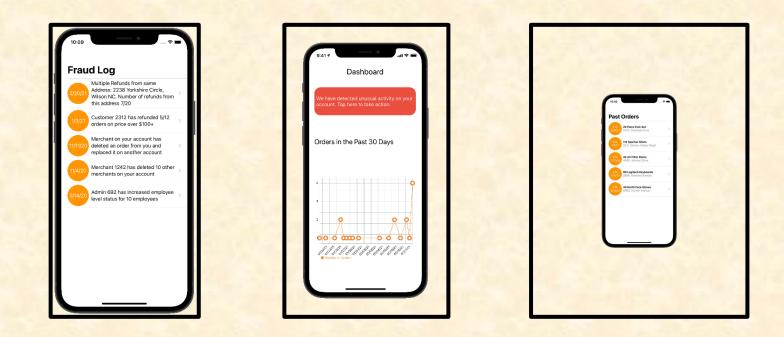
# Artwork Whitespace Issues



[2 of 3]

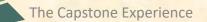
# **Artwork Whitespace Issues**

[3 of 3]



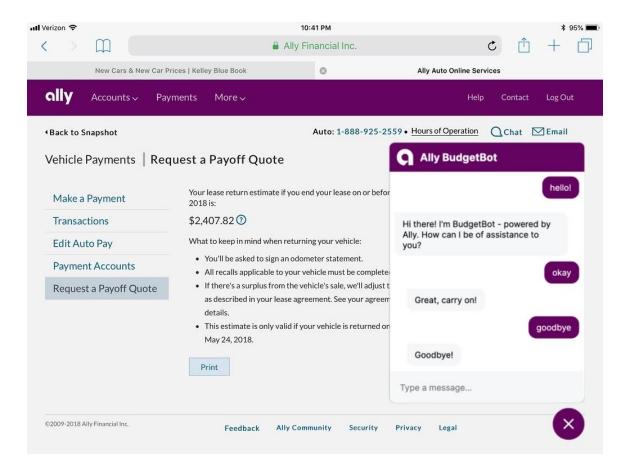
Select All. Rescale to 3" Height. The images (black boxes) are all 3" high.

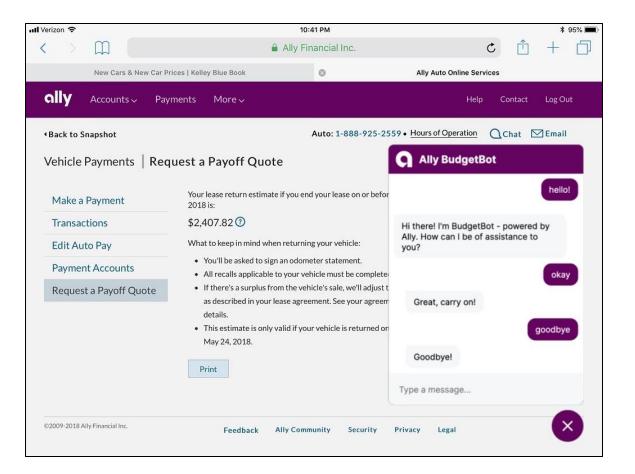
Download Design Day Artwork Whitespace Tester



Design Day Booklet Production Process

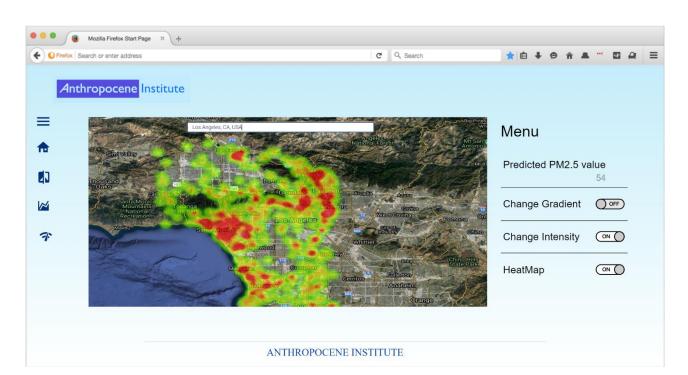
### [1 of 6]





#### Issue Fixed Border Added

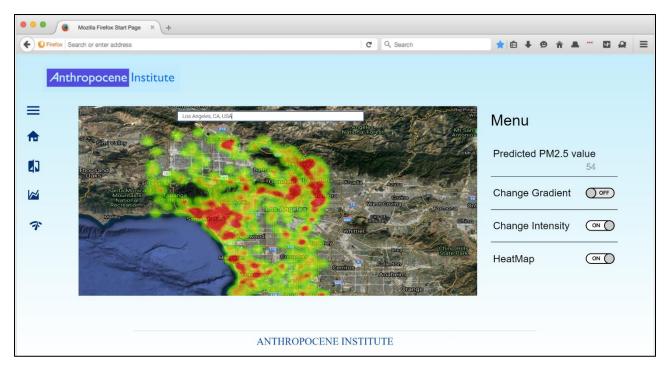
[2 of 6]



[3 of 6]

Issue Fixed Border Added

[4 of 6]



			<ul> <li>✓ - σ ×</li> <li>Σ :</li> <li>A &amp; Hiusht Lagout</li> </ul>
	Walk Challenge		
	Joined Create a Team Description		
	In this challenge. You will be counting the steps you have for each week Benefits of Walking : 1.Strengthen the heart 2.Lower blood sugar		
	3.Eases joint pain Registration Ends 10/21/2021 Challenge Starts 10/20/2021 Challenge Ends 10/27/2021		
	Add Progress		
	steps Submit		
	Individuals Teams	This Week 🝷	

[5 of 6]

			Border Added
Rocky x +     → C	e	_	- G ×
	Walk Challenge		
	Description         In this challenge. You will be counting the steps you have for each week         Benefits of Walking :         1.Strengthen the heart         2.Lower blood sugar         3.Eases joint pain         Registration Ends       10/21/2021         Challenge Starts       10/20/2021         Challenge Ends       10/27/2021		
	Add Progress		
	Leaderboard	This Week *	ļ

Ø 1 ←

[6 of 6]

**Issue Fixed** 

# Adding Artwork Border Issues [1 of 5]

#### **Original Screen Capture PNGs**

Connect Device         Project Golds         Black Trive         End Trive         Allows           Time-Cales 03         1000-000000000000000000000000000000000								
Time Cube         Description           East Tang         Consect Table         Hole Continued         Control           Time-Cube         Image: Consect Table         Hole Continued         Control         Control           Time-Cube         Image: Consect Table         Hole Continued         Control         Control         Control           Time-Cube         Image: Consect Table         Hole Continued         East Tange         Control         Allows           Time-Cube         Time Cube         Time         East Tange         Control         Allows           Time-Cube         Time Cube         State Modernic         BOMMI         DOMMI         00         Image: Control           State Moderne         East-Hole Control         BOMMI         DOMMI         00         Image: Control           State Moderne         East-Hole Control         BOMMI         DOMMI         00         Image: Control           East-Hole Control         BOMMI         DOMMI         DOMMI         00         Image: Control           East-Hole Control         BOMMI         DOMMI         DOMMI         00         Image: Control           East-Hole Control         BOMMI         DOMMI         BOMMI         Image: Contro         Image: Contro	😭 Vectarlom Time Cube							
East Trans         Contract Table         Hilds Continued         East Trans         Contract Table         Mills Continued           Final-Case C3         Final-Case C3         Final-Case C3         East Trans         East Trans         Atlanse           Time Case C3         Final-Case C3         East Trans         East Trans         East Trans         Contract Table         Atlanse           17564-1844: Mildogr         East Trans         East Trans         East Trans         East Trans         Contract Table         Contrable         Contract Table         Contract Tab	← → Ø Ø https://vector	rlorm-timecube.con	u/					Guest
Connect Device         N         Project Color         Black Trave         End Trave (pink)         Actions           Time Cube 03         28724-Hone-Energy         800AM         905AM         60         Image: Color (pink)         Actions           Time Cube 03         28724-Hone-Energy         800AM         905AM         60         Image: Color (pink)         Actions           19564-Hab Midget         6154-Hab Midget         800AM         10.20AM         And         Image: Color (pink)         Actions           19574-Hone-Energy         1756-Pine-Color (color (pink))         800AM         905AM         60         Image: Color (pink)         Image: C	🕅 Time Cube 📖	red by Vectorform						
me.Cuse 00         2872-HomeExergy         800MM         900MM         60         Image: Cuse 00           Time Cuse 00         4155-Hold Waget         800ML         10.00ML         60         Image: Cuse 00           4155-Hold Waget         800ML         10.00ML         60         Image: Cuse 00           4155-Hold Waget         800ML         10.00ML         60         Image: Cuse 00           1027-Hone Charge wates         10.20ML         60         Image: Cuse 00         Image: Cuse 00           1027-Hone Charge wates         10.20ML         600         Image: Cuse 00         Image: Cuse 00 <td></td> <td>Start Timing</td> <td>Compact Table Hide</td> <td>Confirmed</td> <td>&lt; 10/06/2022</td> <td>&gt; Today</td> <td>Con</td> <td>firm Entries</td>		Start Timing	Compact Table Hide	Confirmed	< 10/06/2022	> Today	Con	firm Entries
Time Cube Display         +155-1166 Woogd         80.0M1         10.00M1         60         ✓ ■           41554-M8 Midger         11554-M8 Midger         11554/M8 Midger         11554/M8 Midger         ■         ✓ ■           20124-Macares 2         11554-M8 Midger         10.00M1         60         ✓ ■           20124-Macares 2         8754-H8-Connect         8.00M1         9.00M1         60         ✓ ■           20124-Macares 2         8754-H8-Connect         8.00M1         10.00M1         60         ✓ ■           20124-H8-Connect         8.00M1         10.00M1         60         ✓ ■         ■           20124-H8-Connect         10.00M1         10.00M1         60         ✓ ■         ■           Swop Codes         +         0271-Smar-Home         1115M1         15         ✓ ■	Connect Device	*	Project Code	Start Time	End Time	Time(mins)	Actions	
41564.HML Mildger         117564-Filler-Gag-bottes         10.200.M         111150.M         65         ✓         ■           1273.4 Mold ares 2         1273.4 Mold ares 2         1273.4 Mold ares 2         10.200.M         60         ✓         ■           1273.4 Mold ares 2         1273.4 Mold ares 2         10.200.M         9.000.M         60         ✓         ■           1273.4 Mold ares 2         10.200.M         10.200.M         60         ✓         ■           1273.4 Mold ares 2         10.200.M         10.200.M         60         ✓         ■           1273.4 Mold ares 2         10.200.M         10.200.M         60         ✓         ■           1273.4 Mold ares 2         10.200.M         10.200.M         60         ✓         ■           1273.4 Mold ares 2         10.200.M         11.104.M         66         ✓         ■           1273.4 Mold ares 2         10.200.M         11.104.M         16         ✓         ■           1273.4 Mold ares 2         10.200.M         11.204.M         15         ✓         ■	Time-Cube-03		28734-Home-Energy	8:00AM	9:00AM	60	Z .	
32134 Holdsen 2         10000         10000         0         ▲ 10           12714 Holdsen 2         8782-HB-Connect         800AM         900AM         60         ▲ 10           12714 Holdsen 4         8782-HB-Connect         800AM         1020AM         60         ▲ 10           12714 Holdsen 4         1020AM         80         ▲ 10 <td>Time Cube Display</td> <td>*</td> <td>41954-HMI-Widget</td> <td>9:00AM</td> <td>10:20AM</td> <td>80</td> <td>Z #</td> <td></td>	Time Cube Display	*	41954-HMI-Widget	9:00AM	10:20AM	80	Z #	
Bit R2F 4Bit Channet         BIT R2F	41954-HMI-Widget		17564-Fleet-Diagnostics	1D:20AM	11:15AM	65	/ II	
2873H-bine-Binegy         4185-HM Wridget         000MM         1020MM         80         ✓ ■           1972H-bine-Binegy         2873-Hone-Binegy         2873-Hone-Binegy         1120MM         60         ✓ ■           Swop Codes         +         0271-Smar-Hone         1115MM         1130MM         16         ✓ ■			87624-HB-Connect	8:004M	9:00AM	60	Z 11	
Swap Codes         + - Q         g2/14-Smark-Home         10.04MM         11.15MM         10         #			41954-HMI-Widget	9:004M	10:20AM	80	Z #	
92/14-smart-Home 11054M 11304M 15	87624-HB-Connect		32134-HoloLens-2	10:20AM	11:15AM	65	Z #	
ITAL Plant Disconting	Swap Codes	$\phi$ + +	92714-Smart-Home	11:15AM	11:30AM	15	Z #	
1/304+Hot-Dagnosics segment +	17564-Fleet-Diagnostics	suggested					+	
87546-Augmenting-SmantOly	87546-Augmenting-SmartCity							
4122-8LE-Sport	44323-BLE-Sport							

🕽 Time Cube 👳	wared by Vectorform						
	Start Timing	Compact Table	Hide Confirmed		< 10/06/2022	> Today	Confirm E
Connect Device	*	Project Code		Start Time	End Time	Time(mins)	Actions
Time-Cube-03		28734-Home-Energy		8:00AM	9:00AM	60	/ =
Time Cube Display						1	Z #
1954-HMI-Widget			405 minutes have	e been recorded			Z
32134-HoloLens-2			Project Name	Totel (min)		-	
2714-Smart-Home			28734-Home-Energy	60			/ =
28734-Home-Energy			41954-HMI-Widget	80			∕ ≣
37624-HB-Connect			17664-Floot-Disgnostics	55	_	-	Z #
			87624-HB-Connect	60			
Swap Codes	-		41954-HMI-Widget	80	_		Z 11
17564-Fleet-Diagnostics			32134-HoloLens-2	55	-		
37546-Augmenting-SmartCity			92714-Smart Home	15			+
			Do	no			

# Adding Artwork Border Issues [2 of 5]

Border Added to Left Artwork Using Word in Template Border Added to Right Artwork PNG using PowerPoint

s	tart Timing	Compact Table Hide Conf	rmed	< 10/06/2022	> Today	Confirm En
Connect Device	*	Project Code	Start Time	End Time	Time(mins)	Actions
Time-Cube-03		28734-Home-Energy	8:00AM	9:00AM	60	/ =
Time Cube Display	*	41954-HMI-Widget	9:00AM	10:20AM	an	Z #
41954-HMI-Widget		17564-Flext-Diagnostics	10:20AM	11:15AM	65	Z 11
32134-HoldLens-2		87624-HB-Connect	8:00AM	9:00AM	60	Z #
92714-Smart-Home 28734-Home-Energy		41954-HMI-Widget	9:00AM	10:20AM	80	/ #
87624-HB-Connect		32134-HoloLens-2	10:20AM	11:15AM	55	Z 1
Swap Codes	$\phi = +$	92714-Smart-Home	11:15AM	11:30AM	15	/ 1
17564-Floet-Diagnostics	suggested	1				+
87546-Augmenting-SmartCity						
44323-BLE-Sport						

😭 Vectorform Time Cube 🛛 🗙	+						, ,
← → C Ø https://vectorfo	rm-timecube.com						🛛 🕙 Guest
🕅 Time Cube 🕬	sby Vectorform						
	Start Timing	Compact Table Hide Co	nfirmed	< 10/06/2022 >	Today		Confirm Entries
Connect Device	*	Project Code	Start Time	End Time	Time(mins)	Action	18
Time-Cube-03		28734-Home-Energy	8:00AM	9:00AM	60	1	Î.
Time Cube Display	*	41954-HMI-Widget	9:00AM	10:20AM	80	/	8
41954-HMI-Widget		17564-Fleet-Diagnostics	10:20AM	11:15AM	55	1	1
32134-HoloLens-2		87624-HB-Connect	8:00AM	9:00AM	60	1	1
92714-Smart-Home 28734-Home-Energy		41954-HMI-Widget	9:00AM	10:20AM	80	1	i
87624-HB-Connect		32134-HoloLens-2	10:20AM	11:16AM	55	/	1
Swap Codes	+ - Φ	92714-Smart-Home	11:15AM	11:30AM	15	1	1
17564-Fleet-Diagnostics	Losseggee						+
87548-Augmenting-SmartCity							
44323-BLE-Sport							
House bee open							

Looks fine, right? What's wrong?

Key: Graphic designer does <u>not</u> copy-and-paste artwork from the Word document. Graphic designer inserts PNG files into Design Day booklet.

The Capstone Experience

**Design Day Booklet Production Process** 

# Adding Artwork Border Issues [3 of 5]

#### Artwork PNG files inserted to Design Day booklet by graphic designer.

vectorionn Time Cube → Cl Ø https://vec	× + torform-timecube.com						Guest
Time Cube ,							
	Start Timing	Compact Table Hide C	onfirmed	< 10/06/2022	> Today		Confirm Entries
Connect Device	凇	Project Code	Start Time	End Time	Time(mins)	Actions	
Time-Cube-03		28734-Home-Energy	8:00AM	9:00AM	60	1	Π.
Time Cube Display	*	41954-HMI-Widget	9:00AM	10:20AM	80	1	1
41964-HMI-Widget		17564-Fleet-Diagnostics	10:20AM	11:15AM	65	1	
32134-HoldLens-2		87624-HB-Connect	8:00AM	9:00AM	60	1	i .
92714-Smart-Home 28731-Home-Energy		41954-HMI-Widget	9:004M	10:20AM	80	1	Î
87624-HB-Connect		32134-HoloLete-2	10:20AM	11:15AM	65	/	1
Swap Codes	$+ - \phi$	92714-Smart-Home	11:15AM	11:30AM	15	1	Ϊ.
17564-Floet-Diagnostics	suggested						+
87546-Augmenting-SmarlCity							
44323-BLE-Sport							

s	tart Timing	Compact Table Hide Co	nfirmed	< 10/06/2022	Today		Confirm Entr
Connect Device	*	Project Code	Start Time	End Time	Time(mins)	Action	8
fime-Cube-03		28734-Home-Energy	8:00AM	9:00AM	60	1	Û
Time Cube Display	*	41954-HMI-Widget	9:0DAM	10:20AM	80	1	8
11954-HMI-Widget		17564-Reet-Diagnostics	10:20AM	11:15AM	55	1	1
32134-HoloLens-2		87624-HB-Connect	8:00AM	9:00AM	60	1	1
82714-Smart-Home 28734-Home-Energy	_	41954-HMI-Widget	9:00AM	10:20AM	80	1	1
87624-HB-Connect		32134-HoloLens-2	10:20AM	11:15AM	55	/	
Swap Codes	φ – +	92714-Smart-Home	11:15AM	11:30AM	15	1	8
17564-Fleet-Diagnostics	basegeee						+
87546-Augmenting-SmartCity							
44323-BLE-Sport							

# Adding Artwork Border Issues

#### Border Added to Both Artwork PNGs using PowerPoint

😭 Vactorform Time Cube 🛛 🗙 🕂						~
$\leftrightarrow \rightarrow \sigma$ @ https://vectorlarm-timecube.co	m/				🛛 🖨 Guest	
Time Cube powered by Vectorform						
Start Timing	Compact Table Hide Confi	rmed	< 10/06/2022	> Today	Confirm Entr	ies
Connect Device 👋	Project Code	Start Time	End Time	Time(mins)	Actions	
Time-Cube-03	28734-Home-Energy	8:00AM	9:00AM	60	Z 1	
Time Cube Display 👋	41954-HMI-Widget	9:00AM	10:20AM	ao	Z #	
41954-HMI-Widger	17564-Fleet-Diagnostics	10:20AM	11:15AM	65	Z	٦
32134-HoldLens-2	87624-HB-Connect	8:00AM	9:00AM	60	Z #	٦
92714-Smart-Home 28734-Home-Energy	41954-HMI-Widget	9:00AM	10:20AM	80	Z #	T
87624-HB-Connect	32134-HoloLens-2	10:20AM	11:15AM	65	Z #	ī
Swap Codes $+ - \phi$	92714-Smart-Home	11:15AM	11:30AM	15	/ =	1
17584-Floet-Disgnostics suggestee					+	2
87546-Augmenting-SmartCity						
44323-BLE-Sport						

Connect Device         Pojet Code         Start Time         Did Time         Time Vine           Time Cube 90         20254 Hone Entry         800M         900M         00         2         1           Time Cube 91         20254 Hone Entry         800M         900M         00         2         1           1056 Hell Code         1020M         1020M         1020M         60         2         1           20254 Hone Andrew         1020M         1126M         65         2         1         1           20254 Hone Andrew         1020M         1020M         1020M         60         2         1           20254 Hone Andrew         1020M         1020M         1020M         60         2         1           20254 Hone Andrew         1020M         1020M         1020M         60         2         1           20254 Hone Andrew         20154 Hone Andrew         1020M         1020M         60         2         1           20254 Hone Connect         1020AM         1020AM         105         2         1           20254 Hone Connect         1020AM         1116AM         66         2         1           20254 Hone Connect         1020AM         1130AM	Time Cube powered by Vec	ctorform						
Time-Cube 03         28734-Home Energy         8004M         9004M         60         1           Time-Cube 03         41054-HoM-Waget         8004M         10204M         80         1         1           14064-HoM-Waget         8004M         10204M         80         1	Start 1	Timing Compact Ta	ble Hide Confirmed		< [10/06/2022] >	Today		Confirm Entri
Time Cube Display         41156-H04-Wodget         820MA         1020MA         80         2           41156-H04-Wodget         820MA         1020MA         60         2         1           22154-H04Lene-2         22754-General-Horne         820MA         920MA         60         2         1           22754-H04Lene-2         22754-H04Lene-2         1020MA         920MA         60         2         1           25754-H04Lene-2         1020MA         1020MA         60         2         1           25754-H04Lene-2         1020MA         1020MA         60         2         1           25754-H04Lene-2         1020MA         1030MA         15         2         1           Strap Codes         4 - 0         11:5MA         11:30MA         15         2         1           17664-Heet Diagnation         11:5MA         11:30MA         15         2         1	Connect Device	\$1 Project Code		Start Time	End Time	Time(mins)	Action	8
11954-MeM-Moguri         17664 Pass Diagnostics         1020AM         11156AM         65         2         1           22154 Hold and 2         27154 Diagnostics         800AM         900AM         60         2         1           22154 Hold and 2         27154 Diagnostics         800AM         900AM         60         2         1           27154 Hold and 2         1020AM         1020AM         60         2         1           27154 Hold and 2         1020AM         1020AM         60         2         1           27154 Hold and 2         1020AM         1020AM         60         2         1           Strap Codes         4         -0         2         1         1         1         0         2         1           17664 Plast Diagnostics         *         1         1         1         1         2         1         1	lime-Cube-03	28734-Home-Energ	r	8:00AM	9:00AM	60	1	Î.
32134 Holdune 2         9726 4-HB-Connect         8.004A         9.004A         60         ✔         1           32734 Hondune 2         9204 Hondune 2         9204 Hondune 2         10204AI         60         ✔         1           32744 Hondune 2         10204AI         10204AI         60         ✔         1         1           Swap Cooles         4 - Q         1115M         1130AAI         15         ✔         1           17664 Peet Olagroadca         ************************************	Time Cube Display	\$1 41954-HMI-Widget		9:00AM	10:20AM	80	/	
Strid-Granut-Lurae         FTGE-HB-Connect         BOMM         BOMM         BOMM         BO         I           Strid-Granut-Lurae         FTGE-HB-Connect         BOMM         10,00AM         60         I         I           Strid-Had Wolget         BOMM         10,00AM         60         I         I         I           Strid-Had Wolget         BOMM         10,00AM         60         I         I         I           Strid-Had Wolget         202104-Holdeme-2         1020AM         1116AM         66         I         I           T056-Pleto Bignostica         *spendi         1010AM         13         I         I         I	1954-HMI-Widget	17564-Fleet-Diagno	stics	10:20AM	11:15AM	55	1	1
38734-Hone-Energy         41954-Holl Wolget         8004M         10204M         80         1           38734-Hone-Energy         20134-Holl Wolget         8004M         10204M         80         1           SWB2 Codes         + - 2         20134-Hone-Free         11:16M         65         1         1           SWB2 Codes         + - 2         10:204M         11:00M         15         1         1		87624-HB-Connect		8:00AM	9:00AM	60	1	1
Swap Codes         + - Q         32714-France Shing         11:10-M1         100         * II           7564-Frae-Clagsostics         segenal         +         +         +		41954-HMI-Widget		9:00AM	10:20AM	80	1	
22/14-ontain-Home 11:13/04/1113/04/1113/04/1113/04/1113/04/1113/04/1113/04/1113/04/1113/04/1113/04/1113/04/1113	37824-HB-Connect	32134-HoloLens-2		10:20AM	11:16AM	55	/	
+	Swap Codes +	- O 92714-Smart-Home		11:15AM	11:30AM	15	1	1
	17564-Fleet-Diagnostics	basege						+
3/b86-Augmenting-SmartCity	87548-Augmenting-SmartCity							

[4 of 5]

# Adding Artwork Border Issues [5 of 5]

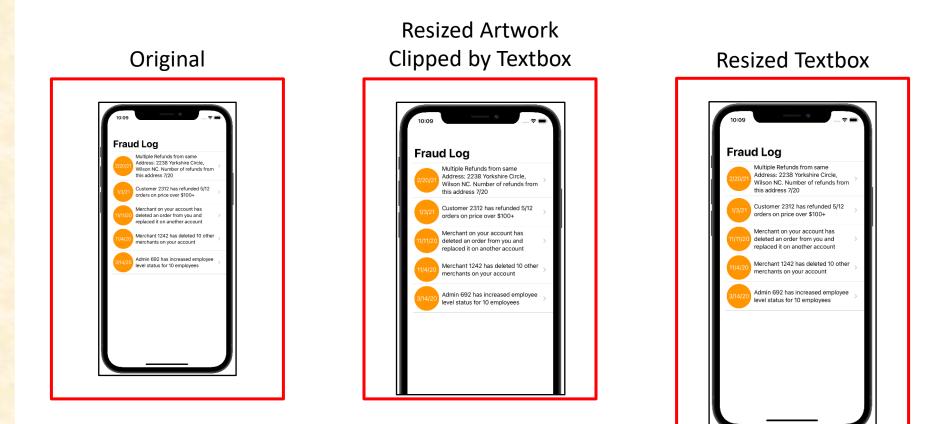
#### Graphic Designer Imports Artwork PNGs into InDesign

Connect Device	*	Project Code				
ime.Cube.03			Start Time	End Time	Time(mins)	Actions
inte dede es		28734-Home-Energy	8:00AM	9:00AM	60	Z 11
Time Cube Display	*	41954-HMI-Widget	9.00AM	10:20/04	80	Z #
1954-HMI-Widget		17564-Fleet-Diagnostics	10:20AM	11:15AM	65	Z II.
12134-HoldLens-2		87624-HB-Connect	8:00AM	9:00AM	60	2.1
12714-Smart-Home 18734-Home-Energy		41954-HMI-Widget	9:00AM	10:20AM	80	/ 1
i7624-HB-Connect		32134-HoloLens-2	10:20AM	11:15AM	65	Z #
Swap Codes	$+ - \phi$	92714-Smart-Home	11:15AM	11:30AM	15	2.8
7564-Floot-Diagnostics	seggestes	1				+
17546-Augmenting-SmartCity						

Time Cube powerday Vectorform										+	Vectorform Time Cube X
Earn Times         Compact Table ()         Hide Continued         C (1996/2022) )         Table ()           Connext Duride         ()         Pilet Code         Earl Time         Earl Time         Time ()         Allow           Time Cube Diploy         ()         Pilet Code         Earl Time         Earl Time         Time ()         Allow           1096-Hell Waget         ()         ()         1         ()	🔒 Guest	∎ €	) (						Ń	rm-timecube.com/	· → C (3 https://vectorf
Consect Device         Project Gole         Rart Two         Entitie         Two         Alton           Time-Cacke3         Project Gole         Rart Two         ED Time         Two         Alton           1056-106-106-106         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-100         1000-106-106-106-106-100         1000-106-106-106-106-106-106-106-106-106										toy Vectorform	) Time Cube
Time-Cube OS         28736-Home-Energy         EXXXM         900MM         90         // II           Time-Cube OS         41056-Home-Energy         900MM         1020MM         60         // II         III         1020HM         60         // III         IIII         1020HM         60         // III         IIIII         1020HM         60         // IIII         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Confirm Entries	Cont			Today	< 10/06/2022 > [		Hide Confirmed	Compact Table	Start Timing	
Time Cube Display         Ittls-Hile-Woget         DOMAI         102.0AM         60         Ittls           1106-Hile-Monget         102.0AM         102.0AM         60         Ittls         10         <		8	one	Action	Time(mins)	End Time	Start Time		Project Code	*	Connect Device
11954-MeM/diget         12766-Parc Diagnostics         12020AM         11.156AM         65         / i           32134-HoldUres 2         22764-Sciencel         8.00AA         9.00AA         60         / i           32734-Hone-Ehring y         41054-HALWOrdget         8.00AA         9.00AA         60         / i           32734-Hone-Ehring y         41054-HALWOrdget         8.00AA         9.00AA         60         / i         i           32734-Hone-Ehring y         41054-HALWOrdget         8.00AA         10.20AA         60         / i         i           32734-Hone-Ehring y         41054-HALWOrdget         8.00AA         10.20AA         60         / i         i           32744-Bonnel:         32714-Gone+Hore         11.15AM         11.30AM         15         / i           12545-Augmenting SmartDity         samethy         +         11.15AM         11.30AM         15         / i		Î.	Î	1	60	9:00AM	8:00AM		28734-Home-Energy		Time-Cube-03
2114/HobLine-2         2114/HobLine-2         00044         00044         00         1           271-6 Journet Human         8734/HobLine-2         000444         000444         00         1         1           271-6 Journet Human         80044         000444         000444         00         1		1	1	/	80	10:20AM	9:00AM		41954-HMI-Widget	*	Fime Cube Display
28764-6martHome         28764-6martHome         800MM         60         / 1           28764-6martHome         600MM         1020MM         60         / 1           28764-6martHome         1020MM         1020MM         60         / 1           28764-6martHome         1020MM         1116MM         60         / 1           Swap Cookes         + 0         1116MM         15         / 1           VF54-Febric Depositio         sesser         1115MM         1130MM         15         / 1		ii .	Ĩ	1	55	11:15AM	10:20AM		17564-Fleet-Diagnostics		11954-HMI-Widget
8273-Hum-Energy         10004         10.0044         80         10         10           7026 HBC Connect         21106-1000 am-2         10.2044         111.0044         60         1         1           7026 HBC Connect         21106-1000 am-2         10.2044         111.0044         10         1		1	1	1	60	9:00AM	8:00AM		87624-HB-Connect	_	
Swap Dodes         +         -Q		î	i	1	80	10:20AM	9:00AM		41954-HMI-Widget	_	
7564 Pagenostica wagenol 7564 Augenostica Sector			1	/	55	11:16AM	10:20AM		32134-HoloLens-2		37624-HB-Connect
17546-Augmenting-SmartCity		1	F	1	15	11:30AM	11:15AM		92714-Smart-Home	$+ - \phi$	Swap Codes
		+	-1							balagesed	7564-Fleet-Diagnostics
4323 BLE Sport											37546-Augmenting-SmartCity
											44323-BLE-Sport

# **Textbox Clipping Artwork**

[1 of 1]



#### The Capstone Experience

#### **Design Day Booklet Production Process**

# Artwork Who's on first?

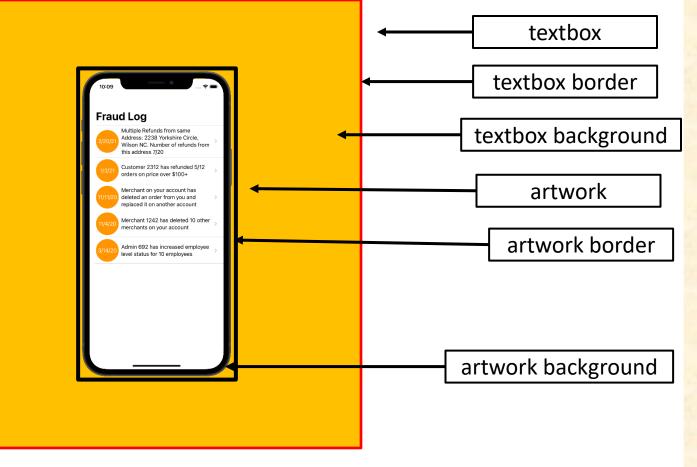
textbox textbox border Fraud Log textbox background Multiple Refunds from same Address: 2238 Yorkshire Circle, Wilson NC. Number of refunds from this address 7/20 Customer 2312 has refunded 5/12 orders on price over \$100+ artwork Merchant on your account has deleted an order from you and replaced it on another account Merchant 1242 has deleted 10 other merchants on your account artwork border Admin 692 has increased employee level status for 10 employees artwork background

[1 of 3]

# Artwork Who's on first?

Changed color of textbox background.

Artwork has transparent background.

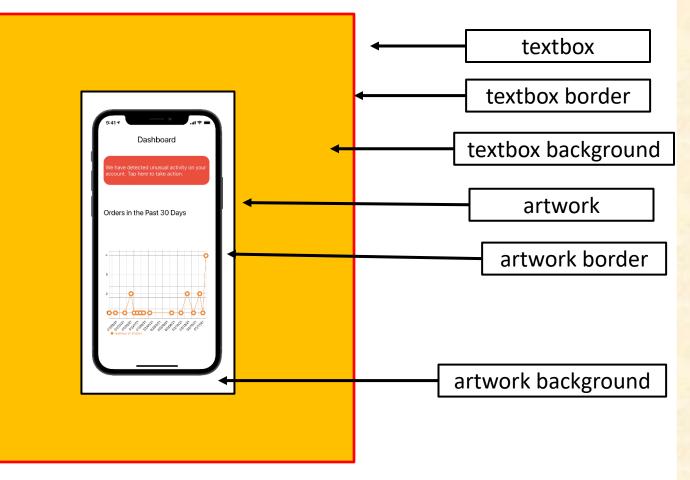


[2 of 3]

# Artwork Who's on first?

Changed color of textbox background.

Artwork has white background, which is wrong. Why does this matter?



[3 of 3]

# **Artwork Example**

### [1 of 5]

CSE 498 / 7:30 a.m. Engineering Building, Room 3405 | Third Floor

#### Amazon AVAST: Amazon Video And Shopping Technology

ounded in 1994 as an online bookstore, Amazon is the largest online retailer in the world. In addition to retail, Amazon offers services in cloud infrastructure through Amazon Web Services, and audio and video streaming through Amazon Music and Prime Video.

According to a recent study, 80% of internet usage will be people watching online videos by the year 2020. This presents a significant opportunity for all online retailers. Our AVAST (Amazon Video And Shopping Technology)

platform leverages the growth in online video streaming by providing users with an easy way to purchase products of interest that they see in the videos they are watching.

Using AVAST, an Amazon customer can stream videos from content providers such as YouTube and their favorite TV networks

While a user is watching a video, AVAST analyzes it to find items of potential interest to the viewer. As the video plays, related Amazon products are displayed alongside the video as illustrated in the examples at the right.

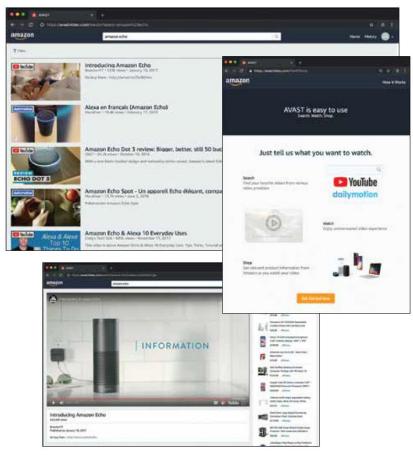
For each item, AVAST displays a product description, pictures and ratings. A viewer can easily purchase any product simply by clicking on the conveniently provided link to Amazon

The frontend of AVAST (Amazon Video And Shopping Technology) is built using Angular 6, while the backend is implemented using PHP Laravel. In addition, several Amazon Web Services are used including Rekognition to analyze videos, and EC2 to host the AVAST website.



PAGE 26

TINFORMATION	
A d     Manufactory Research (Manufactory Research (Manufacto	
ama	zon
Michigan State University Team Members (left to right)	Amazon Project Sponsors
Team Members (left to right)	Project Sponsors Garret Gaw
Team Members (left to right) Linshawn Fang Wenzhou, Zhejiang, China Ben Nwachukwu	Project Sponsors Garret Gaw Detroit, Michigan Derek Gebhard



#### 2m270n

C Youlube 1 

Han Wang

Novi, Michigan

The Capstone Experience

# **Artwork Example**

### [2 of 5]

Engineering Building, Room 3405 | Third Floor 7:43 a.m. / CSE 498

#### Aptiv **Autonomous Vehicle Fleet Connectivity App**

Michigan State

Team Members (le Alex Patton

owell, Michigan Drew Glapa Dexter, Michigan Emilio Castillo Lansing, Michigan Klint Kaercher Lansing, Michigan Chad Krause Novi, Michiga

ptiv is a global technology company that is transforming mobility with its portfolio of safe, green, and connected solutions for its customers. As a leader in autonomous vehicle development, Aptiv maintains an extensive test fleet of autonomous vehicles, which must be managed and monitored.

Our Autonomous Vehicle Fleet Connectivity App provides connectivity to Aptiv's autonomous test fleet, which operates across the US, Europe and Asia, and includes various vehicles with software for every level of autonomy,

Among other features, our system provides scheduling of test vehicles. After logging in, Aptiv engineers see a calendar view of the entire fleet from which they can select a particular day to obtain a list of available vehicles.

Once a vehicle is selected, our app displays a complete set of information about it including its past usage, reservations and diagnostic information.

In addition to checking availability of vehicles based on dates, our app provides for advanced search to narrow the scope based on things like type of vehicle, location of vehicle and level of autonomy.

The "My Reservations" tab shows a user's upcoming vehicle reservations as well as enabling them to make and cancel reservations.

Our Autonomous Vehicle Fleet Connectivity App is written using the Angular web framework, obtaining information from Aptiv's native servers. Communications are implemented using Microsoft Azure Services.

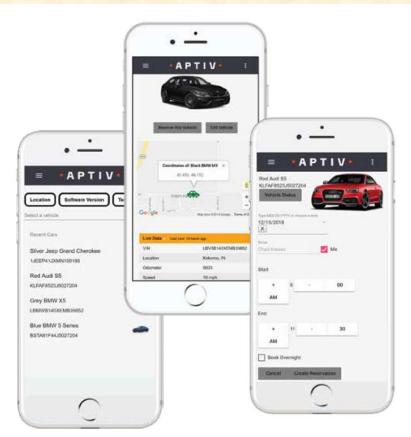


	- APTIV	1.
•		
		MART DE RECEIPTION DE RECEIPTI
nort Con Iter Jees Goard Chenkee #EProseduceres Inf Auli 10	100 DBM Jacob Hannes H 101 Libraria Hannes H 101 Libraria Hannes H 101 Libraria Hill Hannes H	needed and a second and a secon
uwalasalastan wy BMW X5 mwwsiasalaslasta lar BMW 5 Barles strantealastan		
		AN Dense Toronger Torong Toronger
C	)	$(\underline{a})$

• A P T I V •

University ft to right)	Aptiv Project Sponsors
	Chris Lussenhop Troy, Michigan
	<b>Joe Lyon</b> Troy, Michigan
	Ross Maguire Troy, Michigan
	Jim Quesenberry Troy, Michigan





• Δ Ο ΤΙ \/ •

The Capstone Experience

# **Artwork Example**

# [3 of 5]

000 -

Anto Duners

Joseph Greggers

I get into a car accident while I was shiring on 198

CSE 498 / 7:56 a.m. Engineering Building, Room 3405 | Third Floor

### Auto-Owners Insurance Jeffrey: Virtual Insurance Claim Advisor

uto-Owners Insurance is a Fortune 500 company that provides automotive, home, life and commercial A insurance. Headquartered in Lansing, Michigan, Auto-Owners is represented by over 44,000 licensed insurance agents across 26 states, and provides insurance to nearly 3 million policyholders.

Every day, hundreds of insurance claims are filed with Auto-Owners through its independent agents. This process can be tedious for both policyholders and agents.

Our Jeffrey Virtual Insurance Claim Advisor system is a virtual claim assistant that automates the entire claim reporting process. Our mobile app, shown at the right, enables both agents and policyholders to file a claim easily and efficiently. Jeffrey engages in a dialogue with policyholders and

agents to gather information required to file their claim through natural conversation. If necessary, Jeffrey prompts users to take photos, record videos or attach documents relevant to a claim. After completing a dialogue with a user, Jeffrey

automatically gathers the appropriate claim information and submits it to Auto-Owners.

Our companion web app enables agents and Auto-Owners associates to find and review claim information that is submitted through the mobile application.

Our Jeffrey Virtual Insurance Claim Advisor system features natural language processing, which is implemented using Google's Dialogflow. A custom REST API, written in Kotlin, handles interactions between the applications and our MySQL database. Our web application is built using the React JavaScript framework

The Capstone Experience





Auto-Owners

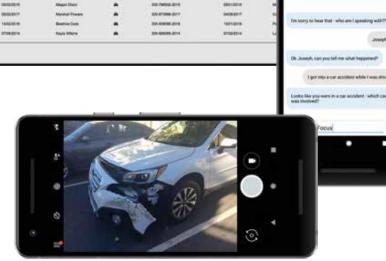
**Project Sponsors** 

Jim Schumacher Lansing, Michigar

**Ross Hacker** Lansing, Michigan

Scott Lake Lansing, Michigar

am Members (left to right)	
ex Klingel rshall, Michigan	
nnor Stabnick chester, Michigan	
<b>biha Biviji</b> vi, Michigan	



Column 1

Not-Income priva

Bull Links

Aries Test 246-858-7998

946

12012011

2115 Suban Cuban

1.55

Jeffrey

Heltol Trn., Jeffrey, your Vetsal Insurance Cl Adviser, I heard you wanted to file a claim!

PAGE 28



Dashboard

Lateng, M. 40917 8121 Annual End

Barriel Barris

210-Q114

Joseph Greggors 330-093658-2018 at 200 Plane Persons

# **Artwork Example**

## [4 of 5]

Engineering Building, Room 3405 | Third Floor 9:53 a.m. / CSE 498

### Proofpoint Improved Detonation of Evasive Malware

eadquartered in Sunnyvale, California, Proofpoint provides cybersecurity to many organizations, including Fortune 100 companies and educational institutions such as Michigan State University.

Analyzing malware is challenging. Viruses, spyware, ransomware and other malicious programs come in many complex forms. To protect its customers, Proofpoint uses tools called sandboxes, which are restricted computing environments where potentially harmful malware can be tested and analyzed safely.

Unfortunately, a new class of malware called "evasive malware" is rapidly emerging, thereby presenting a new, more dangerous class of cybersecurity threats.

Evasive malware has the ability to detect the presence of the sandbox environment. After doing so, it changes what it does, thereby evading analysis.

Our Improved Detonation of Evasive Malware system modifies evasive malware to block its ability to detect the sandbox environment, which causes it to execute. When the evasive malware does execute, its behavior is analyzed to determine precisely what it does so that Proofpoint can design countermeasures to protect against it.

Our web app, shown at the right, displays the results of processed malware. Users can check the status of the malware samples being tested as well as see the top evasive techniques being used. Both harmless and harmful evasive results are presented.

Our Improved Detonation of Evasive Malware system is implemented in Python, using the Cuckoo sandboxing framework and Suricata network monitor. Our web app is implemented using Python and Flask with the interface framed in Bootstrap and jQuery.



	System State			Tellputr	11.	
			S. Sancara and a second	Becaries.		-
-			Manhoosen d'America in sur	-		
	Recordly Sub-ratio		These the Party of			
	Ser.	540	To day, this protection of the		•	
144	(Trap	-	Date to Do not be aged	to another for any structures		
-	- Common and	-		ten bertin versteret		
-	-	and the second	_	Rectange Salah		_
-	- Internet	-	1	Recently Mod		
-	-	-			-	
			1.0			
	Sarah Rate					
	-					



## proofpoint

**Michigan State University** Proofpoint Team Members (left to right) Project Sponsors Jack Mansueti Leilani Alejo erly Hills, Michigan Sunnyvale, California Canton, Michigar

Sean Joseph Grand Ledge, Michigan

Ryan Gallant Midland, Michigan

Ian Murray Midland, Michigan

Tae Park



t

g h

2,

Х

d

e

e

t :t

of

e

g

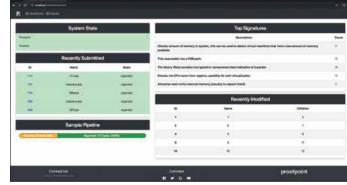
S

g

H

Kristi Gee Sunnyvale, California Brad Woodberg Troy, Michigan

PAGE 37



(he	- Sarrywe						Name	Maddier Resultationing	Page 1	Security Plan 12
*	Rent .	modified Revolutionland	Date	Accessive Print PER	taxed.	14	antals' and diam			
1		1	-	8.0					-	15
	THE AVERAGE		-			-	sample"-mail (Sam.	1. B.	-	1
*	INTERNAL	14	-				namphil court 34 per		manial	
	antestara Cast an		-			49	sampsi noo Ibase		100100	
2	Televenting .					45	arrest control of	( 8 )	-	1
		3	-			<i>(</i> <del>1</del> <del>)</del>	served rest lines	5.43	-	18
						-	search and them	1.1	The other	1
•		1		**		-	sample" mail Illine		manual	
*	and a		-	-		-	security in an in sec		-	
*	the second	-4				-	second to the local		-	
-	analy well		-			-	antique l'anne 12 des	1.0		
8	Analy said.		-	44		-	second lines	100	-	
4	processed a			-84		1221	Martin and Miles			1000
*	for all	10	-	-						
	Contract	5360			Corre				proofpoin	5

# proofpoint

The Capstone Experience

# **Artwork Example**

# [5 of 5]

#### The Capstone Experience

### MSU Federal Credit Union Banking with Amazon's Alexa and Apple's Siri

Founded in 1937, Michigan State University Federal Credit Union offers financial services to Michigan State University and Oakland University faculty, staff, students, alumni association members and their families. With 230,000 members and over \$3.3 billion in assets, MSUFCU is the largest university-based credit union in the world.

MSUFCU currently offers mobile banking apps on both Apple (iOS) and Google Android devices for members to access their funds and perform banking transactions at any time.

Our Banking with Amazons Alexa and Apple's Siri systems maintain MSUFCU's technological edge by expanding their banking offerings to volce-controlled smart devices such as Amazon Alexa-enabled devices, Apple Warch and Android Wear.

Voice-controlled technologies give MSUFCU members new ways to interact with their accounts, including accessing their account balance, transferring money and obtaining information abour recent transactions. Members can request other information abour MSUFCU such as branch hours, current loan rates and the location of the nearest ATM or Branch.

Our companion administrative web portal enables MSUFCU staff to manage the available information and services offered by these voice technologies. Frequently asked questions can be added to the apps in minutes to improve the user experience.

The Alexa skill is written in Python, Apple Watch in Swift and Android Wear in Java. All three contact a MySQL database through JSON. The administrative web portal is written in PHP.





Michigan State University Team Members (left to right) Saranac, Michigan Kieran Hall Traverse City, Michigan Will Rudnick Chicago, Illinois Ethan Boyd Salmo, Michigan

**Qiuning Ren** Beijing, China **Judy Lynch** East Lansing, Michigan **Ben Maxim** East Lansing, Michigan

Andy Wardell East Lansing, Michigan

MSUFCU

Project Sponsors

Samantha Amburgey East Lansing, Michigar

April Clobes East Lansing, Michigan

Emily Fesler East Lansing, Michigan

Collin Lochinski East Lansing, Michigan



PAGE 34

# **Previous Artwork Feedback**

- Study Carefully to Learn
  - What to Do
  - What NOT to Do
- Posted on Downloads Page
  - Design Day Booklet Feedback, Fall 2022
  - Design Day Booklet Feedback, Spring 2023
  - Design Day Booklet Feedback, Fall 2023
  - Design Day Booklet Feedback, Spring 2024



# Example **Spartan Basketball Player** Timer

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

## Michigan State University Men's Basketball Spartan Basketball Player Timer

NCAA Division I basketball is very competitive. Although it may not be apparent to the casual observer, every

Although it may not be apparent to the casual observer, every detail of each game is carefully planned and scripted One aspect of a game plan is that of playing times. For each player, the coaches determine target times for how long he can play at a stretch, how long he needs to rest before playing again, and the total amount of time he should play in a game. Developed with Coach Tom Izzo, our Spartan Basketball Player Timer is used by the basketball staff

on the bench during the game.

When a player enters the game, his playing time is displayed with a solid green background. When his target playing time goes under two minutes, it is displayed in yellow. When the time goes below zero, it is displayed in red.

The color coding provides visual cues that can be seen by coaches at a distance. If there are many yellow or red boxes, coaches begin to plan substitutions. A game summary for all the players can be displayed at any time whether the game clock is

running or stopped.

Our software runs on a Microsoft Windows Tablet PC about the size of a traditional clipboard only slightly thicker. With no mouse or keyboard, all input is done with a pen.

Spartan Basketball Player Timer is written in Visual Basic. The underlying database is Microsoft Access.

			Start t	he Cloc	k			
11 X		Chieci	ked Out	thet.	Checked In			
10.0	Ti Clarent	Remoring	Playor # Nonc	ls/0z	Hayor 4 Next	Current	Remora	
V 1 .	0:00	3:00	0 Ibok	•		0:00	4:00	
V 2 -	2:27	0:33		+	1 Lucas	0:02	3:58	
V 3 V	2:04	0:56			2 Morgan	4:12	- 0:1	
V 4 -	0:00	3:00	3 Allen	+		0:00	4:00	
V 5	0:00	3:00		•	5 Walton	2:37	1:23	
2 6 -	2:21	0:39	11 Neitzel	-		4:10	- 0:1	
<u>v</u> , k	3:14	- 0:14	14 Suton	-		0:37	3:23	
7.0 .	0:00	3:00	15 Summers			0:00	4:00	
2.9	0:00	3:00	22 Dahlman	+		0:00	4:00	
2 10 -	0:00	3:00			34 Naymick	4:12	- 0:1	
211 -	0:00	3:00	40 Herzog	•		0:00	4:00	
7 12 7	0:00	3:00		•	41 Gray	3:34	0:26	
213	0:00	0:00				0:00	0:00	
2.24	0:00	3:00	13 Thornton	-		0:00	4:00	
2 15	0:00	3:00	20 Kebler	•		0:00	4:00	
			Start t	he Clo	ck		_	





#### Team Members Nayne Dyksen orth Haledon, New Jersey Nayne Dyksen Frand Rapids, Michigan Nayne Dyksen /est Lafayette, Indiana

Nayne Dyksen ast Lansing, Michigan Mark Montgomery East Lansing, Michigan Dwayne Stephens East Lansing, Michigan

Project Sponsors **Richard Bader** 

East Lansing, Michigan Jim Boylen

East Lansing, Michigan

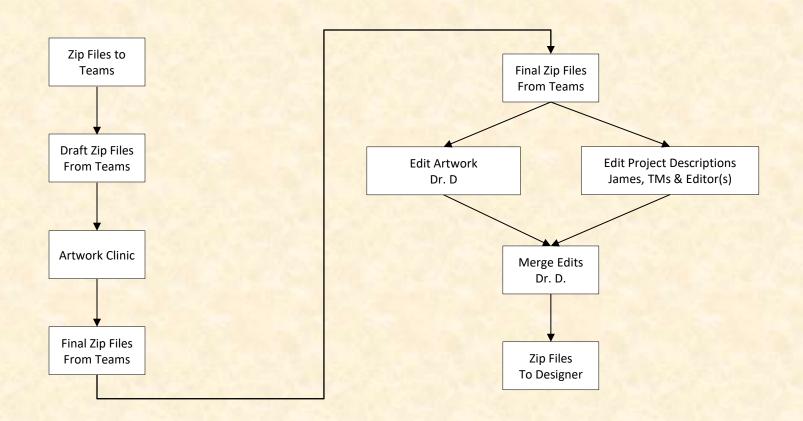
East Lansing, Michigan

Tom Izzo

PAGE N + 0



# **The DD Booklet Production Process**



# 1 Template From Dr. D. To Team

All of the textboxes are named for processing

Do NOT create your own textboxes.

If necessary, start over from the original downloaded template. Engineering Building, 1300 Hallway | First Floor

## United Airlines Training Scheduling and Optimization System II

Insert your project description here. Read the <u>Design Day</u> <u>Booklet Page Instructions</u> thoroughly, over and over and over and over and over.

- For examples, see previous Design Day booklets, which you can find <u>here</u>.
- You must use the Microsoft Windows version of Word. Do NOT even think about using anything else.,
- The first two or three lines must be about your client. The following is an example.
- Auto-Owners Însurance is a Fortune 500 company that provides automotive, home, life and commercial insurance to nearly 3 million policyholders in 26 states.
- Do NOT use phrases like "Our clients asked us to,..." or "Our project is ..." Do NOT uses phrases like "Our software aims to..." or "Our
- software is designed to..." Write everything in the present tense. Do NOT write anything negative about your client like "Our
- client's current software is horrible; ours is better." Read the Design Day Booklet Page Instructions thoroughly,
- over and over and over and over. It's okay for a paragraph to have only one sentence as long as
- the sentence is long enough to take up at least 15 lines. The last few lines (and only the last few lines) must contain
- technical details about your project. The following is an example. Read the <u>Design Day Booklet Page Instructions</u> thoroughly, over and over and over and over.

The frontend of AVAST (Amazon Video And Shopping Technology) is built using Angular 6, while the backend is implemented using PHP Laravel. In addition, several Amazon Web Services are used including Rekognition to analyze videos.



- To insert your artwork, right-click on this artwork (grey rectangle with text within the textbox) and select "Change Picture..."
   Put each piece of artwork in a separate artwork textbox.
   Do not change the textbox's red external borders. Use them as
- b) bo not change the textbox's red external borders. Use them as handles to move and resize the textbox. The red borders will be made invisible later.
- Delete the artwork textboxes that you do not need.
  If you need more textboxes, you must copy-and-paste one of these
- existing artwork textboxes. Right-click on the outside red external border, select copy, and then paste. • To layer overlapping textboxes, right-click on a textbox red border,
- and select "Bring to Front" or "Send to Back."

#### existing artwork textboxes. Right-click on the outside red external border, select copy, and then paste.

To layer overlapping textboxes, right-click on a textbox red border, and select "Bring to Front" or "Send to Back."

#### existing artwork textboxes. Right-click on the outside red external

Michigan State University

Team Members (left to right)

Josh Pezeshki

Jack Soenke

Laura Danila

Vaperville, Illinois

vonia. Michigar

Andrew Ferauson

vonia. Michigan

anklin, Michigar

border, select copy, and then paste.
To layer overlapping textboxes, right-click on a textbox red border, and select "Bring to Front" or "Send to Back."

#### existing artwork textboxes. Right-click on the outside red exter border, select copy, and then paste.

To layer overlapping textboxes, right-click on a textbox red border, and select "Bring to Front" or "Send to Back."

United Airlines Training

Project Sponsors

Amadou Anne Chicago, Illinois

Craig Bennett

**Rick Brown** 

Tom Wilson

Chicago, Illinois

Chicago, Illinois

Chicago, Illinois

Lynda McDaniel Houston, Texas



### There are four placeholders for artwork.

The text boxes have red outlines for handles.

Each textbox includes one embedded placeholder artwork, a grey png image.

To add your artwork, right click on grey image and select Change Picture.

Delete the textboxes placeholders you don't need.

Do NOT create your own textboxes for artwork.

PAGE N + 29



# 2 Project Description Draft From Team To Dr. D.

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 60 instructors, who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors and students for courses across the country.

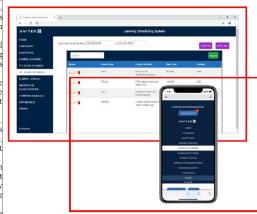
When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

Our system contains a schedule optimization system. Within a given time frame, a scheduler inputs a set of classes and locations. The optimizer recommends an optimal schedule, including instructor and classroom. This reduces the amount of time the scheduler needs to plan courses.

The scheduler will be able to view calendars with published, planned, and optimized courses. They can edit classes from this view. The calendars can be sorted by instructor, location, and class. If a conflict is attempted to be scheduled, a notification will alert the scheduler.

The web app is fully functional using both web browsers and mobile browsers.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node, is, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.







#### PAGE N + 24

Michigan State University Team Members (left to right) Josh Pezeshki Franklim, Michigan Jack Soenke Naperville, Ilinois Laura Danila Livonia, Michigan Andrew Ferguson Livonia, Michigan

#### United Airlines Project Sponsors Amadou Anne Chicago, Illinois Craig Bennett Chicago, Illinois Rick Brown Chicago, Birnois

Chicago, Illinois Lynda McDaniel Houston, Texas Tom Wilson Chicago, Illinois

2 Project **Description Draft From Team** To Dr. D.

### Read aloud.

Search your project description for the word "will,"

#### Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 60 instructors, who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors and students for courses across the country.

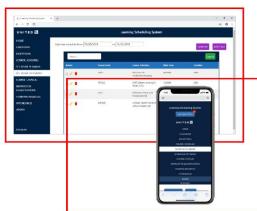
When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

Our system contains a schedule optimization system. Within a given time frame, a scheduler inputs a set of classes and locations. The optimizer recommends an optimal schedule, including instructor and classroom. This reduces the amount of time the scheduler needs to plan courses.

The scheduler will be able to view calendars with published, planned, and optimized courses. They can edit classes from this view. The calendars can be sorted by instructor, location, and class. If a conflict is attempted to be scheduled, a notification will alert the scheduler.

The web app is fully functional using both web browsers and mobile browsers.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node.js, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.





United Airlines

Project Sponsors

Amadou Anne Chicago, Illinois

Craig Bennett

Chicago, Illinois

hicago, Illinois

Lynda McDaniel

louston, Texas Tom Wilson

Chicago, Illinois

**Rick Brown** 

Michigan State University

Team Members (left to right)

Josh Pezeshki

Jack Soenke

Laura Danila

ranklin. Michigar

aperville, Illinois

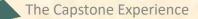
vonia, Michigan

ivonia, Michigan

Andrew Ferguson

#### PAGE N + 24





# 3 Project Description Edits By James & TMs

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 60 instructors, who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors, students, and courses across the country.

When the scheduler wants to schedule a course, they must take into account a number of factors, including instructor availability, venue availability, instructor travel distance, and instructor qualifications.

Using our web and iOS apps, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes taking into account all relevant factors, manual scheduling is an arduous task.

Our schedule optimization feature allows a scheduler to input a given time frame, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments.

The optimized schedule minimizes the distance traveled by instructors, and takes into account instructor preferences and room availabilities.

An optimized schedule saves United Airlines significant time money, and resources.

Óur Training Scheduling and Optimization System II web app is built with ASPNET Core, Angular 8, Node is, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.

- Round 1 edits
  - Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors and students for courses across the country.
  - When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.
  - Our system contains a schedule optimization system. Within a given time frame, a scheduler inputs a set of classes and locations. The optimizer recommends an optimal schedule, including instructor and classroom. This reduces the amount of time the scheduler needs to plan courses.
  - The scheduler will be able to view calendars with published, planned, and optimized courses. They can edit classes from this view. The calendars can be sorted by instructor, location, and class. If a conflict is attempted to be scheduled, a notification will alert the scheduler.
  - The web app is fully functional using both web browsers and mobile browsers.
  - Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node,is, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.



#### Team Members (left to right) Project Spons Josh Pezeshki Amadou Anne Franklin, Michigan Chicago, Illinois Jack Soenke Chicago, Illinois Chicago, Illinois

Michigan State University

Laura Danila Livonia, Michigan Andrew Ferguson Livonia, Michigan

#### United Airlines Project Sponsors

Chicago, Illinois

Chicago, Illinois Craig Bennett Chicago, Illinois Rick Brown Chicago, Illinois Lynda McDaniel Houston, Texas Tom Wilson

PAGE N + 24

# 3 Project Description Edits By Jill

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 60 instructors, who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors, students, and courses across the country.

When the scheduler wants to schedule a course, they must take into account a number of factors, including instructor availability, venue availability, instructor travel distance, and instructor qualifications.

Using our web and iOS apps, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes, taking into account all relevant factors, manual scheduling is an arduous task.

Our schedule optimization feature allows a scheduler to input a given time frame, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments.

The optimized schedule minimizes the distance traveled by instructors, and takes into account instructor preferences and room availabilities.

An optimized schedule saves United Airlines significant time money, and resources.

Our Training Scheduling and Optimization System II web app is built with ASPNET Core, Angular 8, Nodejs, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.



#### PAGE N + 24



- instructors (remove coma)
- including (I would remove the colon)
- timeframe
- classes, (would remove the comma and insert "and")

timeframe

#### Michigan State University United Airlines Team Members (left to right) Project Sponsors

Josh Pezeshki Franklin, Michigan Jack Soenke Naperville, Illinois Laura Danila Livonia, Michigan

Andrew Ferguson Livonia, Michigan Lynda N Houston Tom Wil

Project Sponsors Amadou Anne Chicago, Illinois Craig Bennett Chicago, Illinois Rick Brown Chicago, Illinois

Lynda McDaniel Houston, Texas Tom Wilson Chicago, Illinois

# 3 Artwork Draft From Team To Dr. D.

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 60 instructors, who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors and students for courses across the country.

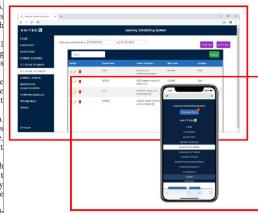
When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

Our system contains a schedule optimization system. Within a given time frame, a scheduler inputs a set of classes and locations. The optimizer recommends an optimal schedule, including instructor and classroom. This reduces the amount of time the scheduler needs to plan courses.

The scheduler will be able to view calendars with published, planned, and optimized courses. They can edit classes from this view. The calendars can be sorted by instructor, location, and class. If a conflict is attempted to be scheduled, a notification will alert the scheduler.

The web app is fully functional using both web browsers and mobile browsers.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node,is, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.







#### PAGE N + 24

Michigan State University Team Members (left to right) Josh Pezeshki Franklin, Michigan Jack Soenke Naperville, Ilinois Laura Danila Livonia, Michigan Andrew Ferguson Livonia, Michigan

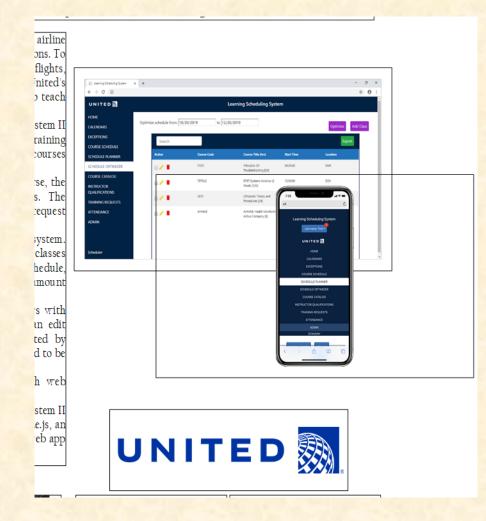
#### United Airlines Project Sponsors Amadou Anne Chicago, Illinois Craig Bennett Chicago, Illinois Rick Brown Chicago, Illinois

Lynda McDaniel

Houston, Texas Tom Wilson

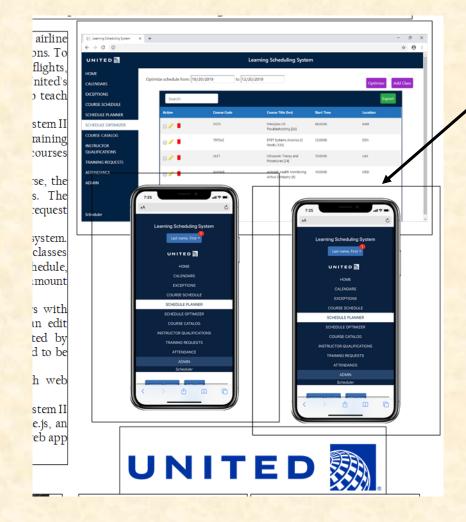
Chicago, Illinois

# 3 Artwork Draft From Team To Dr. D.



# What's wrong with this artwork?

# 3 Artwork Draft Feedback by Dr. D.



Dr. D. duplicated existing artwork to illustrate requested update.

# 3 Artwork Update From Team To Dr. D.

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 60 instructors, who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors and students for courses across the country.

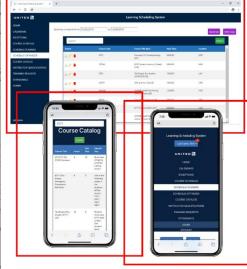
When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

Our system contains a schedule optimization system. Within a given time frame, a scheduler inputs a set of classes and locations. The optimizer recommends an optimal schedule, including instructor and classroom. This reduces the amount of time the scheduler needs to plan courses.

The scheduler will be able to view calendars with published, planned, and optimized courses. They can edit classes from this view. The calendars can be sorted by instructor, location, and class. If a conflict is attempted to be scheduled, a notification will alert the scheduler.

The web app is fully functional using both web browsers and mobile browsers.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Nodejs, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.







Michigan State University Team Members (left to right) Josh Pezeshki Franklin, Michgan Jack Soenke Naperville, Illinois Laura Danilla Laonia, Michigan Liconia, Michigan ED Vinited Airlines Project Sponsors Amadou Anne Chicago, Illinois Chicago, Illinois Rick Brown Chicago, Illinois Lynda Illinois Houston, Texas Tem Willson Chicago, Illinois

PAGE N + 24



### **Design Day Booklet Production Process**

# 4 **Final Update From Team** To Dr. D.

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines **Training Scheduling and Optimization System II**

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 45 instructors who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors, students, and courses across the country.

When the scheduler wants to schedule a course, they must take into account a number of factors, including instructor availability, venue availability, instructor travel distance, and instructor qualifications.

Using our mobile compatible website, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes and taking into account all relevant factors, manual scheduling is an arduous task.

Our schedule optimization feature allows a scheduler to input a given time frame, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments.

The optimized schedule minimizes the distance traveled by nstructors and takes into account instructor qualifications and oom availabilities.

An optimized schedule saves United Airlines significant time. money, and resources.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node.js, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.









Michigan State University United Airlines Project Sponsors Amadou Anne Chicago, Illinois Craig Bennett Chicago, Illinois **Rick Brown** Chicago, Illinois **Jamie Hill** 

Lynda McDaniel Houston, Texas Tom Wilson Chicago, Illinois

Team Members (left to right)

Josh Pezeshki

Jack Soenke

Laura Danila

ranklin. Michigar

aperville, Illinois

vonia, Michigan

ivonia, Michigan

Andrew Ferguson

# 4 **Final Version** From Dr. D. **To Designer**

Computer Science CSE498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 45 instructors who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors, students, and courses across the country.

When the scheduler wants to schedule a course, they must take into account a number of factors, including instructor availability, venue availability, instructor travel distance, and instructor qualifications.

Using our mobile compatible website, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes and taking into account all relevant factors, manual scheduling is an arduous task.

Our schedule optimization feature allows a scheduler to input a given time frame, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments.

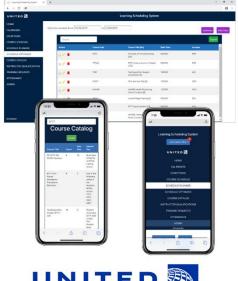
The optimized schedule minimizes the distance traveled by nstructors and takes into account instructor qualifications and oom availabilities.

An optimized schedule saves United Airlines significant time. money, and resources.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node.js, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.









Team Members (left to right) Project Sponsors Amadou Anne Chicago, Illinois

Michigan State University

Josh Pezeshki

Jack Soenke

Laura Danila

ranklin. Michigar

aperville, Illinois

vonia, Michigan

ivonia, Michigan

Andrew Ferguson

Craig Bennett Chicago, Illinois **Rick Brown** hicago. Illinois Jamie Hill Chicago, Illinois Lynda McDaniel Houston, Texas

United Airlines

Tom Wilson Chicago, Illinois

## Design Day Booklet

CSE 498 / 8:00 a.m. - Noon Engineering Building, 1300 Hallway | First Floor

### United Airlines Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 45 instructors who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United's maintenance training schedulers to schedule instructors, students, and courses across the country.

When the scheduler wants to schedule a course, they must take into account a number of factors, including instructor availability, venue availability, instructor travel distance, and instructor qualifications.

Using our mobile compatible website, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes and taking into account all relevant factors, manual scheduling is an arduous task.

Our schedule optimization feature allows a scheduler to input a given time frame, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments.

The optimized schedule minimizes the distance traveled by instructors and takes into account instructor qualifications and room availabilities.

An optimized schedule saves United Airlines significant time, money, and resources.

Our Training Scheduling and Optimization System II web app is built with ASPNET Core, Angular 8, Nodejs, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.







#### Michigan State University Team Members (left to right)

Josh Pezeshki

Josh Pezeshki Franklin, Michigan

**Jack Soenke** Naperville, Illinois

Laura Danila Livonia, Michigan

Andrew Ferguson Livonia, Michigan Rick Brown Chicago, Illinois Jamie Hill Chicago, Illinois

**United Airlines** 

Project Sponsors

Amadou Anne

Chicago, Illinois

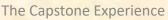
Craig Bennett

Chicago, Illinois

**Lynda McDaniel** Houston, Texas

Tom Wilson Chicago, Illinois

PAGE 46



### Today < > September - October 2024



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Sep 22 Design Day Production <u>Calendar</u>	23	24	25 1. Dr. Posts Zip Templates 2. Dr. Emails Instructions	26 0 5 DD Booklet Process Dr D Discusses Process at All-Hands	27	28
29	30	Oct 1 0 6 C&G Presentations Teams Submit Zip Draft by 11:59pm		3 0 6 Resumes & Interviews	4 Artwork Clinic	5 Teams Submit Zip by 11:59pm
1. Dr D Edits Artwork         2. Dr Posts Artwork         3. TMs Edit Proj Desc         4. Teams Update Art work	7	8 0 7 Intellect Prop 1. Dr D Discusses Discusses Artwork 2. TMs Discuss Proj Desc 3. Teams Submit Art work	9 1. Dr D Edits Artwork 2. Dr Posts Artwork 3. TMs Submit Proj Desc	10 0 7 Alpha Presents 1. Dr D Discusses Discusses Artwork 2. TMs & JB Discuss PDs 3. JB Edits Proj Desc 4. Teams Submit Art work	11	12 1. JB Submits PD 2. TMs & JB Discuss PDs 3. TMs Edit Proj Desc 4. TMs Submit Proj Desc by 11:59pm
13 Dr D Posts Final PDS	14	15 0 8 Alpha Presents Dr D Discusses Final PDS	16	17 0 8 Alpha Presents 1. Dr D Discusses Merges Art & PDs 2. Dr. Posts Final Zips	18	19 Teams Submit Final Zips by 11:59pm
20 Dr D Submits Assets to Designer	21 Octobe	22 r Break	23	24 0 9 Design Day & Proj Videos	25	26

# **Zipped Assets File**

- Link On Downloads Page
- Customized Per Team
- Contents
  - Project Page Template .docx
  - Four Template Artwork Files .png
- Do not change filenames.
- Example: amazon-assets.zip
  - amazon-page.docx
  - amazon-artwork-1.png (Very High Resolution)
  - amazon-artwork-2.png (Very High Resolution)
  - amazon-artwork-3.png (Very High Resolution)
  - amazon-artwork-4.png (Very High Resolution)

# Assets Zip File Submission

- READ Submission Instructions Carefully
- Zipped Assets File
  - Folder Name: urban-science-assets
  - Contents
    - urban-science-page.docx
    - urban-science-artwork-1.png (Very High Resolution)
    - urban-science-artwork-2.png (Very High Resolution)
    - urban-science-artwork-3.png (Very High Resolution)
  - Delete unused placeholder artwork files.
  - Zip Filename: urban-science-assets.zip
- Upload to Microsoft Teams
  - General Channel File Space
  - Folder Named Design Day Booklet Assets Zip Files
  - Team's Private Channel File Space
  - Draft: Due 11:59 p.m., Tuesday, October 1. ← 5 Days ← New Due Date
  - Artwork Clinic: Friday, October 4
  - Final: Due 11:59 p.m., Saturday, October 5. ← 8 Days

# Office 365 Word on Windows

- Open and Edit Team Page ONLY
  - Office 365 Word
  - On Windows
    - Natively
    - Capstone Lab VM
- Do <u>NOT</u>
  - Use Web Version of Word
  - Use Microsoft Teams' Version of Word
  - Open and/or Edit Collaboratively in Teams
  - Open and/or Edit with Apple's Pages or Google Docs
- See Syllabus
  - Editing Documents and Presentations Using Office 365
  - Read Carefully

# **DDB Artwork Feedback Clinic**

[1 of 3]

- Who?
  - Dr. D.
  - Artwork Person or Persons from Your Team
- What?
  - Design Day Booklet (DDB) Project Page
  - Feedback on Artwork
- Where?
  - Dr. D.'s Office
  - EB 3149
- When?
  - Friday, October 4
  - Same Schedule as Team Photos
- Why?
  - Have Best DDB Pages
  - Short Timeframe

### **Team Page**

### Template

## Dr. D. Creates

3200/3300 Hallway | Third Floor, Computer Science and Engineering 8:00 a.m. - Noon | CSE498 Employee Badge Image Validation Tool Insert your project description here. Read the Design Day Booklet Page Instructions thoroughly, over and over. To insert your artwork, right-click on this artwork (grey rectangle Show paragraph marks and other hidden symbols by clicking with text within the textbox) and select "Change Picture..." the paragraph symbol  $(\P)$  in the Paragraph section of the ribbon Put each piece of artwork in a separate artwork textbox. Do not change the textbox's red external borders. Use them as To start a new paragraph, insert a tabcharacter at the beginning handles to move and resize the textbox. The red borders will be of the paragraph by typing control-tab. You should see a right arrow made invisible later. Delete the artwork textboxes that you do not need. You must use the Microsoft Windows version of Word. Do Do not use more than four artwork textboxes. NOT even think about using anything else. To layer overlapping textboxes, right-click on a textbox red border, The first two or three lines must be about your client. The and select "Bring to Front" or "Send to Back." Auto-Owners Insurance is a Fortune 500 company that provides automotive, home, life and commercial insurance to nearly \_\_\_\_\_ Do not use more than four artwork textboxes. 3 million policyholders in 26 states. To layer overlapping textboxes, right-click on a textbox red border. Do NOT use phrases like "Our clients asked us to ..." or "Our and select "Bring to Front" or "Send to Back." project is ..." when describing your project. Do NOT use phrases like "Our software aims to ... " or "Our Do not use more than four artwork textboxes software is designed to ... " when describing your software. · To layer overlapping textboxes, right-click on a textbox red border, Write everything in the present tense. and select "Bring to Front" or "Send to Back." Do NOT write anything negative about your client like "Our client's current software is horrible; ours is better." Do not use more than four artwork textboxes. Read the Design Day Booklet Page Instructions thoroughly, over and over and over and over and over. To layer overlapping textboxes, right-click on a textbox red border, and select "Bring to Front" or "Send to Back." It's okay for a paragraph to have only one sentence as long as the sentence is long enough to take up at least 1.5 lines. The last few lines (and only the last few lines) must contain technical details about your project. The following is an example. The front end of our Amazon Video and Shopping Technology amazon system is built using Angular 6, while the back end is implemented Michigan State University Amazon Team Members (left to right) **Project Sponsors** Manasa Dantu Arul Srivastava Detroit, Michigar Northville, Michigar

Katelyn Hurst

Jack Hammond

Timmy Wu Grand Rapids. Michigan

Khloe Hayes

owell, Michigan

Grand Rapids, Michigan

Shelby Township, Michigan



Amazon

above.

 $(\rightarrow)$  appear.

following is an example.

using PHP Laravel.

Garret Gaw

Detroit, Michigan

Derek Gebhard

Stefan Najor Detroit, Michigan

Ed O'Brien Detroit, Michigan

Sean Whipple

Detroit, Michigan

Detroit, Michigan

PAGE N + 3

# [2 of 3]

The Capstone Experience

Design Day Booklet Team Page

3200/3300 Hallway | Third Floor, Computer Science and Engineering 8:00 a.m. - Noon | CSE498

### **Team Page**

100

## <mark>Draft</mark>

## **Team Creates**

# Uploads to Teams

Design Day Booklet Assets Zip Files

## Tuesday, October 1

## **Artwork Clinic**

Friday, October 4

## Amazon Employee Badge Image Validation Tool

Amazon is a multinational technology company that has grown to become the world's largest retailer. Founded in 1994 by Jeff Bezos, Amazon has since expanded into various industries, including cloud computing, digital streaming and artificial intelligence.

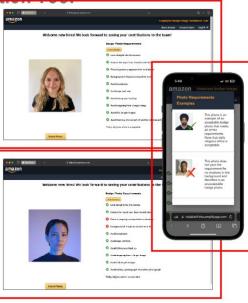
Ensuring an efficient employee onboarding process is paramount to supporting Amazon's vision as Amazon has created more job opportunities than any other company in the past decade An efficient onboarding process enables the onboarding employee to focus on transitioning without unnecessary delays or disruptions.

Currently, when Amazon hires a new employee, the onboarding employee must upload an image for their future employee badge to the employee badge verification system. Once uploaded, the photo is manually checked against the photo requirements and verified by the employee badge verification team. This process can take days for the new employee to receive feedback, and the new employee may find out they have to wait in a long line to retake the photo on their first day of work.

Our Employee Badge Verification Tool streamlines the new employee onboarding process by providing instant feedback on the new employees uploaded badge photo. Our system uses machine learning models on Amazon's Rekognition service to test the validity of the new uploaded photo against the specified requirements. This not only saves time for new hires, enabling them to start faster and transition more smoothly into their roles, but also allows Amazon to dedicate more resources to delivering quality services to their customers.

Our web application is responsive and scalable due to a robust set of Amazon Web Services. The front end is hosted on AWS Amplify and back-end requests are handled by API Gateway, Lambda, Rekoginiton, and S3.







#### Michigan State University Team Members (left to right)

Arul Srivastava

Northville, Michigan Katelyn Hurst

Grand Rapids, Michigan Jack Hammond

Shelby Township, Michigan

Timmy Wu Grand Rapids, Michigan Khloe Hayes

.owell, Michigan

r Amazon Project Sponsors Manasa Dantu

#### Detroit, Michigan Garret Gaw Detroit, Michigan Derek Gebhard

Detroit, Michigan Detroit Leadership Detroit, Michigan

> Stefan Najor Detroit, Michigan

Ed O'Brien Detroit, Michigan Sean Whipple Detroit, Michigan [3 of 3]

PAGE N + 3

# What's ahead?

- Upcoming Meetings
  - = 09/26, Th: Design Day Booklet Production Process
  - 10/01, Tu: Creating and Giving Presentations
  - 10/01, Tu: Draft DD Booklet Asset Zip Files Due ← 5 Days ← New Due Date
  - 10/03, Th: Resume Writing & Interviewing
  - 10/04, Fr: Artwork Clinic
    - 10:00 a.m. 3:30 p.m., EB 3149
    - Same Schedule as Team Photos
    - Artwork Person or Persons from Your Team
  - 10/05, Sa: Final DD Booklet Asset Zip Files Due
  - 10/08, Tu: Alpha Presentations
  - 10/10, Th: Alpha Presentations
  - 10/15, Tu: Alpha Presentations
  - 10/17, Th: Alpha Presentations
  - 11/14, Th: Beta Presentations

# What's ahead?

# [2 of 3]

# Artwork Clinic Schedule, Friday, October 4

- 10:00 AM: Whirlpool
- 10:10 AM: Launch
- 10:20 AM: Magna VNNG
- 10:30 AM: Amazon
- 10:40 AM: Magna TDD4ES
- 10:50 AM: Urban Science
- 11:00 AM: DRIVEN-4
- 11:10 AM: Stryker IST
- 11:20 AM: Michigan State University CSE
- 11:30 AM: Union Pacific
- 11:40 AM: Kohl's
- 11:50 AM: Volkswagen
- 12:00 PM: RPM
- 12:10 PM: Roosevelt Innovations Knowledge Science
- 12:20 PM: GM RIS

- 01:10 PM: Anthropocene Institute
- 01:20 PM: Meijer
- 01:30 PM: Magna MADO
- 01:40 PM: Ally
- 01:50 PM: MSUFCU
- 02:00 PM: Magna WFG4ADAS
- 02:10 PM: Auto-Owners
- 02:20 PM: TechSmith
- 02:30 PM: GM WHMS
- 02:40 PM: Henry Ford Innovations RSVP
- 02:50 PM: Vectra
- 03:00 PM: Henry Ford Innovations RSE
- 03:10 PM: WK Kellogg's Co
- 03:20 PM: AbbVie
- 03:30 PM: HAP

The Capstone Experience

# What's ahead?

Capstone Due Dates / Deadlines

- Published at Start of Semester
  - o See <u>Weekly Schedule</u>
  - See <u>Major Milestones</u>
- Immovable
  - Your team depends on you.
  - You must get your tasks done on time.
  - Plan well in advance.
  - If you are "stuck," ask for help sooner rather than later.
  - If you are not going to complete your tasks...
    - …tell your team well in advance of the deadline.
    - …another team member will complete your task.
    - ...your team may be told they no longer need to depend on you.