MICHIGAN STATE UNIVERSITY

02/10: Design Day Booklet Production Process

The Capstone Experience

Dr. Wayne Dyksen
Dr. James Mariani

Department of Computer Science and Engineering
Michigan State University

Spring 2026



From Students…
…to Professionals

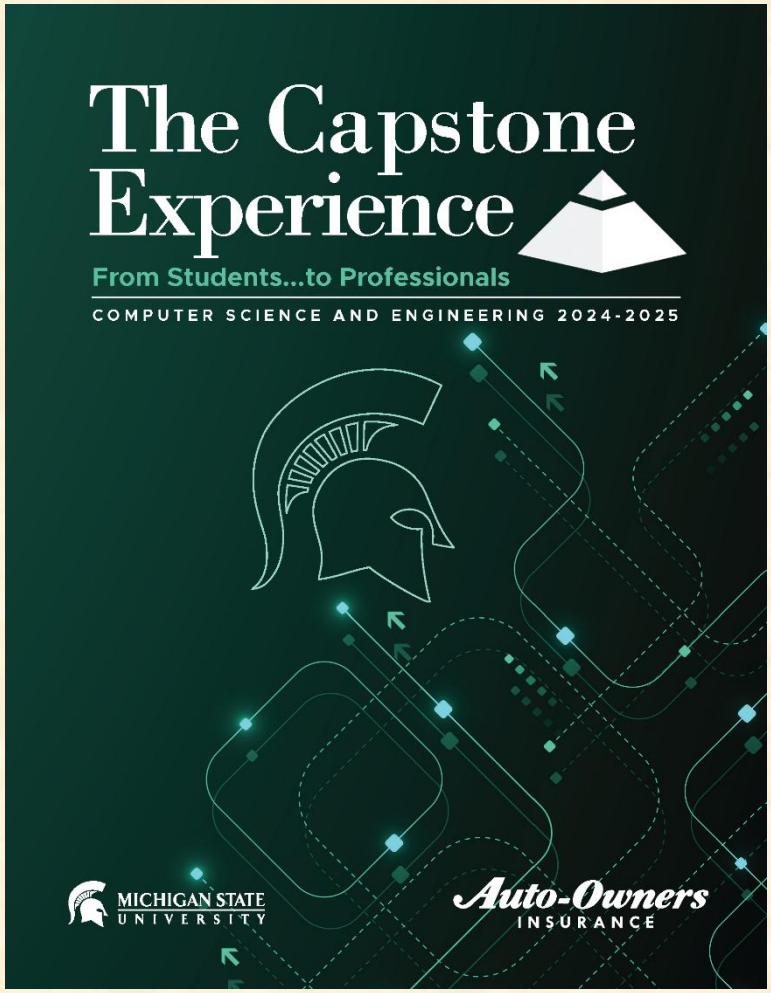
Design Day Booklet

- 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
  - Student Recruiting
- Contents
  - Capstone Projects
  - Academic Year



Team Project Page

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



Computer Science and Engineering

Delta Dental of Michigan, Ohio and Indiana
3D Analysis of Dental Patient History

Delta Dental provides dental insurance coverage to more than 90 million Americans. They operate in all 50 states, making them one of the largest dental insurance providers in the United States.

Delta Dental processes millions of claims per year from their subscribers. When the claims go through their claims processing system, further human review by adjudicators may be required to correct malformed data or to review the validity of the claim.

Claims are reviewed through the context of the patient's dental history, which Delta Dental has comprehensive access to. This includes any procedures or treatments performed on any patient, leading to a massive amount of data.

The 3D Analysis of Dental Patient History assists adjudicators by visualizing the dental patient history. Our web application features a 3D model that shows a patient's entire dental history where the user rotates, zooms in, and selects specific tooth on the model. Selecting a tooth displays all information about its previous procedures and treatments as well as a more detailed individual tooth model.

In the web application, users edit existing data and upload new data. Inputting information can be done manually through a form or by uploading other records that are kept on file.

Once new data is uploaded, users view the patient's information in the 3D model. With access to a patient's complete dental history, past procedures and treatments are viewed in chronological order.

Our application streamlines claim reviews by enabling Delta Dental employees to quickly and accurately visualize patient history, saving valuable time and effort.

The front end of our web application is built with Angular. Three.js is used to display 3D models and Bootstrap provides formatting for the front end. Java Quarkus is used for connecting Angular to the PostgreSQL back end.

DELTA DENTAL®

Michigan State University
Team Members (left to right)
Ben Crimmins, Beverly Hills, Michigan
Lance Stemple, Midland, Michigan
Jacob Robson, New Lenox, Illinois
Sanju Kona, Saint Joseph, Michigan
Jasen Van Acker, Rochester Hills, Michigan
Thomas Toaz, Ionia, Michigan

Delta Dental 3DADPH
Project Sponsors
Mukundan Agaram, Okemos, Michigan
Michael Chen, Okemos, Michigan
Jacob Ernst, Okemos, Michigan
Toby Hall, Okemos, Michigan
Daniel Magaway, Okemos, Michigan

PAGE 39

Team Project Page

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



Team's Job

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

- Read instructions carefully.
- Check everything.
- Use Office 365 Word on Windows 11.
  (See Other Links > Syllabus > 30. Editing Documents and Presentations Using Office 365)
- Make a checklist.
- Write the project description.
- Read the instructions carefully.
- Provide the artwork.
- Read the instructions carefully.
- Update the project description and artwork.
- Make a checklist.
- Check everything 100 times.
- Read the instructions carefully.
- Make a checklist. ← Key

Nota Bene

Every team member is responsible for everything.

Project Description

[1 of 3]

- Read the instructions carefully. ← Have I mentioned this yet?
- 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 ← Copies in Labs
  - Previous Design Day Booklets (Design Day > Booklet)
  - MSU Men's Basketball
- Make a Checklist ← Have I mentioned this yet?

Project Description

[2 of 3]

- Beginning
  - Sponsor Overview
  - 2 to 3 Lines
- Middle
  - The Problem & Your Solution
    (Never write anything negative about your sponsor.)
  - Magazine Style
  - Paragraphs
    - Many Short
    - Not Few Long
  - Understandable by Non-Technical Person
- End
  - Technical Jargon
  - 2 to 3 Lines

Project Description

[3 of 3]

Volkswagen 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.

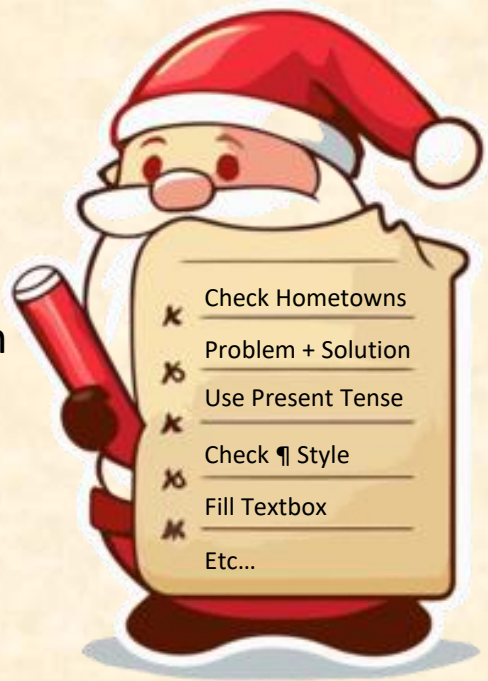
Our application also allows for extensive customizability including sliders to adjust starting battery charge, climate control, temperature and weather conditions to account for the effects these factors have on battery consumption.

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.

Never write anything negative about your sponsor.

- Beginning
- Middle
  - Problem
    - Emulate Santa Claus.
      - Make a list.
      - Check it many times.
  - Solution



- End

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.

Artwork

[1 of 7]

- Read the instructions carefully.
- Must be of Your Working Software ← Note
- NOT Screen Mockups ← Note
- Take 2 to 3 screenshot(s) of working software.
  - Use eye-catching examples.
  - Avoid boring or trivial things.
    - Splash Screens
    - 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 https://mockuphone.com.
  - Eliminate frame shadows.

Artwork

[2 of 7]

- Read the instructions carefully. ← Have I mentioned this yet?
- Add borders to .PNG if necessary or if unsure.
  - If Blends Into White Background
  - Create a single PNG for each piece of artwork using PowerPoint.
  - Use PowerPoint. Read the instructions.
- Capture and provide very high-resolution images.
- Preserve aspect ratios.
- Crop to eliminate transparent "borders."
- Eliminate all surrounding "whitespace."
- Use paint.net for turning solid white space into transparent space and cropping.
- See examples.
  - The Capstone Experience Booklets in Lab
  - Design Day Booklet Feedback, Spring 2025
  - Design Day Booklet Feedback, Fall 2025
  - Previous Design Day Booklets (Design Day > Booklet)
- Make a Checklist ← Have I mentioned this yet?

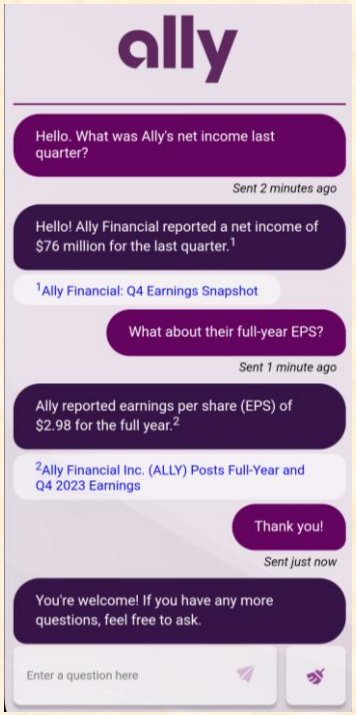
Emulate Santa Claus.

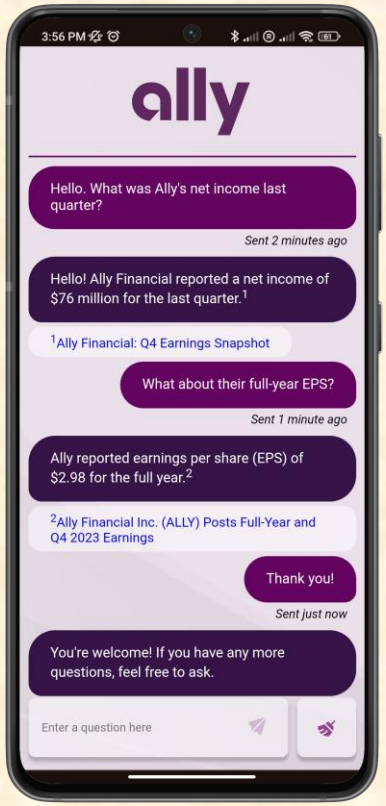
- Make a list.
- Check it many times.



Artwork

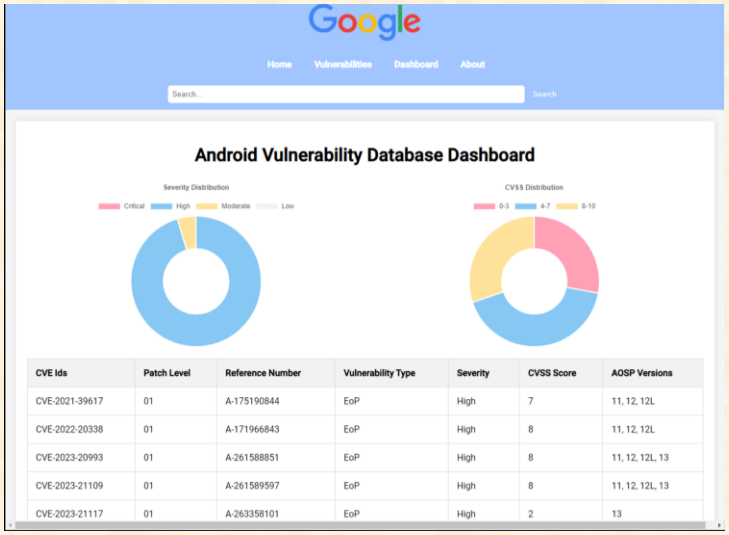
Embedded Mobile App

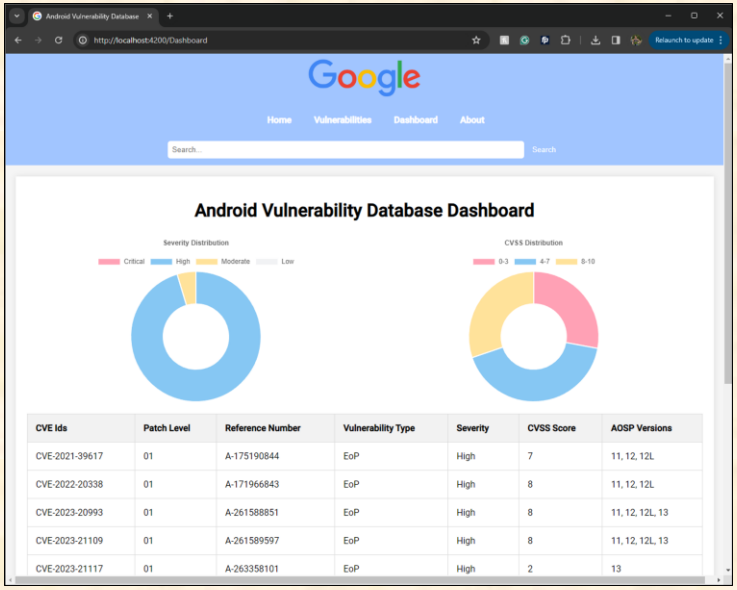




Artwork

Embedded Browser App



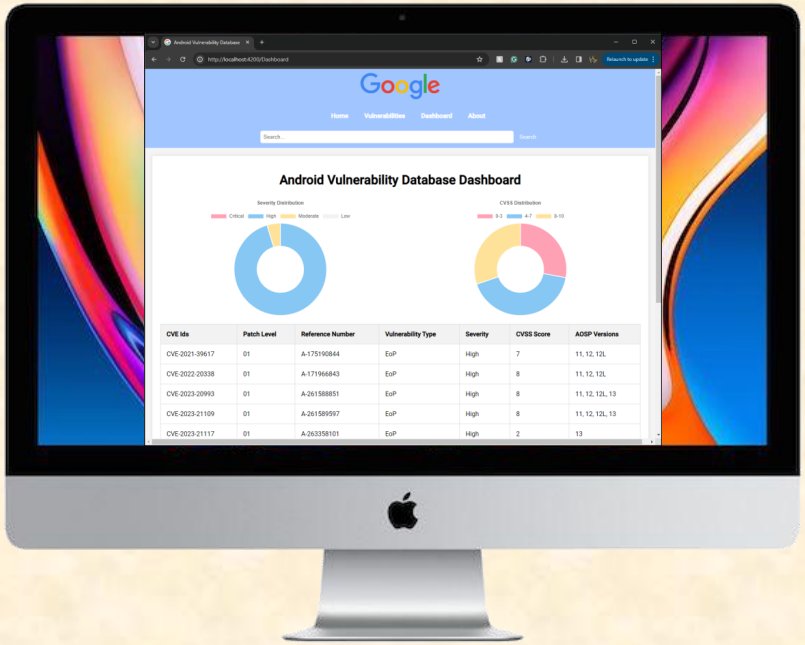


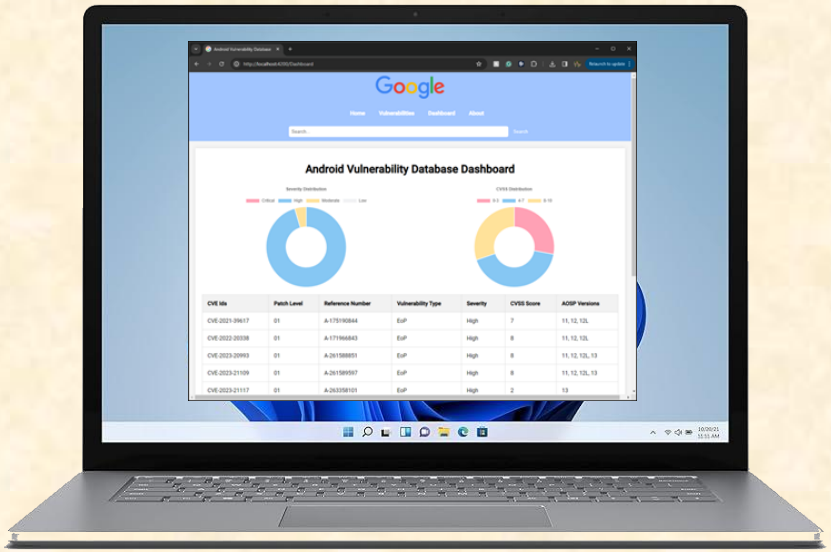




Artwork

Embedded Browser App

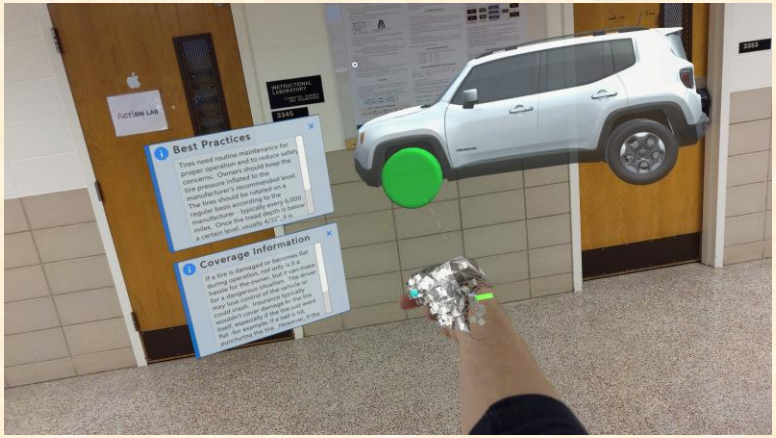




Why not?

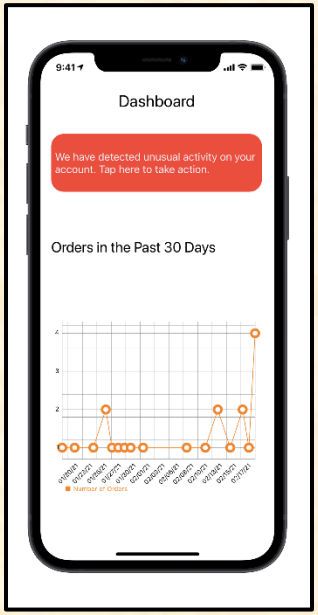
Artwork

Non-Embedded VR/AR App



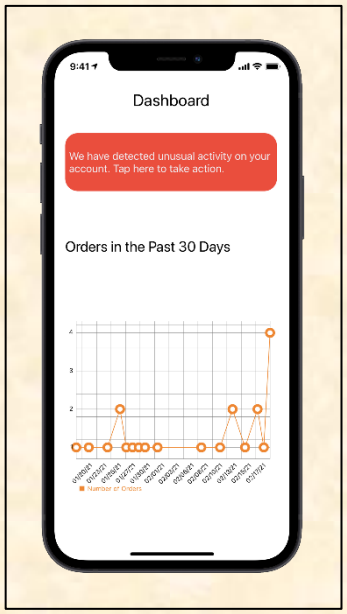


Artwork



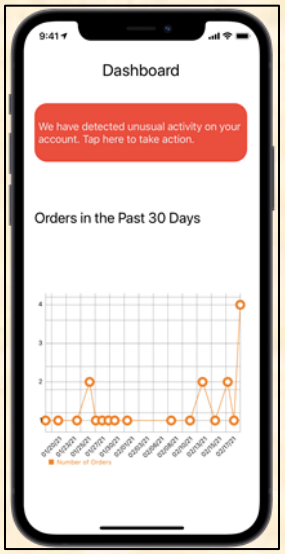
Too Much Solid White Whitespace

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



Too Much Transparent Whitespace

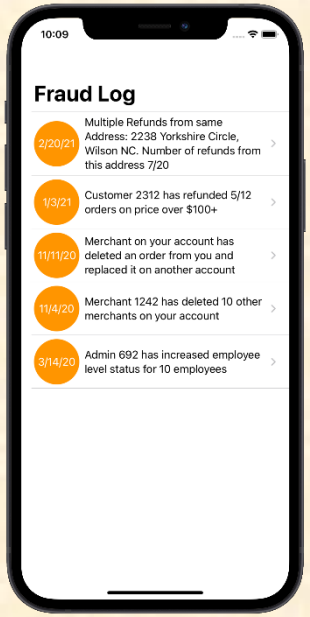
What's wrong with transparent whitespace?

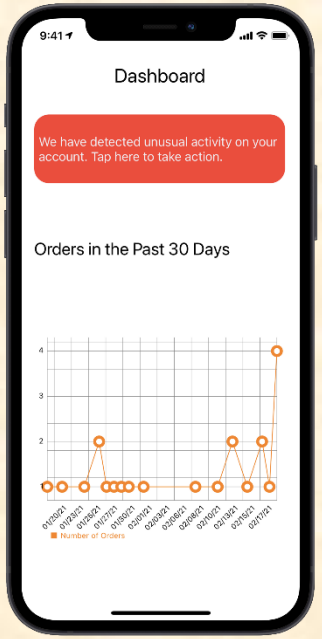


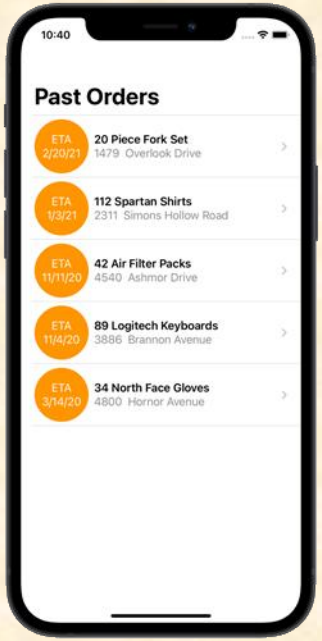
Nicely Cropped Transparent Whitespace

Artwork Whitespace Issues

[1 of 4]







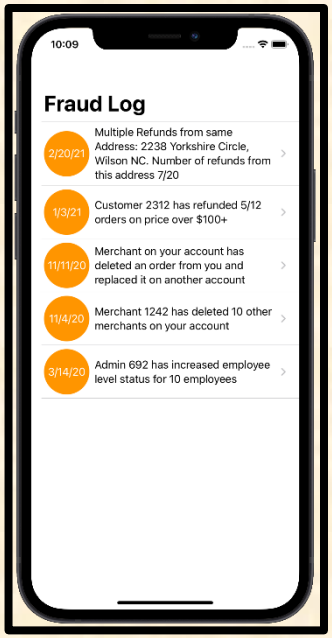
Look Identical

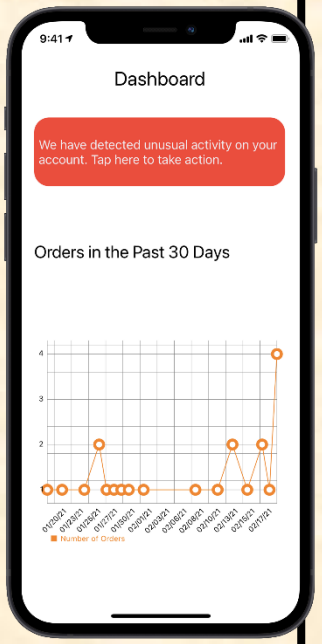
What's the problem?

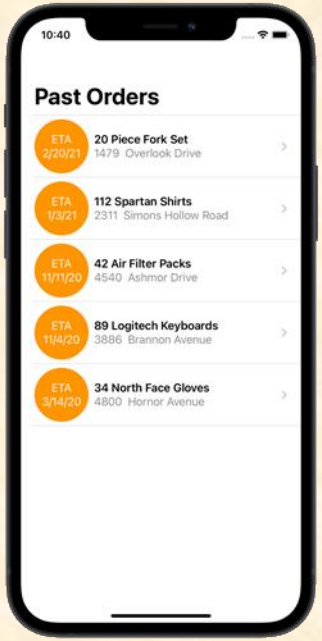
Key: Think about our graphical designer copying your artwork (png files) into InDesign, selecting all three of them, and then resizing them all to the same height.

Artwork Whitespace Issues

[2 of 4]





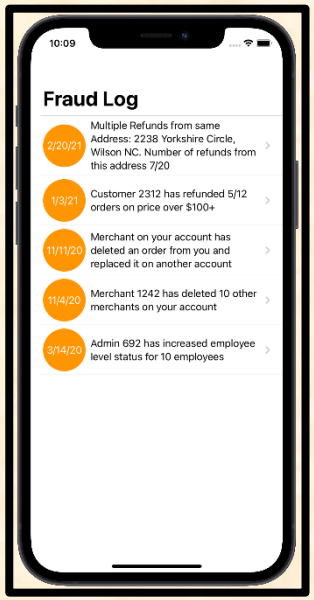


Border shows transparent whitespace.

Transparent whitespace is part of the image.

Designer selects all and makes them all 3” high.

Artwork Whitespace Issues [3 of 4]





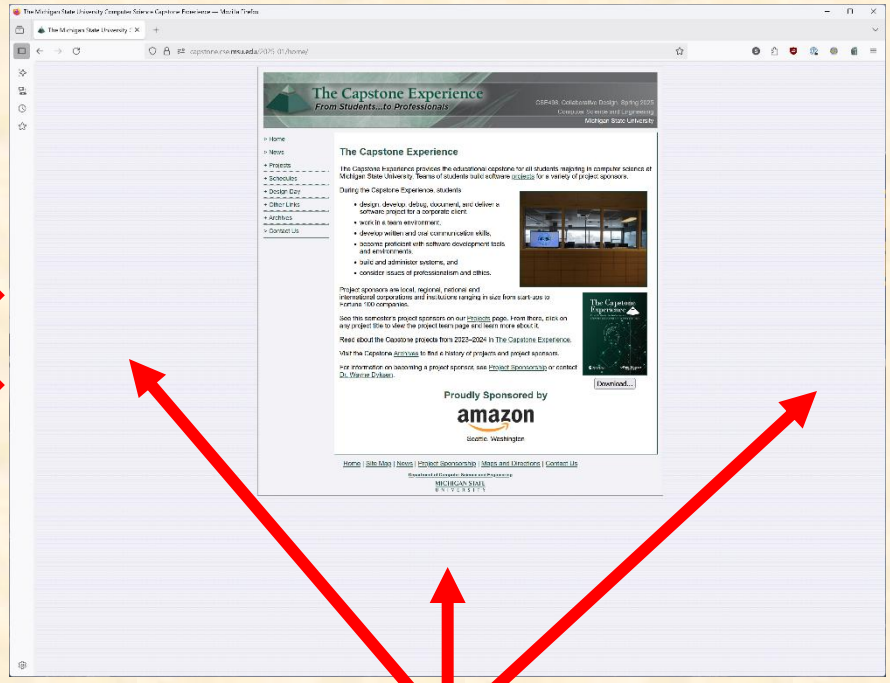


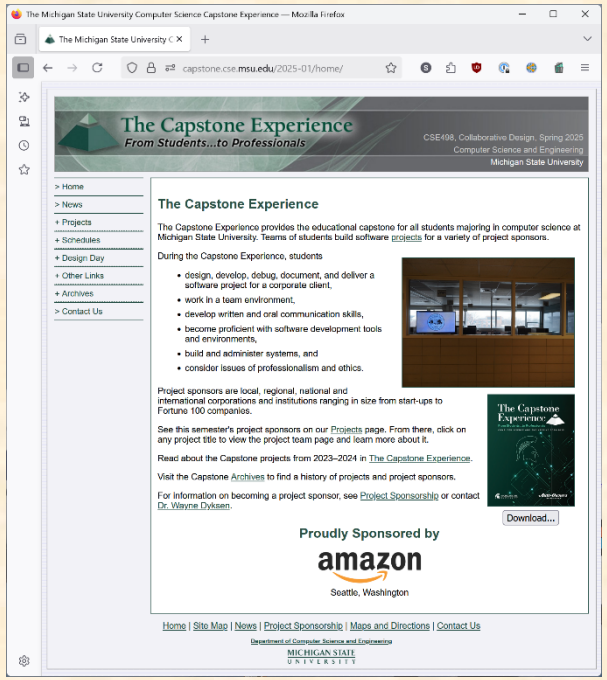
Select All. Rescale to 3” Height. The images (black boxes) are all 3” high.

Download Design Day Artwork Whitespace Tester

Artwork Whitespace Issues

[4 of 4]





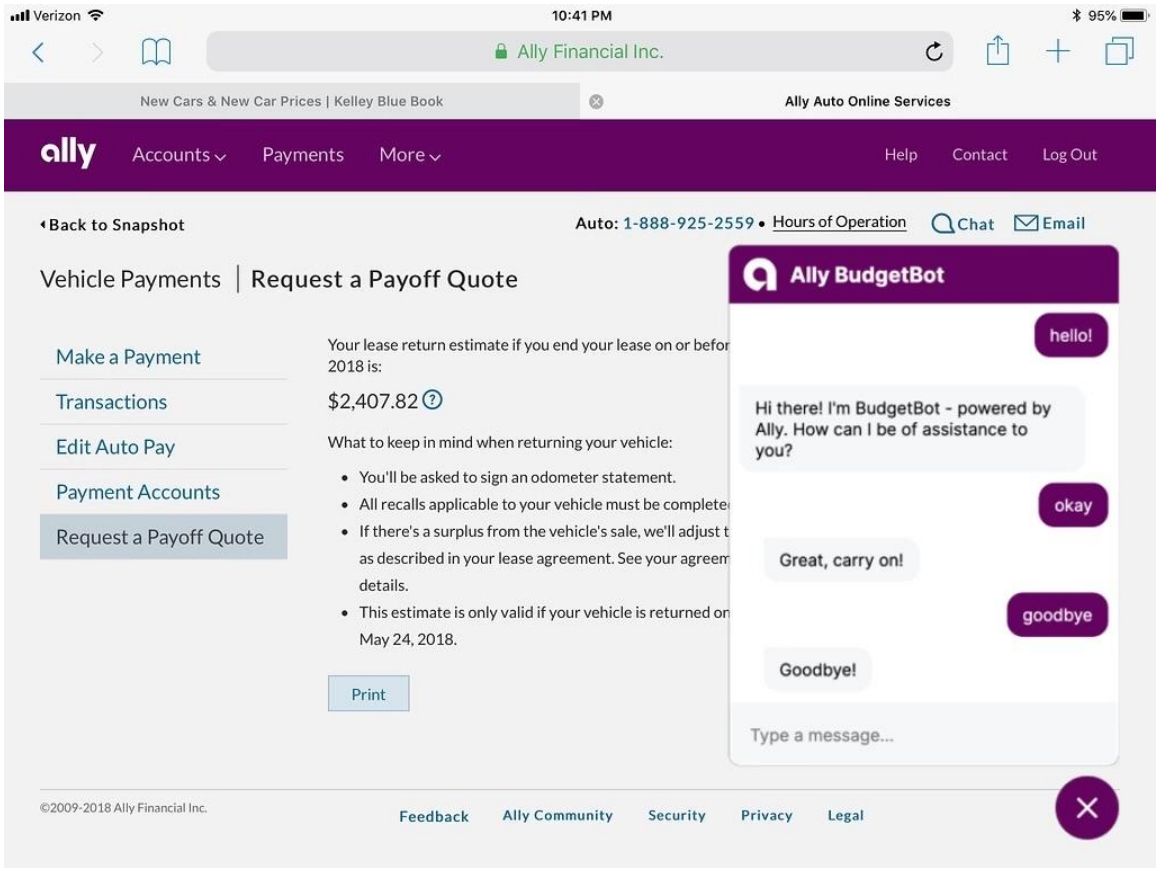
Effectively White Space

Screen Captures of Desktop Apps.

Artwork Border Issues

[1 of 8]

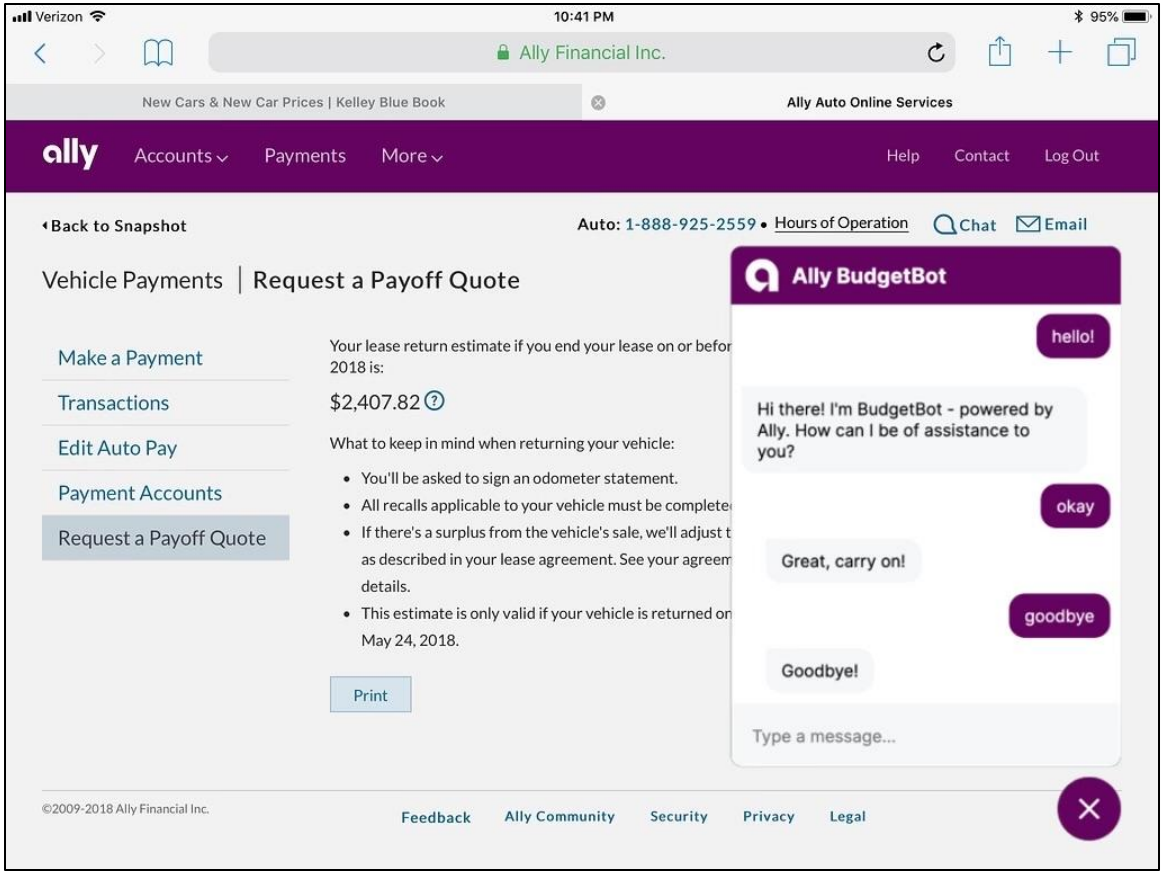
Artwork Blends into Background



Artwork Border Issues

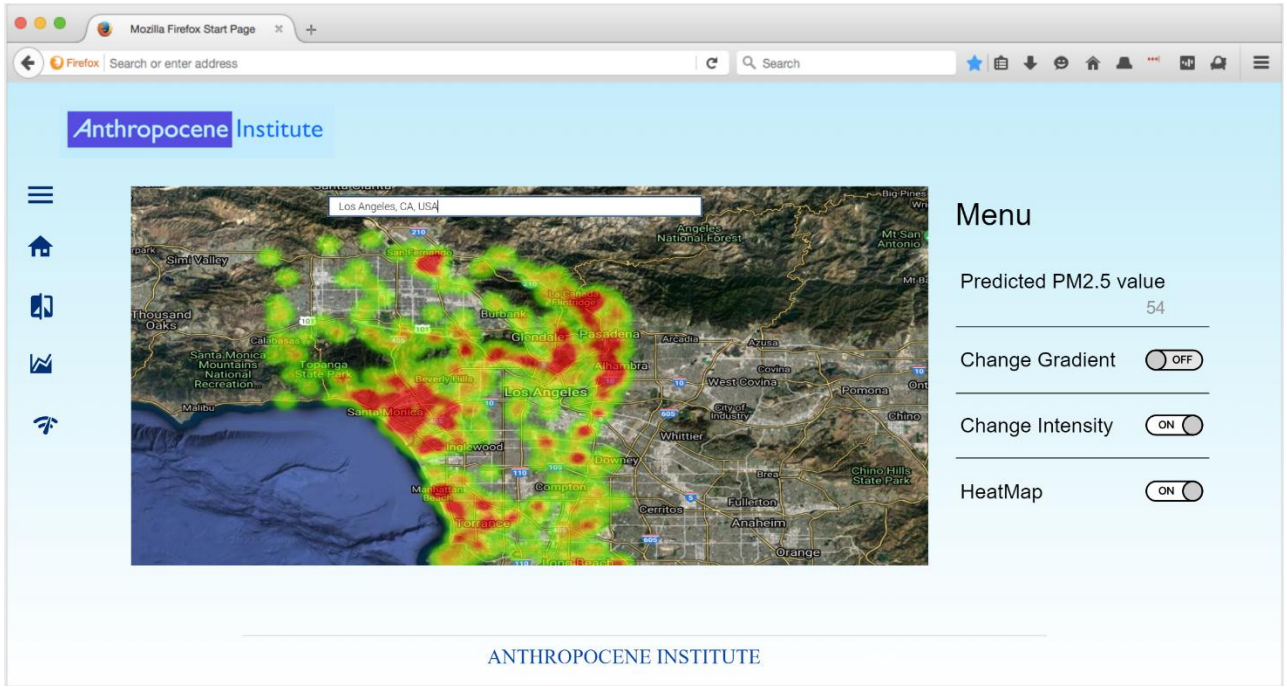
[2 of 8]

Issue Fixed
Border Added to .PNG
Using PowerPoint
See Instructions



Artwork Border Issues

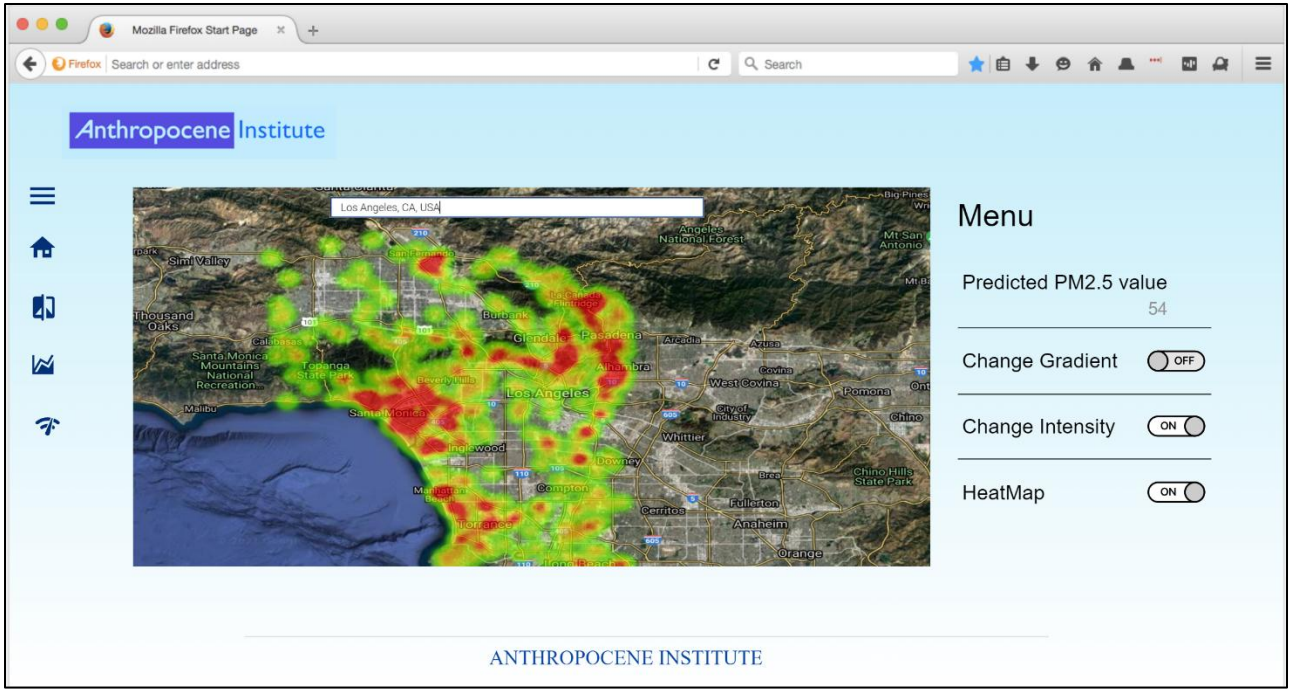
[3 of 8]



Artwork Border Issues

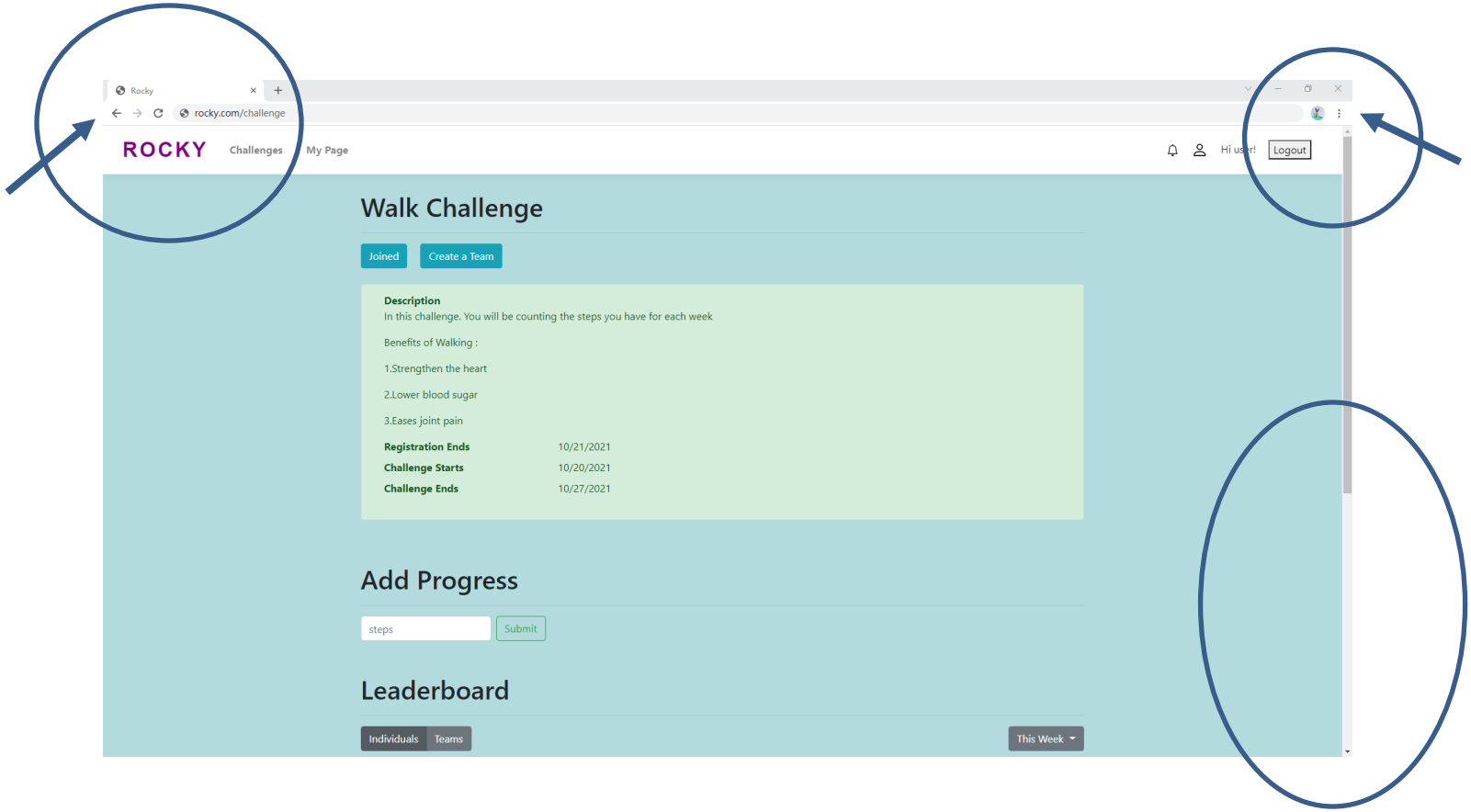
[4 of 8]

Issue Fixed
Border Added to .PNG
Using PowerPoint
See Instructions



Artwork Border Issues

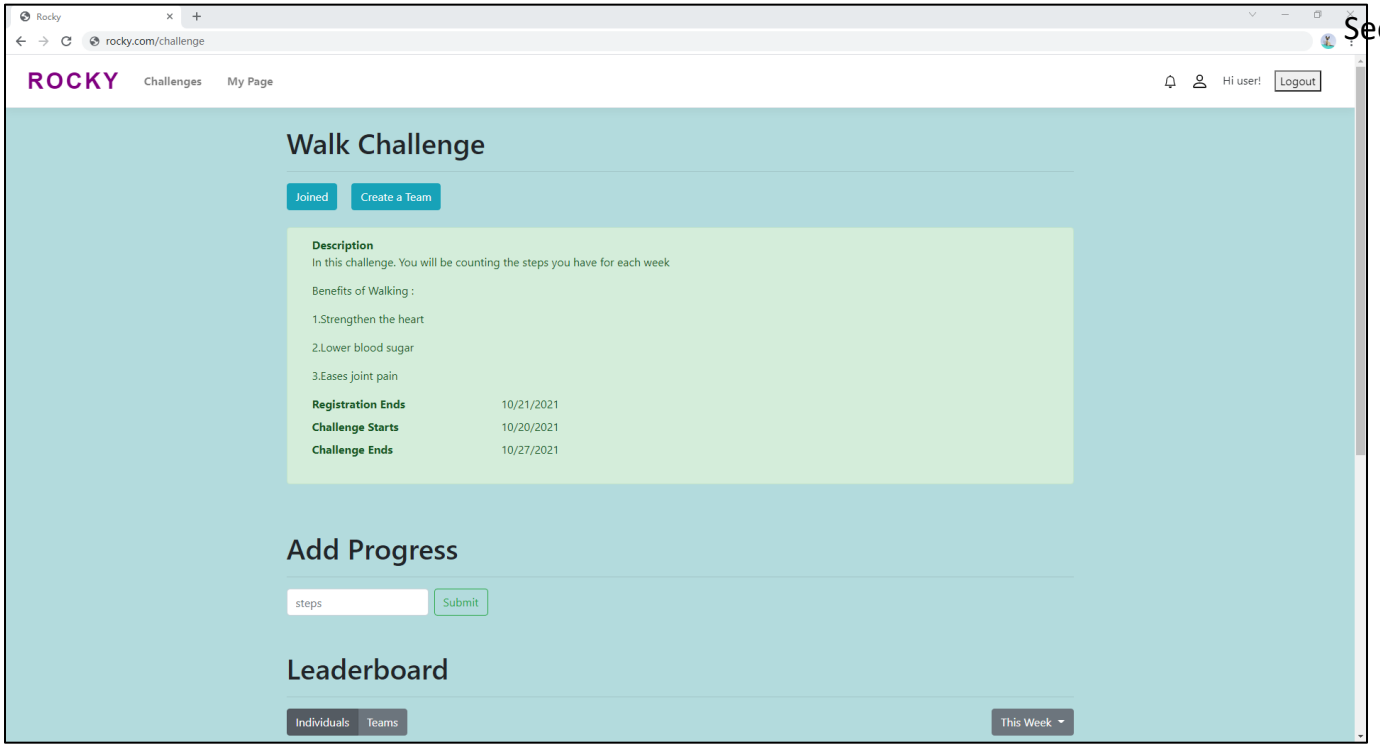
[5 of 8]



Artwork Border Issues

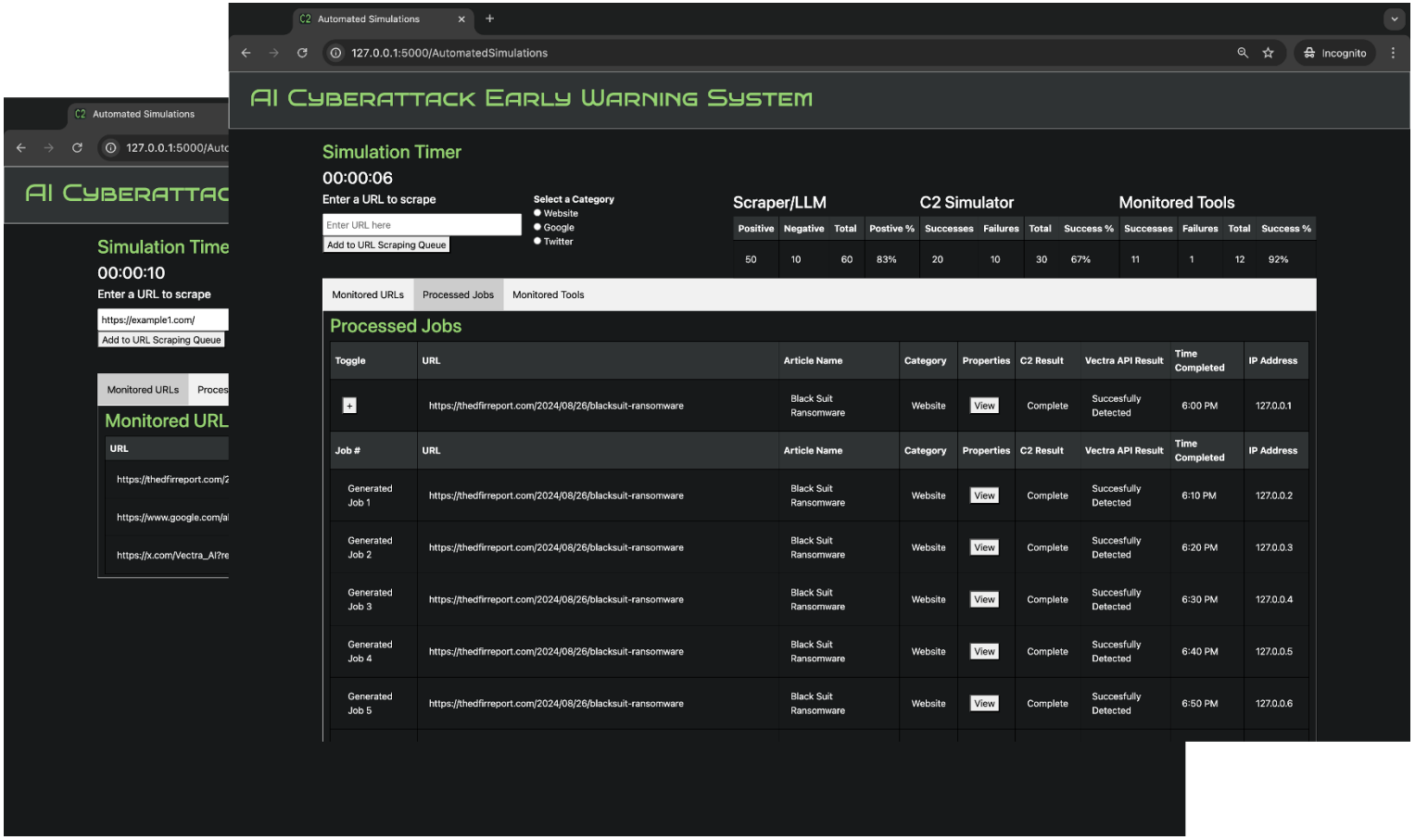
[6 of 8]

Issue Fixed
Border Added to .PNG
Using PowerPoint
See Instructions



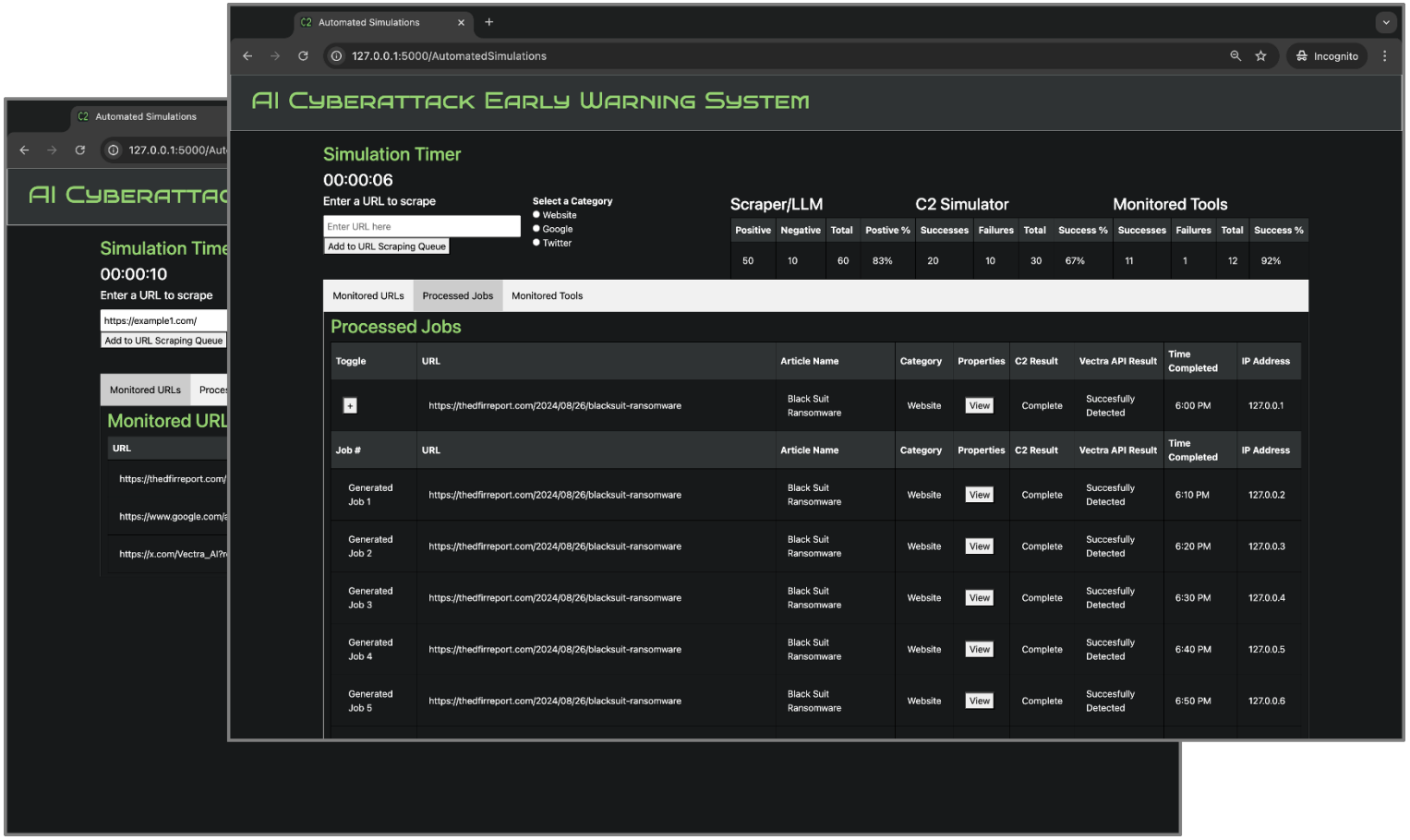
Artwork Border Issues

Overlapping Artwork with No Border



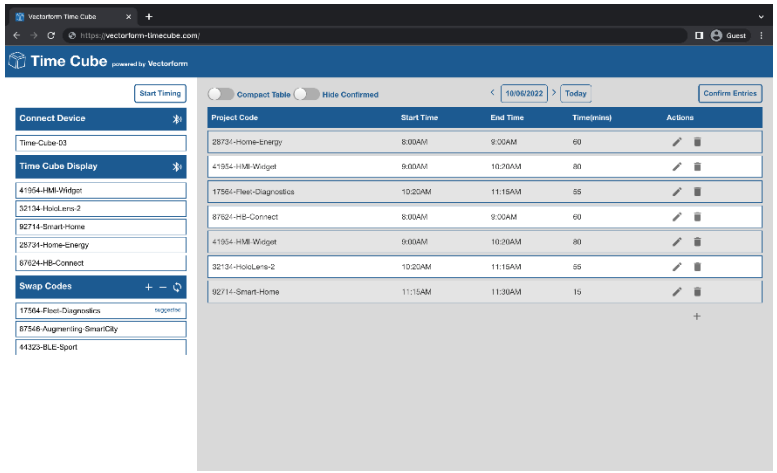
Artwork Border Issues

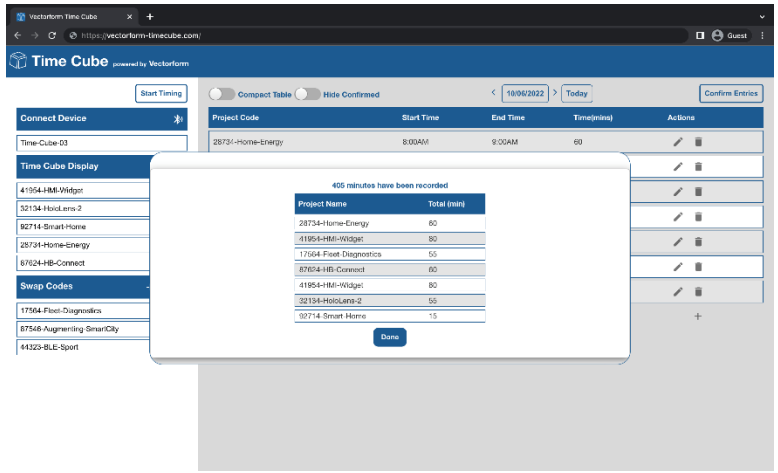
Overlapping Artwork with Grey Borders



Adding Artwork Border Issues [1 of 5]

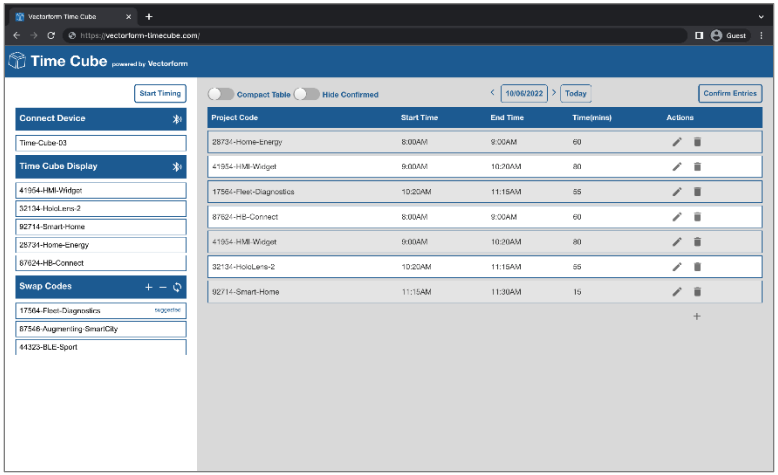
Original Screen Capture PNGs

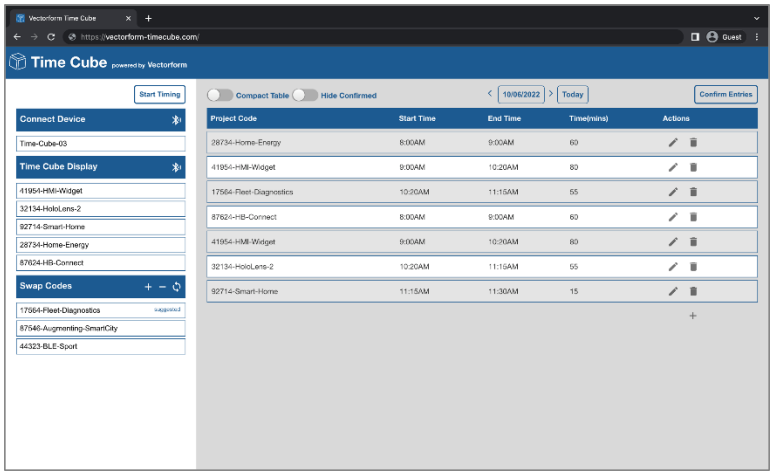




Adding Artwork Border Issues [2 of 5]

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

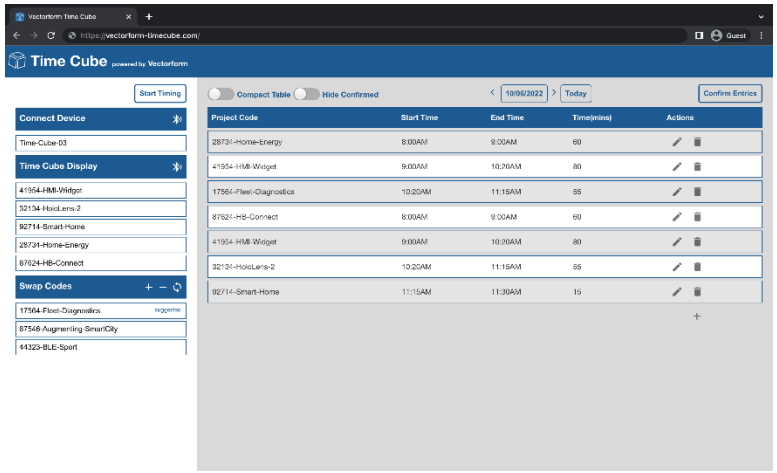


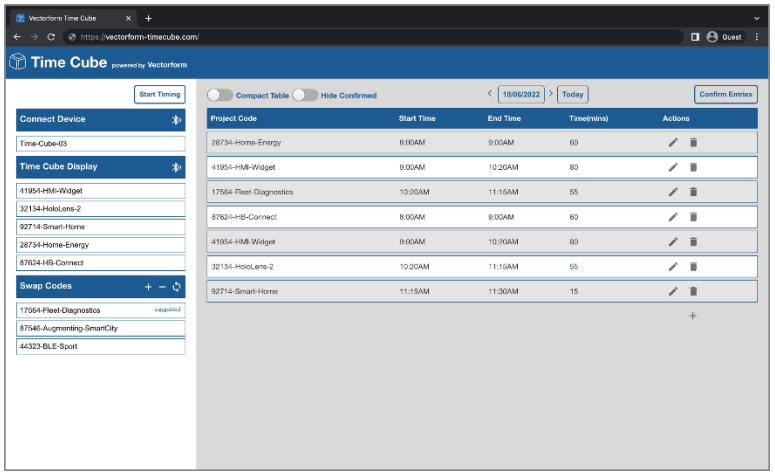


Looks fine, right? What's wrong?
Key: Graphic designer does not copy-and-paste artwork from the Word document.
Graphic designer copies PNG files into Design Day booklet.

Adding Artwork Border Issues [3 of 5]

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

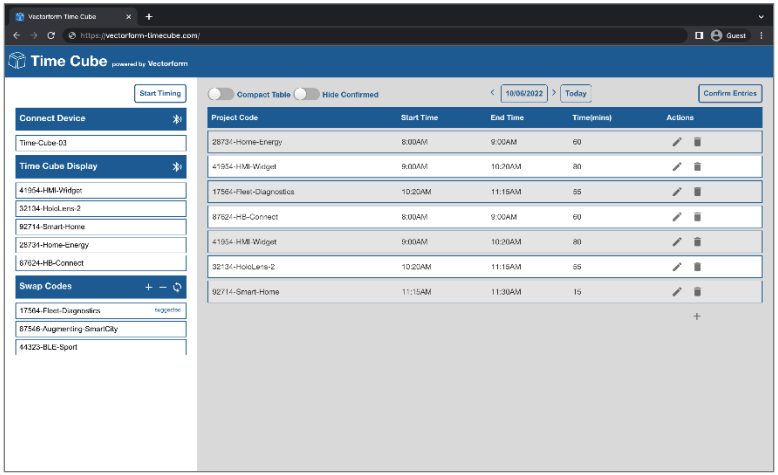


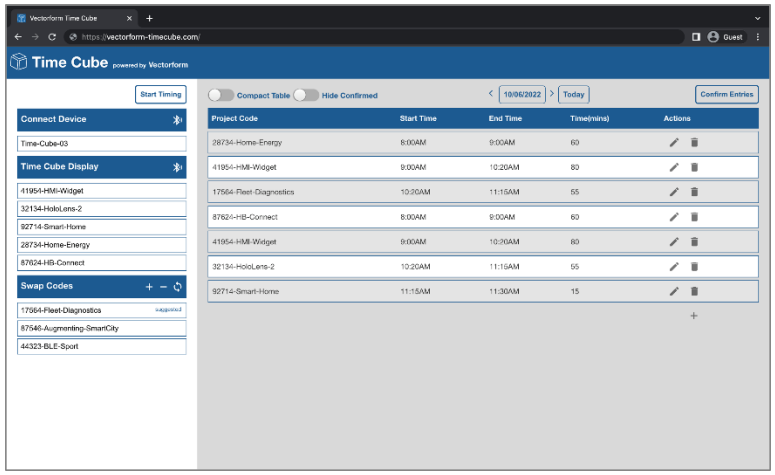


Key: Graphic designer does <u>not</u> copy-and-paste artwork from the Word document. Graphic designer inserts PNG files into Design Day booklet.

Adding Artwork Border Issues [4 of 5]

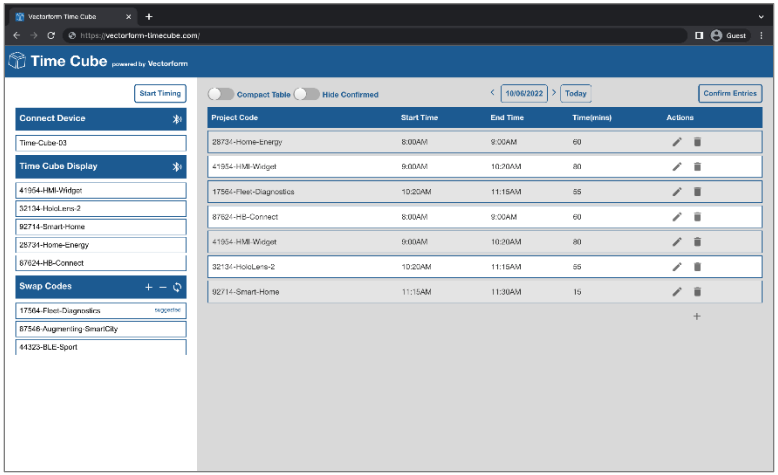
Border Added to Both Artwork PNGs using PowerPoint

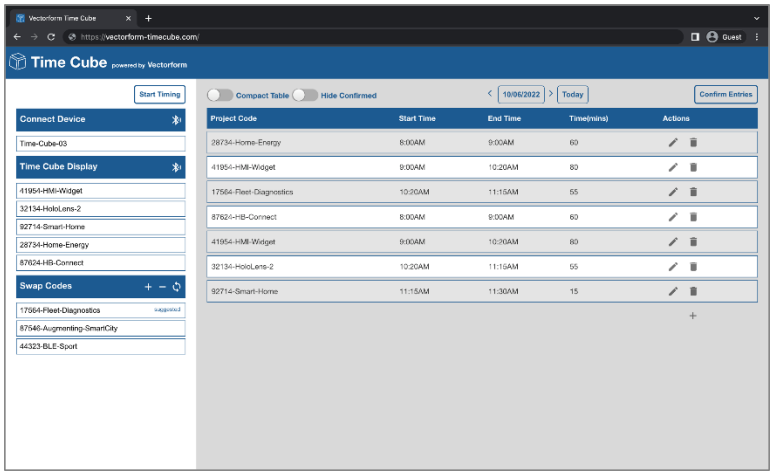




Adding Artwork Border Issues [5 of 5]

Graphic Designer Imports Artwork PNGs into InDesign

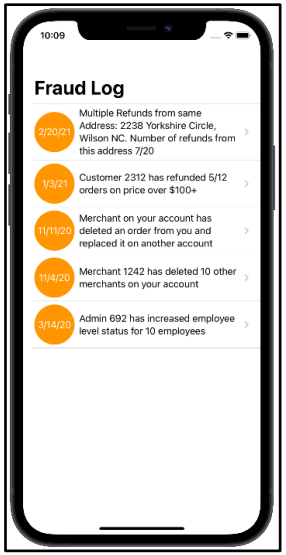




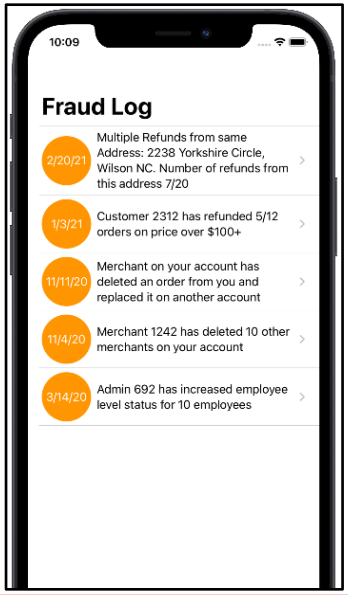
Textbox Clipping Artwork

[1 of 1]

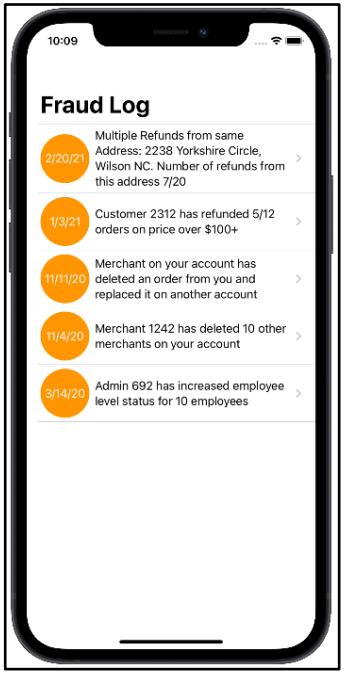
Original



Resized Artwork
Clipped by Textbox

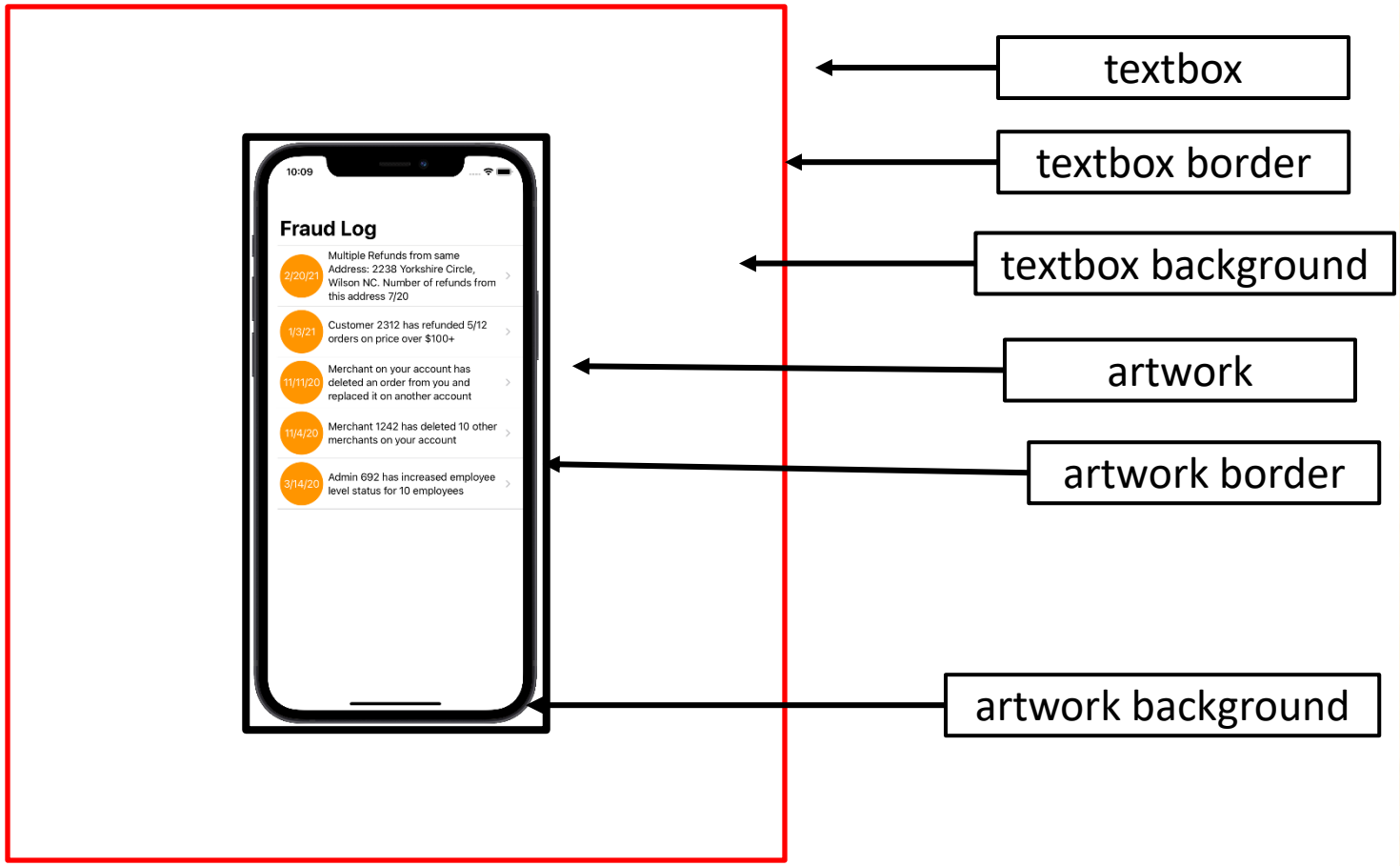


Resized Textbox



Artwork Who's on first?

[1 of 3]

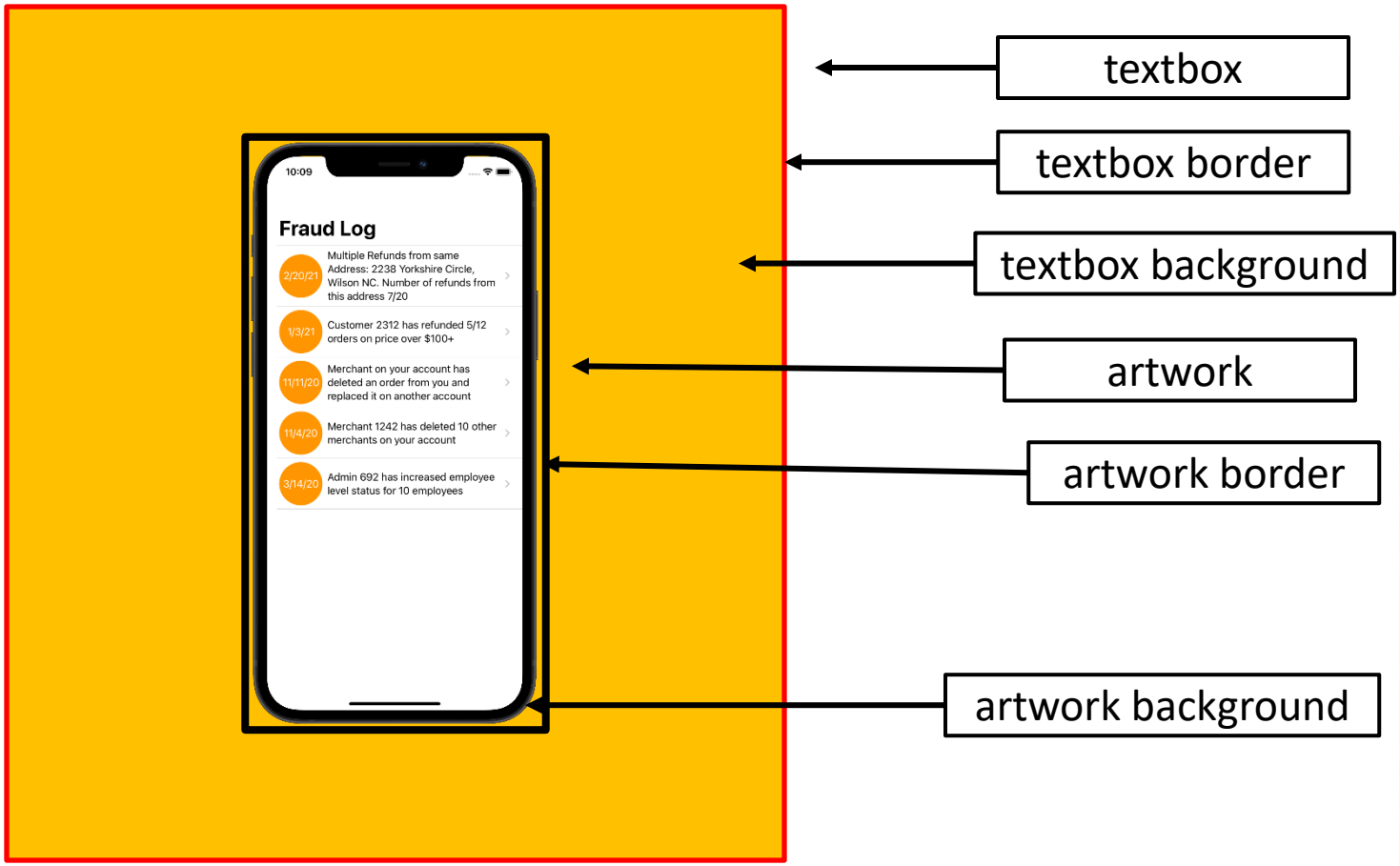


Artwork Who's on first?

[2 of 3]

Changed color of textbox background.

Artwork has transparent background.

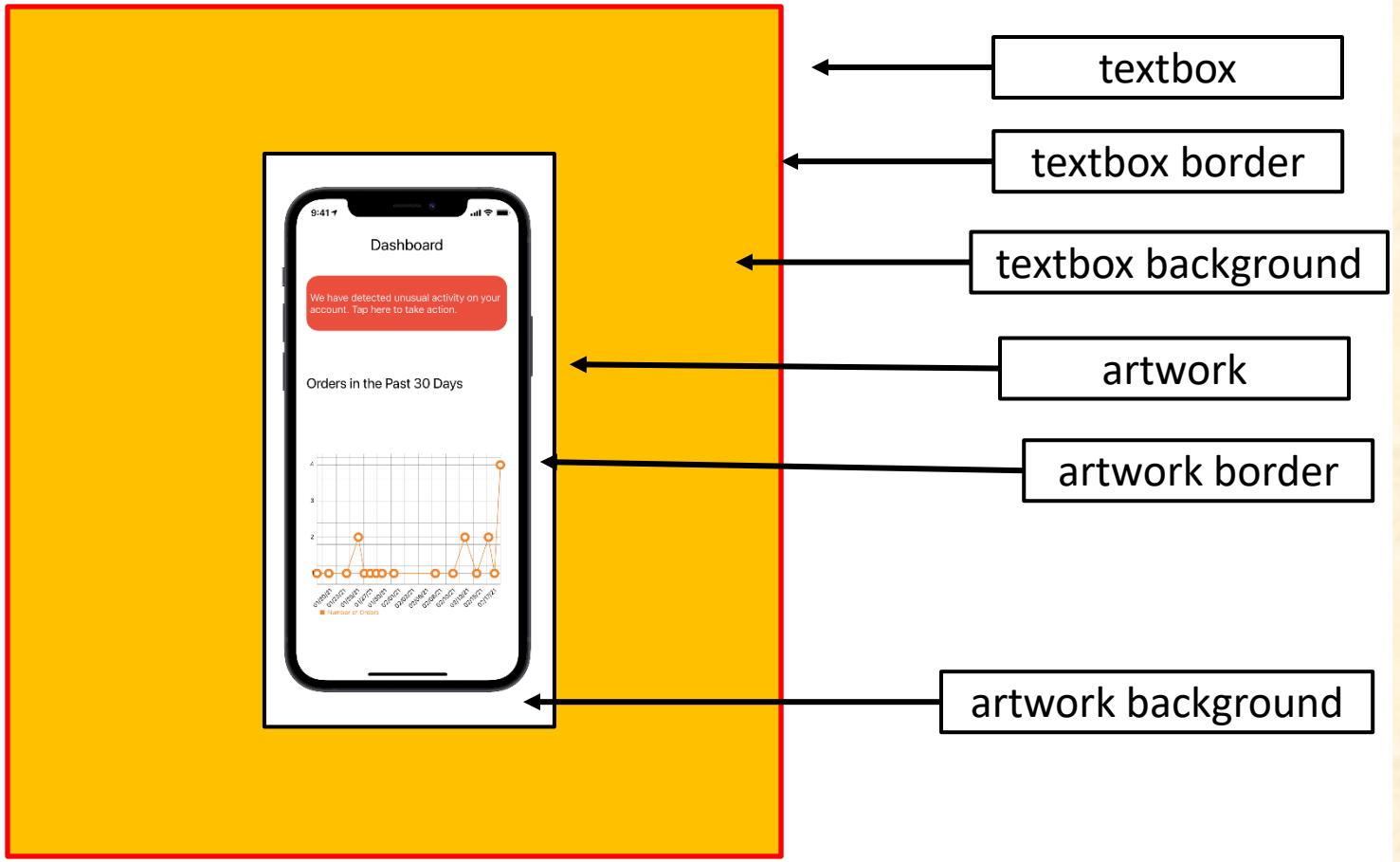


Artwork Who's on first?

[3 of 3]

Changed color of textbox background.

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



Artwork Examples

[1 of 7]

The Capstone Experience

NetJets

Airport Capacity and Ground Space Management

NetJets is the world leader in private aviation, having pioneered the fractional ownership model. Today, NetJets operates the largest and most diverse fleet of private jets, and safety is their top priority.

To serve their owners effectively, NetJets fleet operates in over 3,000 airports to provide a responsive on-demand service. Balancing the capacity levels of each airport is therefore a constant challenge in the quest for a high level of service in the air and on the ground: if an airport starts to near capacity, they must relocate planes to other Fixed Base Operators (FBOs) or airports to accommodate incoming flights.

Currently, NetJets employees must calculate the available ground space of airports and determine the best distribution of their planes with very limited automation. Our Airport Capacity and Ground Management system provides a visual representation of the capacity levels at their busiest airports, as well as provide recommended actions to be taken for optimal fleet management.

The user can select an airport to view by either clicking on the pin for that airport on the map view page, or through text search. Once selected, a satellite view of the parking lot layouts and locations are displayed, as well as information such as traffic overview, incoming flights, and the status of FBOs, which provide parking and plane storage.

The recommendation engine of our system provides the best course of action for the distribution of the fleet currently located at a specific airport. It considers factors such as aircraft size, repairs needed, airport capacity and weather to give recommendations on where to park the planes at that airport, including if they should be moved to a different airport.

The front end of our system is built with React, while the back end utilizes Node.js. The website is hosted on AWS with our data stored using an Amazon Relational Database Service (RDS).



NETJETS®



Michigan State University
Team Members (left to right)
Ryan MacDonald
DeWitt, Michigan
Kendall Korcek
Dexter, Michigan
Jay Scott
Warren, Michigan
Emily Telgenhoff
Midland, Michigan
Ben Grycza
Clarkston, Michigan
Ryann Seymour
Grand Rapids, Michigan

NetJets
Project Sponsors
Amadou Anne
Columbus, Ohio
Eric McCarty
Columbus, Ohio
Morgan Schall
Columbus, Ohio
Kyle Sims
Columbus, Ohio

PAGE 54



NETJETS®

Artwork Examples

[2 of 7]



Computer Science and Engineering

Delta Dental of Michigan, Ohio and Indiana
3D Analysis of Dental Patient History

Delta Dental provides dental insurance coverage to more than 90 million Americans. They operate in all 50 states, making them one of the largest dental insurance providers in the United States.

Delta Dental processes millions of claims per year from their subscribers. When the claims go through their claims processing system, further human review by adjudicators may be required to correct malformed data or to review the validity of the claim.

Claims are reviewed through the context of the patient's dental history, which Delta Dental has comprehensive access to. This includes any procedures or treatments performed on any patient, leading to a massive amount of data.

The 3D Analysis of Dental Patient History assists adjudicators by visualizing the dental patient history. Our web application features a 3D model that shows a patient's entire dental history where the user rotates, zooms in, and selects specific teeth on the model. Selecting a tooth displays all information about its previous procedures and treatments as well as a more detailed individual tooth model.

In the web application, users edit existing data and upload new data. Inputting information can be done manually through a form or by uploading other records that are kept on file.

Once new data is uploaded, users view the patient's information in the 3D model. With access to a patient's complete dental history, past procedures and treatments are viewed in chronological order.

Our application streamlines claim reviews by enabling Delta Dental employees to quickly and accurately visualize patient history, saving valuable time and effort.

The front end of our web application is built with Angular. Three.js is used to display 3D models and Bootstrap provides formatting for the front end. Java Quarkus is used for connecting Angular to the PostgreSQL back end.

DELTA DENTAL®

Michigan State University
Team Members (left to right)

Ben Crimmins
Beverly Hills, Michigan

Lance Stemple
Midland, Michigan

Jacob Robson
New Lenox, Illinois

Sanju Kona
Saint Joseph, Michigan

Jasen Van Acker
Rochester Hills, Michigan

Thomas Toaz
Ionia, Michigan

Delta Dental 3DADPH
Project Sponsors

Mukundan Agaram
Okemos, Michigan

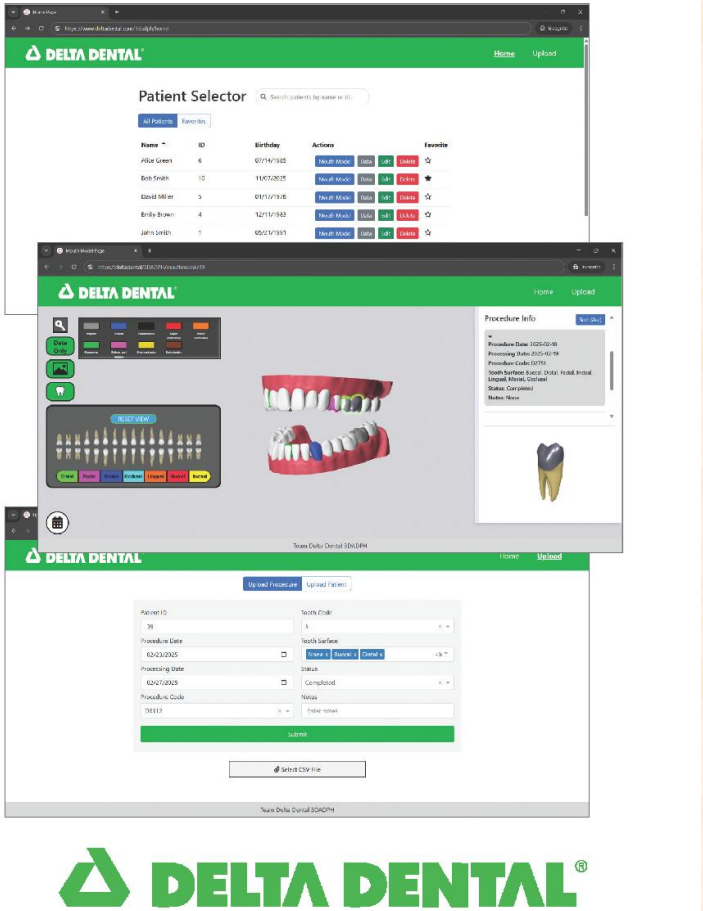
Michael Chen
Okemos, Michigan

Jacob Ernst
Okemos, Michigan

Toby Hall
Okemos, Michigan

Daniel Magaway
Okemos, Michigan

PAGE 39



DELTA DENTAL®

Artwork Examples

[3 of 7]

The Capstone Experience

Henry Ford Innovations
Modernizing Robotic Surgery Education 2.0

Henry Ford Health is a leading not-for-profit healthcare organization headquartered in Detroit, Michigan. Founded over 100 years ago, Henry Ford Health is recognized nationally due to its commitment to community care and breakthroughs in education, research, cancer treatment, and more.

As partners, Henry Ford Health and Michigan State University collaborate to innovate medical education and patient well-being.

Residents learning new surgical methods involving robotic equipment must first learn how to operate it effectively. There is a need for specialized software to adapt this education to newer generations of surgeons.

Our Modernizing Robotic Surgery Education 2.0 system improves the learning experience with new data analysis and discussion forums.

With our user-friendly focus, our updated software implements a personalized experience for both students and instructors. Employing a widget system, users enjoy a custom dashboard with valuable insights that streamlines the robotic surgery learning process.

Additionally, we have a mobile iOS application that connects to our web application. Data synchronizes between both applications, ensuring real-time updates.

Our software solution also features a discussion forum, where instructors and students collaborate, ask questions, and obtain feedback.

The platform links its data to a private and secure cloud server which stores data and settings, including login data. Users must undergo multifactor authentication to enhance security.

Our web-application uses Flask, PyTorch, Docker, JavaScript, Dash, HTML, and CSS to provide a seamless experience. We use Swift to extend the application to iOS platforms.





Michigan State University
Team Members (left to right)

Caden Fisher
Grand Rapids, Michigan

Bryan Tran
Southfield, Michigan

Hayden Hiller
Grand Blanc, Michigan

Neha Kumar
Canton, Michigan

Dylan Troyer
Northville, Michigan

Miranda Gabbara
Washington, Michigan

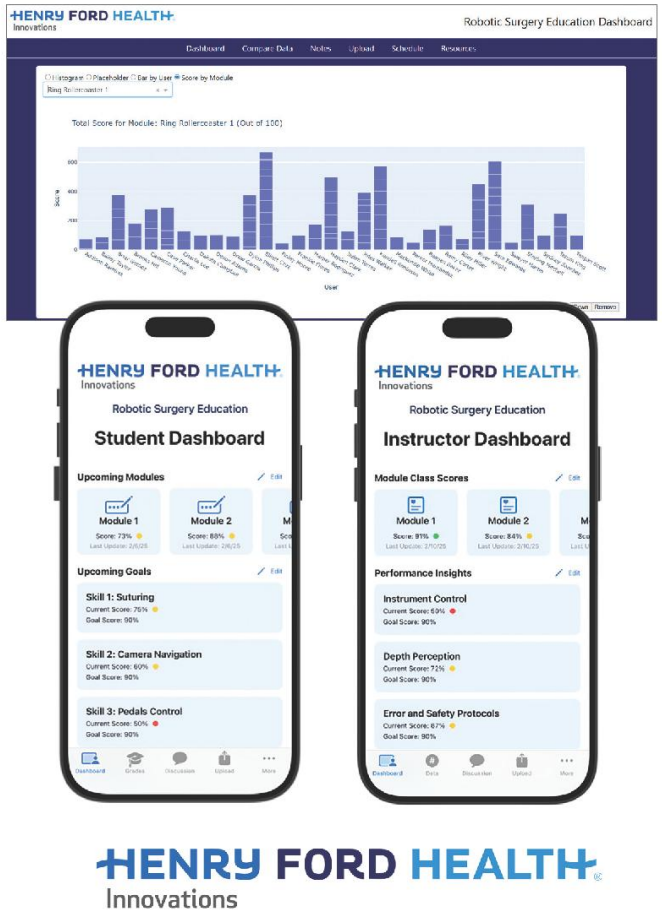
Henry Ford Innovations RSE
Project Sponsors

James Adams
Detroit, Michigan

Surya Nalamati
Detroit, Michigan

Vikas Relan
Detroit, Michigan

PAGE 44



Artwork Examples

[4 of 7]

The Capstone Experience

Stryker
Surgical OR Instruments and Needle Tracking

Stryker is a Fortune 500 company that provides world class medical technologies to hospitals worldwide. From surgical equipment to neurotechnology, Stryker impacts over 150 million patients annually across more than 75 countries.

Millions of surgical procedures are performed each year. Throughout each procedure, safety is critical to ensure the best outcome for the patient. The impact of retained surgical items is a major safety concern. Nearly 12 times daily, retained surgical items occur in the USA. Retained surgical items lead to financial strain, malpractice allegations, and threaten a patient's wellbeing.

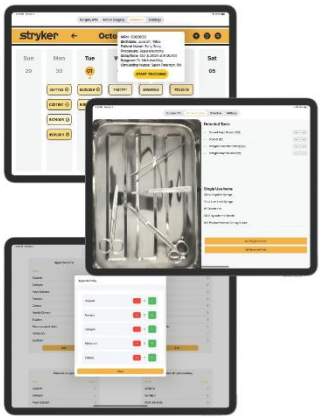
Our Surgical OR Instruments and Needle Tracking iOS app uses real-time tracking and verification checkpoints to improve accuracy and efficiency of tracking instruments within the operating room (OR).

When opening the app, the surgical operating room schedule is displayed. From there, the user may select a procedure to begin tracking. Once selected, the user is directed to pre-check, where initial scans of surgical tools are taken for automated tracking in addition to manual verification. During active surgery, a live feed and the use state of surgical tools is shown. A final post-check is enabled to verify all instruments and needles are accounted for.

Users view, update, and add surgical procedures with corresponding tool catalogs. If circumstances require, tool catalogs may be updated mid-procedure as well. Status logs from completed operations are also available for audit and analytical purposes.

Our app aligns with Stryker's mission to make healthcare better by saving surgical personnel time, minimizing error and decreasing retained surgical items.

The app's front end uses Swift, SwiftUI and UIKit. CoreML integrates our YOLO model and PyTorch. Node.js and Express.js are used to run the back end. The data is hosted on an Ubuntu Server.



stryker



Michigan State University
Team Members (left to right)

Ryan Filipiak
Dexter, Michigan

Duong Tran
Hanoi, Vietnam

Joshua Mae
Rochester Hills, Michigan

Ashley Siegmund
Midland, Michigan

Declan Bahen
Canton, Michigan

Aditya Chaudhari
Aurangabad, Maharashtra, India

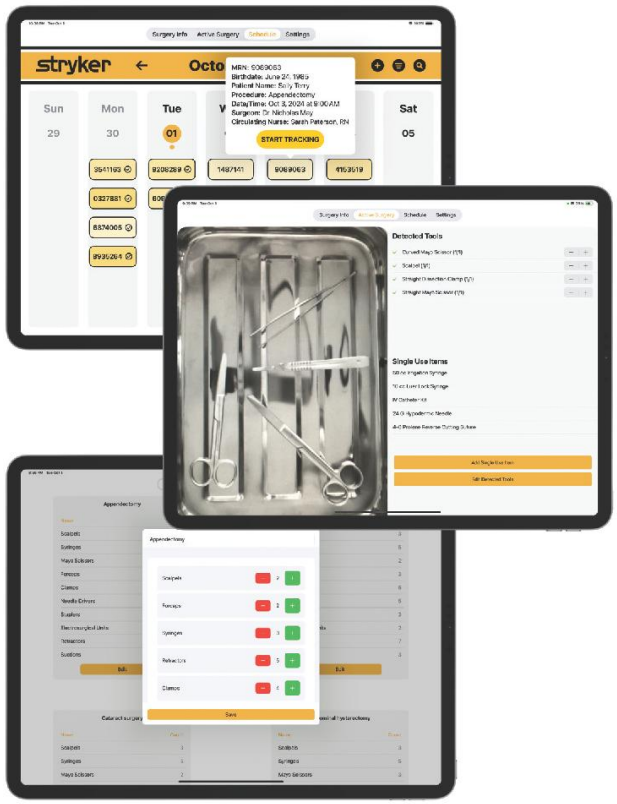
Stryker IST
Project Sponsors

Martin Griffin
Portage, Michigan

Patrick Lafleche
Portage, Michigan

Ross Nave
Portage, Michigan

Slaven Sutalo
Portage, Michigan



stryker

Artwork Examples

[5 of 7]

Computer Science and Engineering

RPM
Automated Damage Logging for Truck Drivers

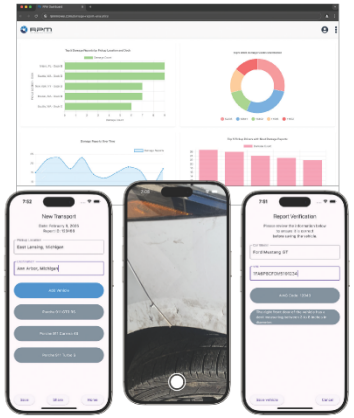
RPM is an international logistics and supply chain company based in Birmingham, Michigan. RPM specializes in freight transportation and vehicle logistics across North America and Europe. As a non-asset-based logistics company, RPM invests heavily in modern technologies and automation solutions.

RPM connects business clients with truck drivers to complete vehicle deliveries. Before transportation, truck drivers must manually log damages on each individual vehicle. This is a time-sensitive process and, when done incorrectly, can lead to costly disputes.

Our Automated Damage Logging for Truck Drivers provides drivers with a mobile app that automatically logs and classifies damages to a vehicle using photos of it. When a driver recognizes damage, they capture a photo of the vehicle and input its model and VIN. Our AI models analyze the images, identify the matching AIAG damage codes, and populate the report with a description of the damage that drivers edit before submitting. This reduces the time and effort needed for the logging process.

Our software also includes a companion web interface through which RPM's operational teams view damage reports, track user metrics, and visualize analytics. The dashboard provides real-time insights into damage trends, vehicle conditions, and reporting frequency, helping RPM optimize operations and reduce disputes. Reports from the mobile app are seamlessly transmitted to the web platform, ensuring efficient logging and retrieval.

Our mobile app is developed using Flutter, while the web interface utilizes React. A FastAPI back end, containerized with Docker and hosted on Azure, ensures scalability. Damage reports and user data are stored in a PostgreSQL database, and TensorFlow Lite enables real-time, on-device damage classification without requiring an internet connection.



RPM



Michigan State University
Team Members (left to right)

Alfredo Sanchez Perez
Caracas, Miranda, Venezuela

Dheeraj Thota
Vijayawada, Andhra Pradesh, India

Gavin Bourdon
Livonia, Michigan

Flower Akaliza
Nairobi, Nairobi County, Kenya

Hayden Rance
Troy, Michigan

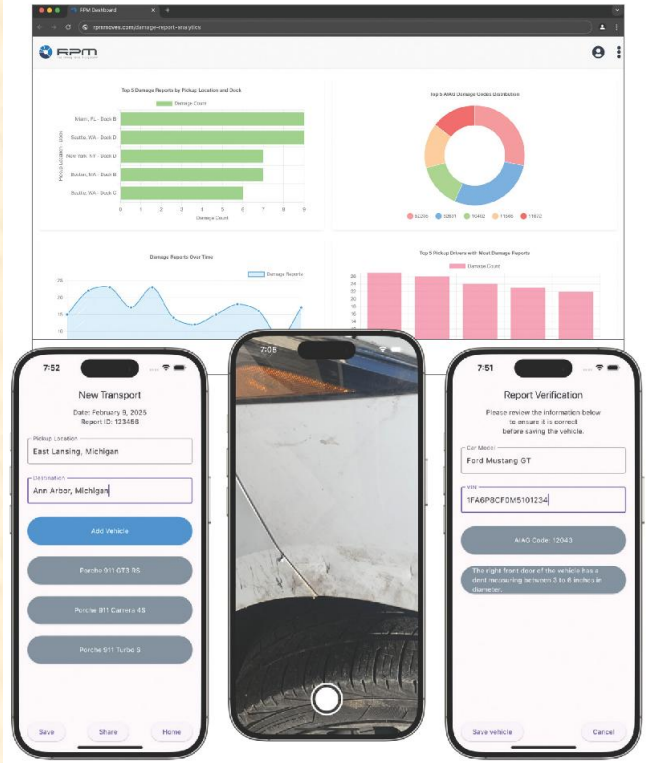
Troy Williams
Detroit, Michigan

RPM
Project Sponsors

Rick Grubb
Birmingham, Michigan

Synica Melton
Birmingham, Michigan

PAGE 55



RPM

Artwork Examples

[6 of 7]

The Capstone Experience

Union Pacific
Virtual Reality Inspection Training

Union Pacific has been building America for more than 160 years. Founded July 1, 1862, they are one of the largest railroad companies in the United States. With over 32,693 miles of track in 23 western states, Union Pacific boasts an impressive lineup of over 7,154 locomotives and a team of over 32,973 employees.

Identifying defective or faulty equipment is a safety-critical task performed by all Union Pacific engineers. However, it is challenging to train employees to perform this task as defective equipment is either repaired or discarded. A remote and easily available solution is needed to train engineers on how to inspect railroad equipment.

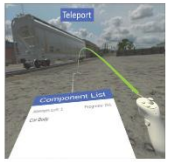
Our Virtual Reality Inspection Training system modernizes Union Pacific's training by converting existing training modules into a virtual reality (VR) format, creating an engaging and immersive environment for railcar inspection. Employees practice inspections in a hands-on manner, significantly improving both safety measures and operational efficiency. By shifting traditional training into a virtual space, workers receive more interactive experiences while gaining immediate feedback on their performance.

Our solution handles user interaction across different platforms, such as the Meta Quest 3 headset and an online learning management system (LMS). Each training session generates a unique PIN, which manages a user's details and tracks their progress. With the LMS integration, scores are automatically recorded and stored, simplifying the overall process.

The back end of the system, using Java and Spring Boot, connects to a PostgreSQL database, while the React-based interface handles the user experience and course setup. The VR headset communicates with the back end to access necessary data and submit completed course results, ensuring smooth interaction between all components.







UNION PACIFIC
BUILDING AMERICA®



Michigan State University
Team Members (left to right)

Nicolas Georgescu
Grand Rapids, Michigan

Tyler Ziegenfelder
Orchard Lake, Michigan

Luc Walz
Grosse Pointe, Michigan

Sasha Tarasova
Lansing, Michigan

Sean Burch
Tampa, Florida

Mohammad Zaman
Warren, Michigan

Union Pacific
Project Sponsors

Jeff Girbach
Milford, Michigan

Adam Hailey
Omaha, Nebraska

Hunter Oestmann
Johnson, Nebraska

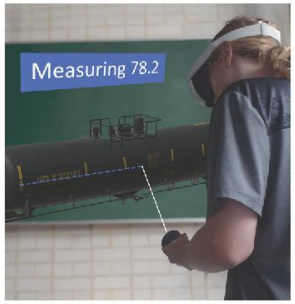
Brian Partlow
Omaha, Nebraska

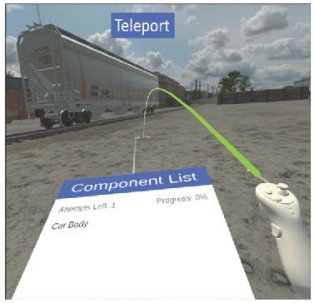
Prasanna Rajendran
Omaha, Nebraska

Daniel Riedel
Lincoln, Nebraska

PAGE 26







UNION PACIFIC
BUILDING AMERICA®

Artwork Examples

[7 of 7]



The Capstone Experience

Launch by NTT DATA
Everyday Agent

Launch, a subsidiary of NTT Data, accelerates product development by delivering innovative engineering solutions. With offices across the Americas, Launch partners with industry leaders like Jeep and Adidas to transform ideas into scalable technology.

People frequently misplace essential items like keys and wallets, leading to frustration and wasted time. Existing solutions, such as tracking tags, require manual setup, while voice assistants lack real-time object detection. A more intuitive, hands-free solution is needed to seamlessly integrate item tracking into daily life.

Our Everyday Agent is a wearable device powered by artificial intelligence that tackles this problem. Equipped with a compact camera, the device continuously scans the user's surroundings to detect and log their items' locations. Using this information, Everyday Agent provides the last known location of an item. If an object cannot be accurately located, the system analyzes past user habits and suggests the most likely location.

Users interact with Everyday Agent by saying, "Hey Agent," followed by their query. When they request location services, the device responds with either a precise location or an estimate. It also functions as a voice assistant, answering general questions.

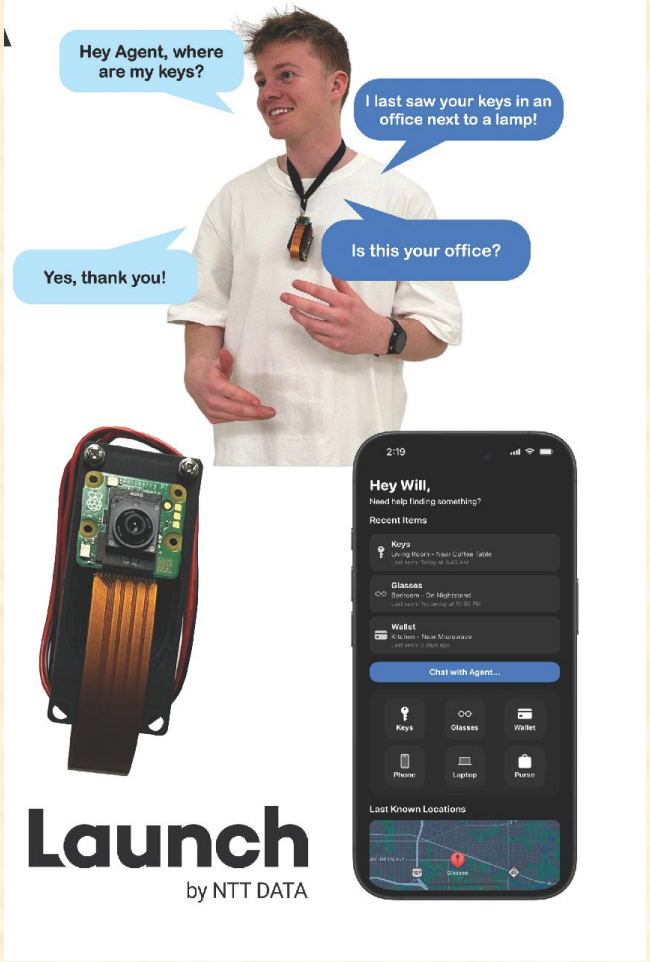
A companion mobile app provides users with a dashboard displaying their most frequently misplaced items. Each item is listed alongside a description, such as "on the kitchen counter," and its last shown GPS-based coordinate, plotted on an interactive map.

Our Everyday Agent uses a Raspberry Pi Zero 2 W with a camera, speaker and microphone. The mobile app is written in Swift, and the product software is written in Python using multiple models. You Only Look Once, Places365, Roboflow and ORB-SLAM are used for image recognition. Microsoft Azure is used for speech, text and natural language processing as well as a virtual machine. PyTorch is used for the predictive location algorithm.

Michigan State University
Team Members (left to right)
Anthony Oo
Novi, Michigan
Palina Skakun
Mogilev, Belarus
Gregory Lis
Lexington, Michigan
Swabhan Katkoori
Okemos, Michigan
Will Bray-Cotton
Troy, Michigan
Deirdre Eusebi
Bloomfield Hills, Michigan

Launch
Project Sponsors
Scott Campagna
Troy, Michigan
Anna Kowalak
Troy, Michigan
Jeff Meador
Troy, Michigan

PAGE 46



Previous Artwork Feedback

- Study Carefully to Learn
  - What to Do
  - What NOT to Do
- Posted on Downloads Page
  - Design Day Booklet Feedback, Spring 2025
  - Design Day Booklet Feedback,Fall 2025
  - Previous Design Day Booklets (Design Day > Booklet)

Example Spartan Basketball Player Timer

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 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.

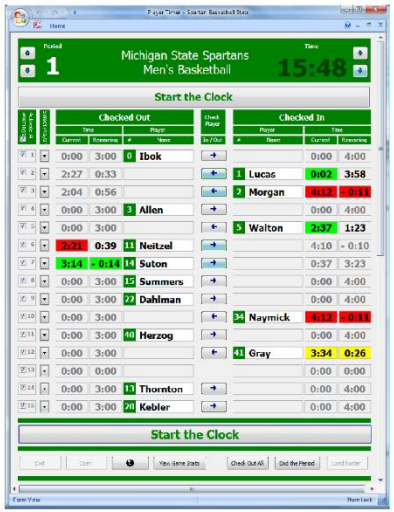
When a player enters the game, his playing time is displayed with a solid green background. When his target playing time goes under two minutes, it is displayed in yellow. When the time goes below zero, it is displayed in red.

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.





Michigan State University
Team Members

Wayne Dyksen
North Haledon, New Jersey

Wayne Dyksen
Grand Rapids, Michigan

Wayne Dyksen
West Lafayette, Indiana

Wayne Dyksen
East Lansing, Michigan

Team Michigan State University
Project Sponsors

Richard Bader
East Lansing, Michigan

Jim Boylen
East Lansing, Michigan

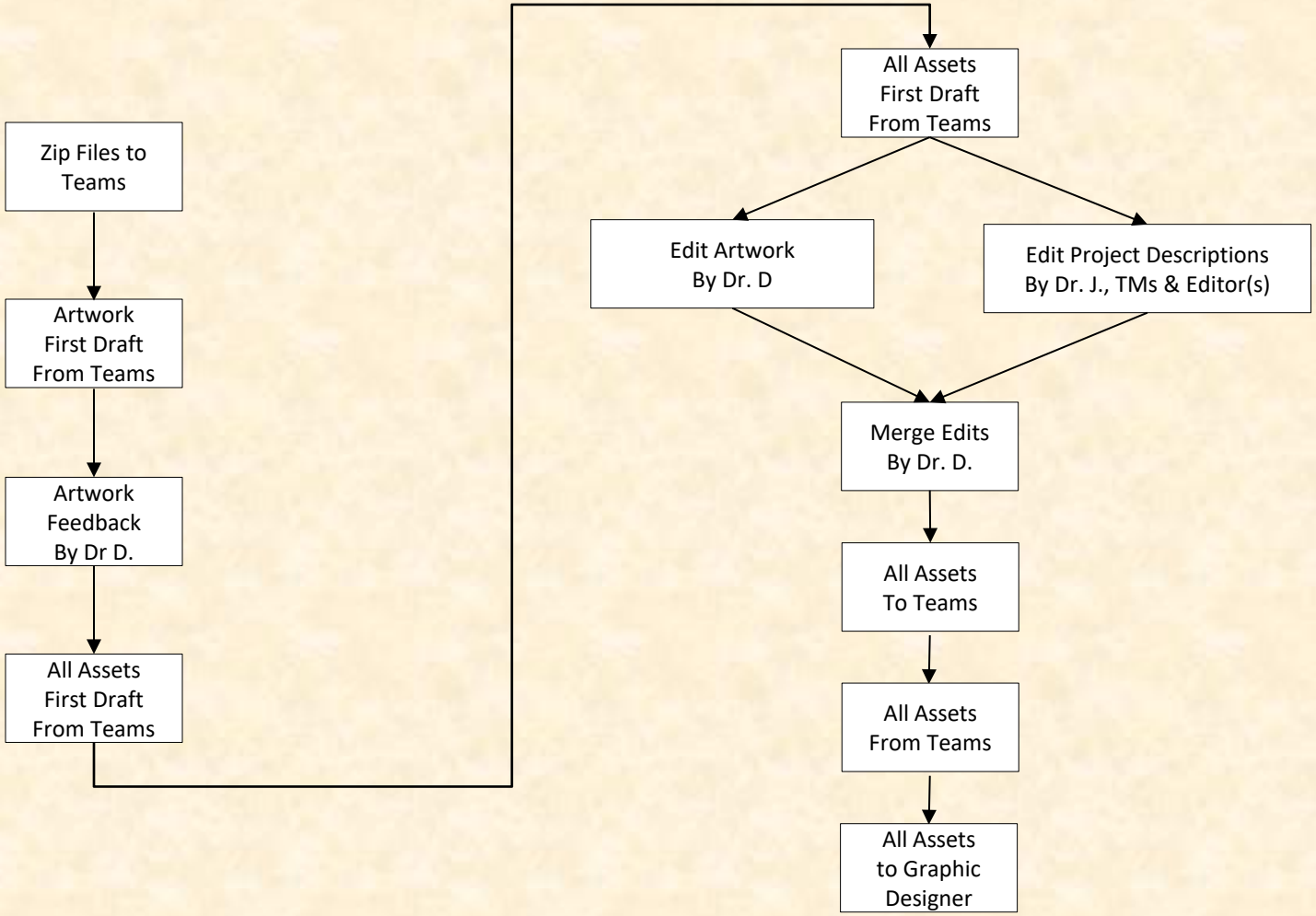
Tom Izzo
East Lansing, Michigan

Mark Montgomery
East Lansing, Michigan

Dwayne Stephens
East Lansing, Michigan

PAGE N + 0

DD Booklet Production Process [1 of 2]



DD Booklet Production Process [2 of 2]

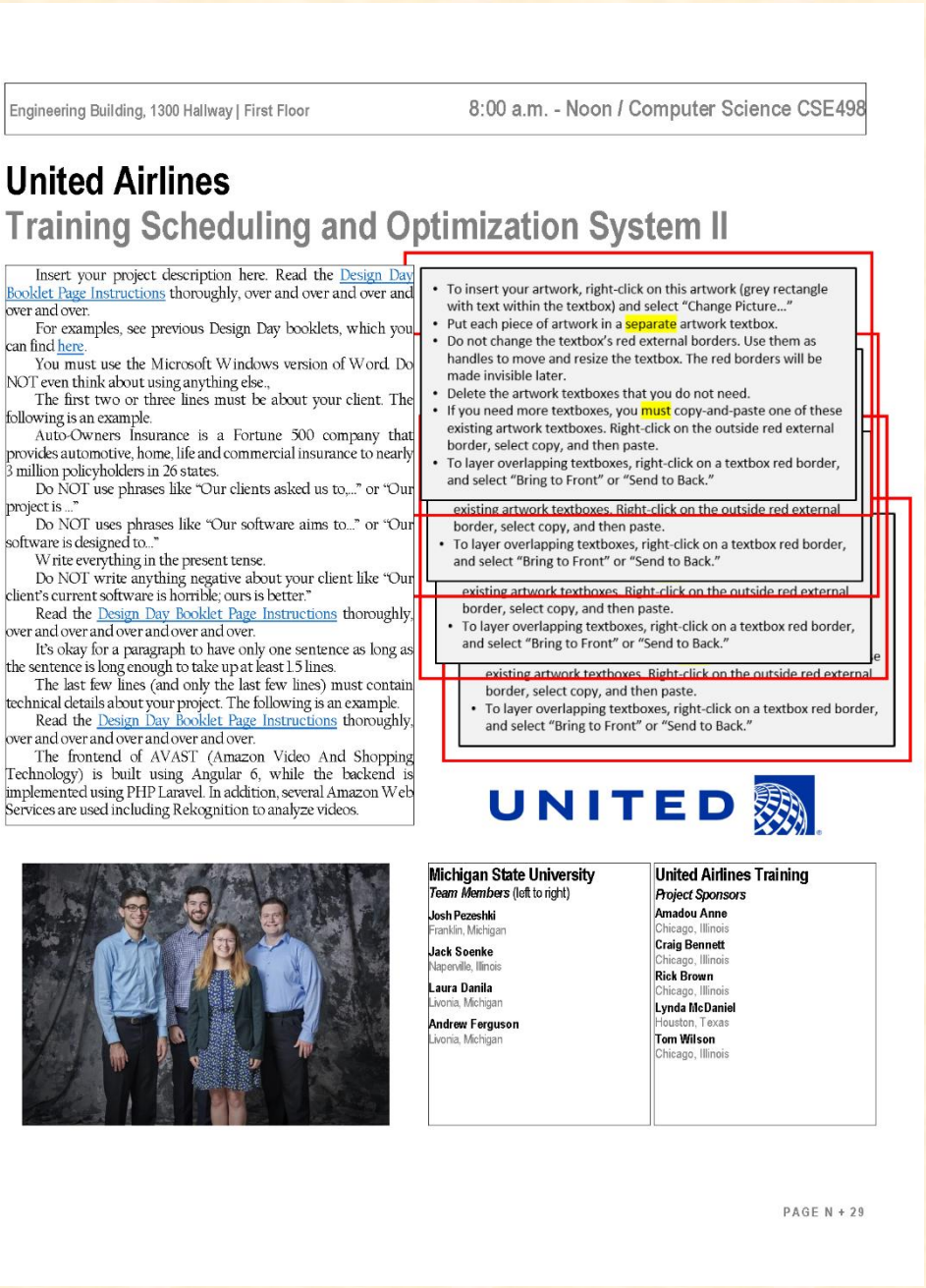
- Create New Project Pages at Each Step
  - Correct Template Data
  - Generate Templates
  - Copy From Latest Submissions
    - Project Descriptions
    - Artwork
- New Project Pages Created by Software
- Must Use Windows Office 365 on Windows 11

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.



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.

Resize the artwork. Resize and position the Textboxes.

Delete the textboxes placeholders you don't need.

Do NOT create your own textboxes for artwork.

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.

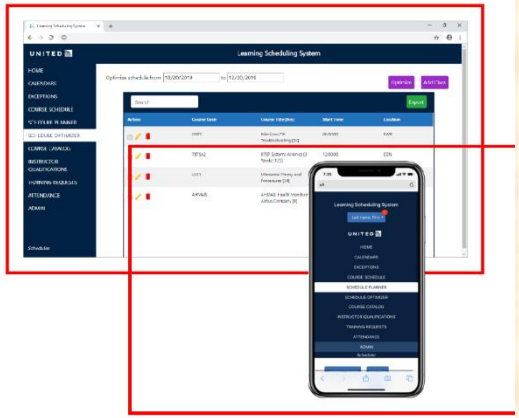
When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

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.js, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.



UNITED



Michigan State University
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

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

PAGE N + 24

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.

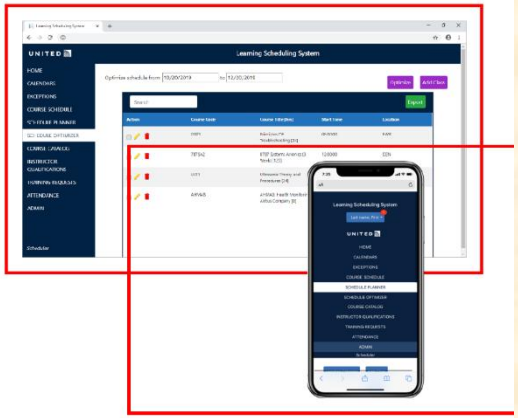
When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

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



Michigan State University
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

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

PAGE N + 24

3 Project Description Edits By Dr. J. & 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.

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.

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.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
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

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

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 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.

Round 2 edits by Jill...

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



Michigan State University
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

Laura Danila
Livonia, Michigan

Andrew Ferguson
Livonia, Michigan

United Airlines
Project Sponsors

Amadou Anne
Chicago, Illinois

Craig Bennett
Chicago, Illinois

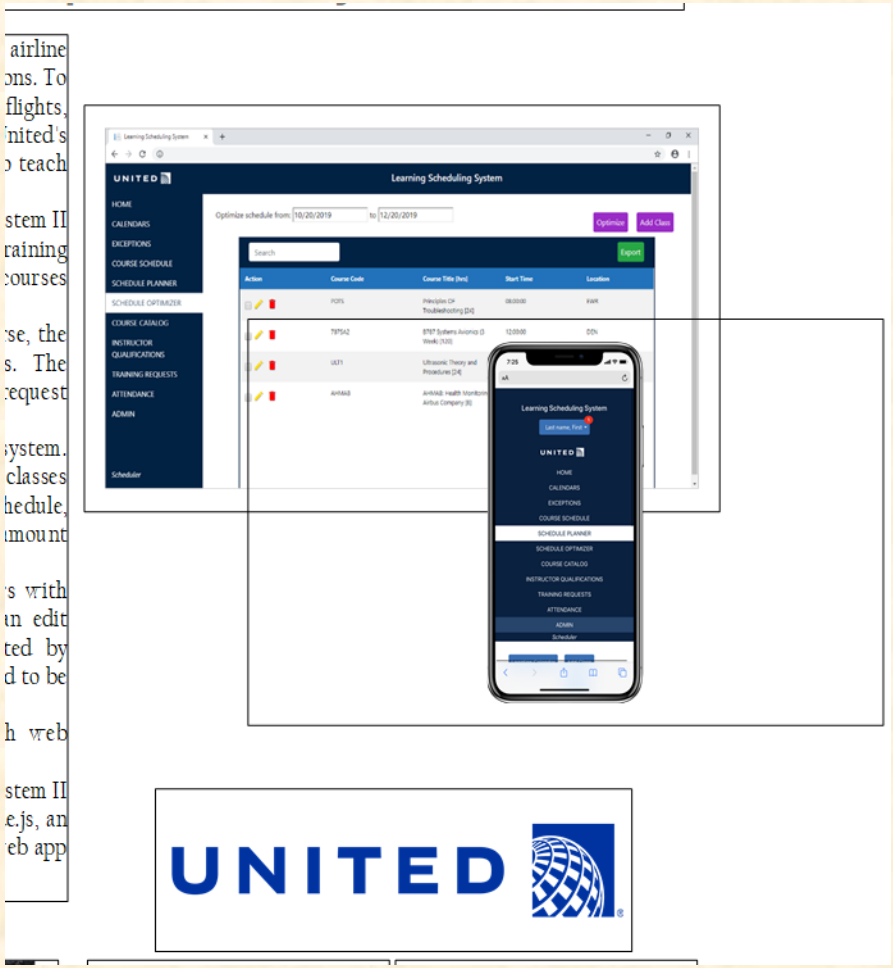
Rick Brown
Chicago, Illinois

Lynda McDaniel
Houston, Texas

Tom Wilson
Chicago, Illinois

PAGE N + 24

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.

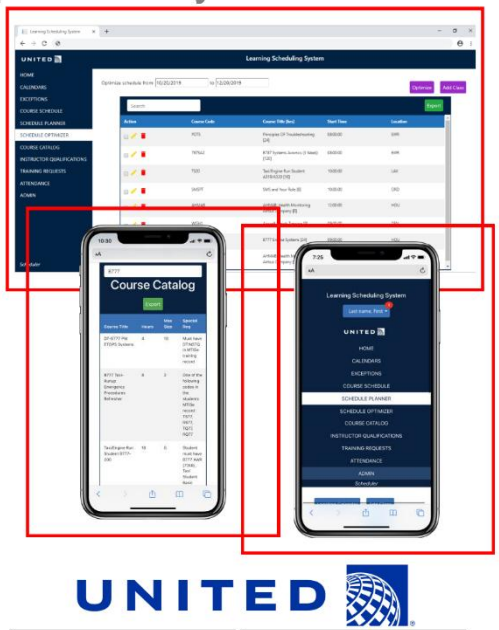
When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

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, Node.js, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.



UNITED



Michigan State University
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

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

PAGE N + 24

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. Ur division has 45 instructors ~~who teach a~~ er 7,000 employees.

Updated Number of Instructors

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.

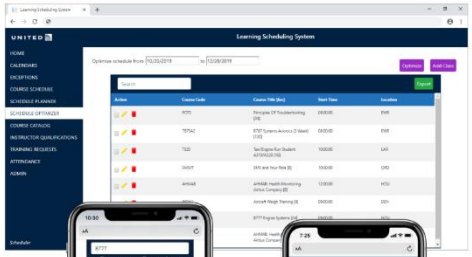
Using our mobile compatible website, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes and taking into account all relevant factors,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



Michigan State University
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

Laura Danila
Livonia, Michigan

Added Jamie Hill

United Airlines
Project Sponsors

Amadou Anne
Chicago, Illinois

Craig Bennett
Chicago, Illinois

Rick Brown
Chicago, Illinois

Jamie Hill
Chicago, Illinois

Lynda McDaniel
Houston, Texas

Tom Wilson
Chicago, Illinois

PAGE N + 24

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.

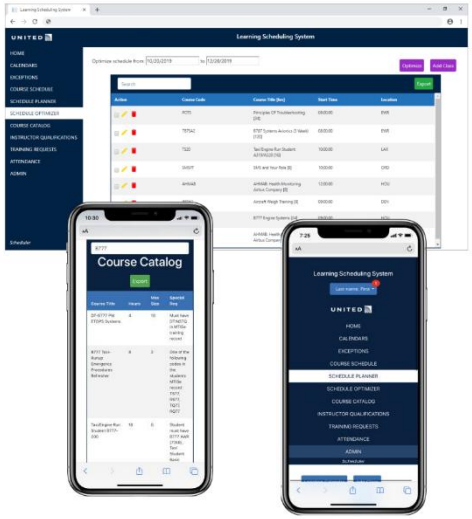
Using our mobile compatible website, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes and taking into account all relevant factors,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



Michigan State University
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

Laura Danila
Livonia, Michigan

Andrew Ferguson
Livonia, Michigan

United Airlines
Project Sponsors

Amadou Anne
Chicago, Illinois

Craig Bennett
Chicago, Illinois

Rick Brown
Chicago, Illinois

Jamie Hill
Chicago, Illinois

Lynda McDaniel
Houston, Texas

Tom Wilson
Chicago, Illinois

PAGE N + 24

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.

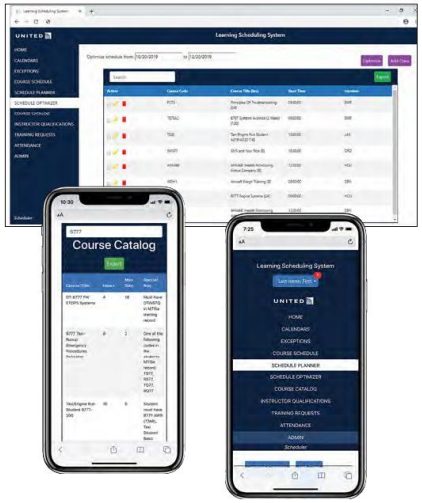
Using our mobile compatible website, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes and taking into account all relevant factors,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

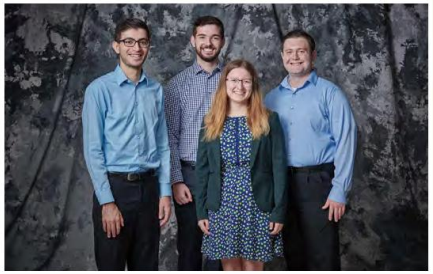
The optimized schedule minimizes the distance traveled by instructors and takes into account instructor qualifications and room availabilities.

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

Our Training Scheduling and Optimization System II web app is built with 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



Michigan State University
Team Members (left to right)

Josh Pezeshki
Franklin, Michigan

Jack Soenke
Naperville, Illinois

Laura Danila
Livonia, Michigan

Andrew Ferguson
Livonia, Michigan

United Airlines
Project Sponsors

Amadou Anne
Chicago, Illinois

Craig Bennett
Chicago, Illinois

Rick Brown
Chicago, Illinois

Jamie Hill
Chicago, Illinois

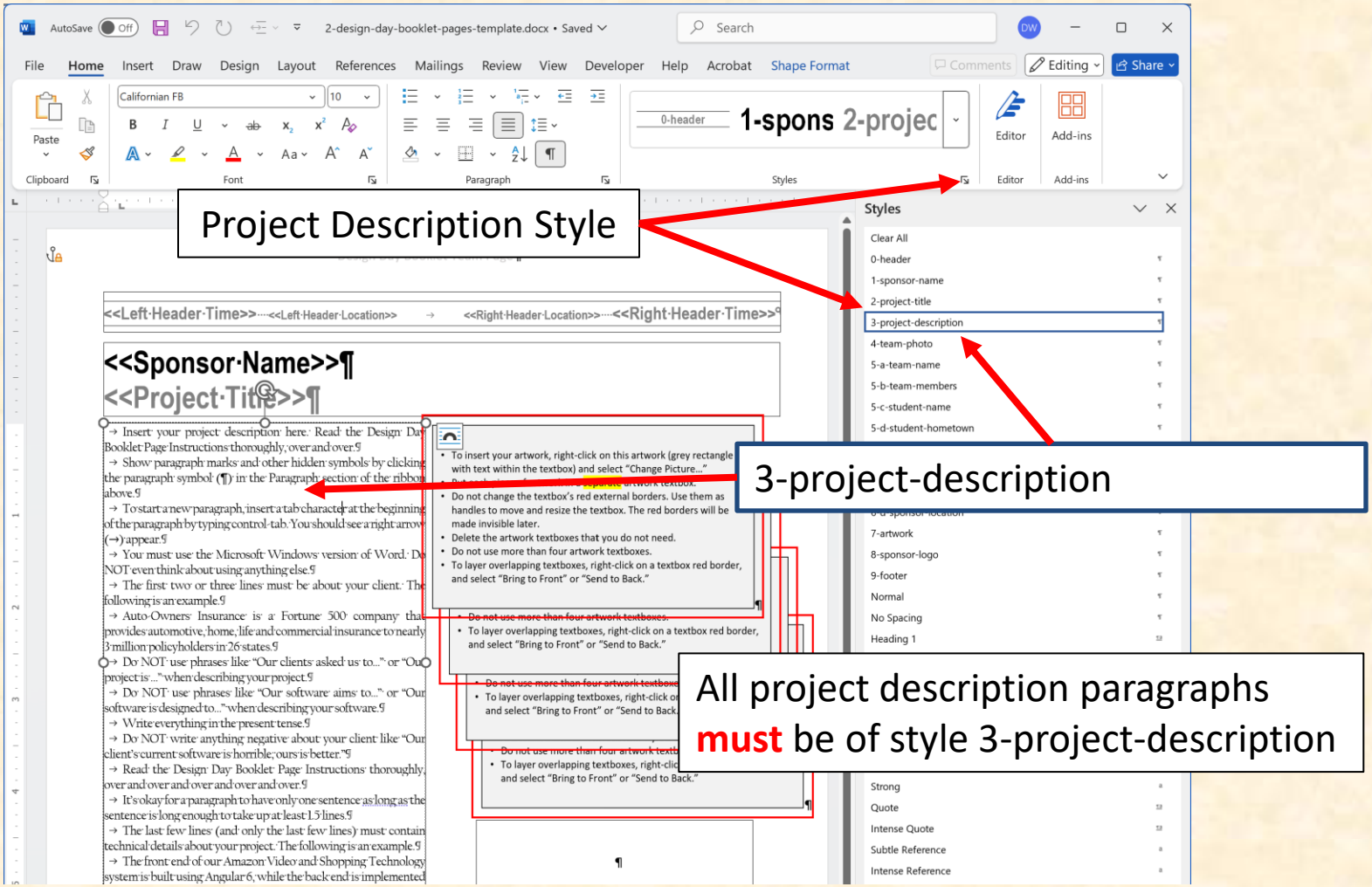
Lynda McDaniel
Houston, Texas

Tom Wilson
Chicago, Illinois

PAGE 46

Project Description Style

[1 of 2]



Project Description Style [2 of 2]



WK Kellogg Co¶
Cereal Industry Analysis To

→ WK Kellogg Co, home to some of the world's most iconic cereal brands, is one of the largest food manufacturing companies in the nation. Headquartered in Battle Creek, Michigan, WK Kellogg has grown into a major player in the food industry, thanks to its global reach and ability to adapt to shifting consumer demands.¶

→ Operating in over 180 countries, WK Kellogg thrives in the competitive global food market by leveraging data-driven analysis to inform critical business decisions. Recognizing the need for quicker insights, the company has identified the importance of rapidly assessing its current state and expediting decision-making to stay ahead in the industry.

→ Our Cereal Industry Analysis Tool using Generative AI, automates data analysis, allowing analysts and financial professionals to explore large datasets and extract valuable insights regarding WK Kellogg as well as its competitors. Through the interactive model, users can generate insights into industry shifts, strategic changes and market trends, which streamlines the decision-making process in the fast-paced food industry. Users can communicate with our system to obtain detailed responses from their preferred AI model.¶

→ The system uses public datasets stored in Snowflake, which serves as the primary data warehouse. SQL commands interact with the Snowflake database and extract information from stored files. Streamlit, a Python framework, powers the web app's front end, enabling user interaction via a chatbot, which leverages a large language model for generating detailed responses.¶

Must Fill PD Textbox

← Left
- Submitted by Team
- Wrong Style
- "Normal"
- Probably Copy-and-Paste Including Style

Right →
- Corrected by Dr. D.
- Correct Style
- "3-project-description"



WK Kellogg Co¶
Cereal Industry Analysis To

→ WK Kellogg Co, home to some of the world's most iconic cereal brands, is one of the largest food manufacturing companies in the nation. Headquartered in Battle Creek, Michigan, WK Kellogg has grown into a major player in the food industry, thanks to its global reach and ability to adapt to shifting consumer demands.¶

→ Operating in over 180 countries, WK Kellogg thrives in the competitive global food market by leveraging data-driven analysis to inform critical business decisions. Recognizing the need for quicker insights, the company has identified the importance of rapidly assessing its current state and expediting decision-making to stay ahead in the industry.¶

→ Our Cereal Industry Analysis Tool using Generative AI, automates data analysis, allowing analysts and financial professionals to explore large datasets and extract valuable insights regarding WK Kellogg as well as its competitors. Through the interactive model, users can generate insights into industry shifts, strategic changes and market trends, which streamlines the decision-making process in the fast-paced food industry. Users can communicate with our system to obtain detailed responses from their preferred AI model.¶

→ The system uses public datasets stored in Snowflake, which serves as the primary data warehouse. SQL commands interact with the Snowflake database and extract information from stored files. Streamlit, a Python framework, powers the web app's front end, enabling user interaction via a chatbot, which leverages a large language model for generating detailed responses.¶

¶

With Corrected Style, Too Short!

Today | February 2026 | Month

Design Day Production Calendar

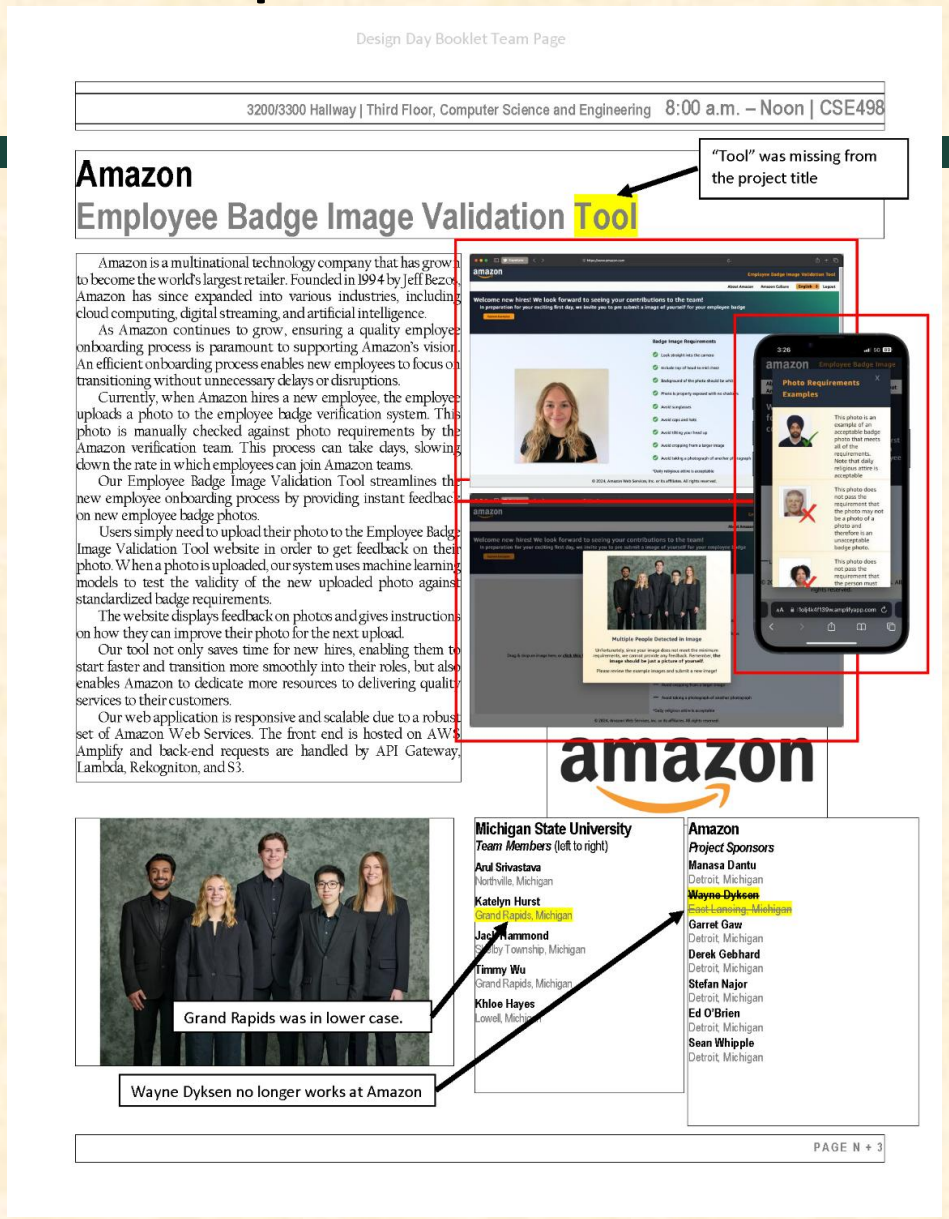
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Feb 1 0.Week 04	2	3	4	**5**	6	7
8 0.Week 05	9 1.DrD Posts Zip Templates 2.DrD Emails Instructions	10 0.5 DD Booklet 1.DrD Discusses Process in All-Hands	11 1.Teams Submit Zip Assets Artwork Draft by 11:59pm	12 0.5 DD Booklet 1.DrD Edits Artwork 2.DrD Posts Artwork Feedback 3.Teams Review Artwork Feedback Before All-Hands 4.Teams Submit Zip Assets...	13	14 1.DrD Edits Artwork 2.DrD Posts Artwork Feedback 3.DrJ/TMs Edit Project Descriptions
15 0.Week 06 1.DrJ/TMs Edit Project Descriptions	16 1.DrJ/TMs Edit Project Descriptions 2.DrJ/TMs Submit Project Descriptions by 11:59pm	17 0.6 Create & Give Presents 1.JB Edit Project Descriptions	18 1.JB Edit Project Descriptions 2.JB Submit Project Descriptions by 11:59pm	19 0.6 Alphas 1.DrD Merges Project Descriptions & Artwork 2.DrD Posts Final Zip Assets 3.DrD Discusses Final Zip Assets in All-Hands 4.Teams Review Final Draft	20 1.Teams Review Final Draft 2.Teams Submit Final Zip Assets by 11:59pm	21 1.DrD Creates Complete Booklet Zip Assets for Tim
22 0.Week 07 1.DrD Posts Complete Booklet Zip Assets for Tim	23	24 0.7 Alphas	25	26 0.7 Alphas	27	28

Amazon Assets Example

amazon.docx

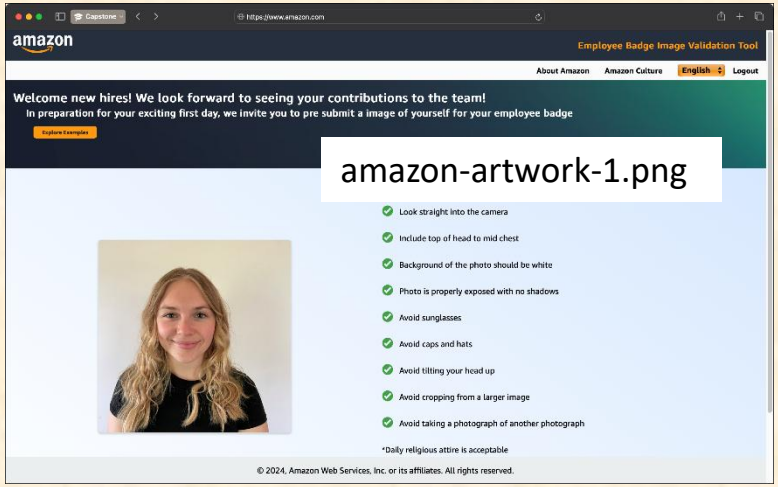
[1 of 3]

- Provide
  - Project Description
    - ❖ Exactly Fill Textbox
    - ❖ Search for “will” Etc.
  - Artwork
    - ❖ High Resolution png’s
    - ❖ Delete Unused png’s
- Check Template
  - Sponsor Name
  - Project Title
  - Team Photo
  - Sponsor Logo
  - Team Members
  - Project Sponsors
- Document Template Changes
  - Highlight In Yellow
  - Add Textbox with Explanation
- Check…
  - Everything
  - Every Pass

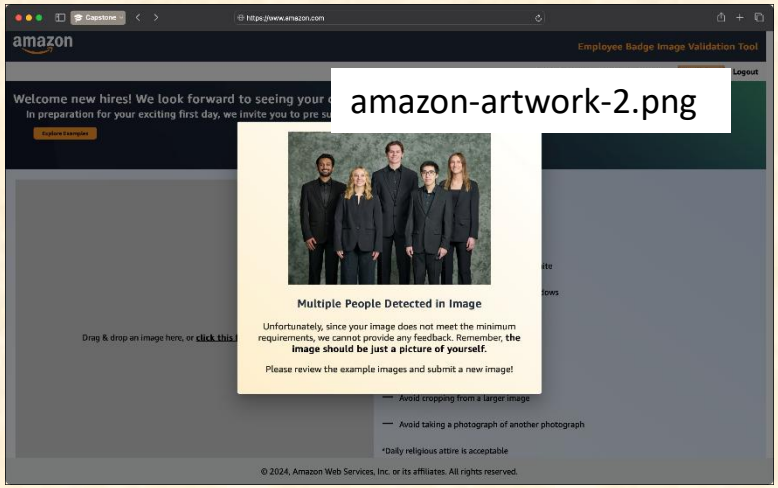


Amazon Assets Example Artwork

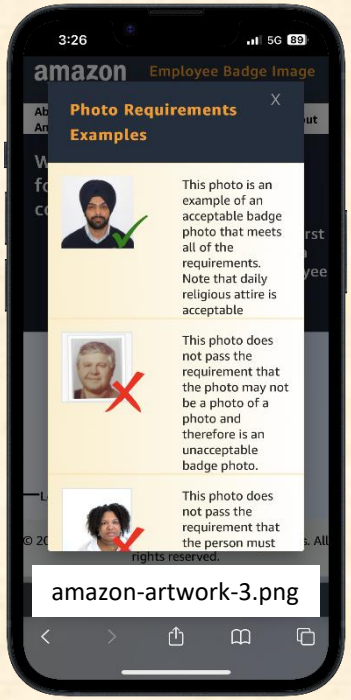
[2 of 3]



amazon-artwork-1.png

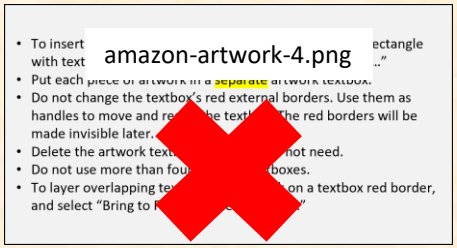


amazon-artwork-2.png



amazon-artwork-3.png

Delete unused template artwork files.



amazon-artwork-4.png

Amazon Assets Example
Assets Folder and Zip File

[3 of 3]

- Assets Folder
  - Name: amazon-assets
  - Contents
    - 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~~ (Deleted)
- Assets Zip File
  - Name: amazon-assets.zip
  - Uploaded to General Channel File Space

DD Assets Zip File Submissions [1 of 2]

- READ Submission Instructions Carefully
- Upload to Microsoft Teams
  - General Channel File Space
  - Folder Named “Design Day Booklet Assets Zip Files”
  - Team’s Private Channel File Space

DD Asset Zip File Submissions [2 of 2]

- First Submission First Draft of Artwork
  - Template Corrections ← **Note**
  - ~~Project Description~~ ← **Not Needed**
  - Artwork
  - Due Wednesday, February 11 ← **Tomorrow**
- Second Submission: First Draft of All Assets
  - Template Corrections
  - Project Description
  - Artwork
  - Due Thursday February 12 ← **Thursday**

Office 365 Word on Windows

- Open and Edit Team Page ONLY
  - Office 365 Word
  - On Windows
    - Natively
    - Capstone Lab VM
- Do NOT
  - 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
  - Other Links > Syllabus > 30. Editing Documents and Presentations Using Office 365
  - Read Carefully

MAPP Points and DD Booklet Process

- MAPP Points
  Meeting Attendance, Preparation and Participation
- May be deducted for…
  - …not following instructions.
  - …missing deadlines.
  - …writing a poor project description.
  - …providing poor artwork.
  - …etc.
- Will be deducted from every team member.
- Instructors will fix things, but…

What's ahead? [1 of 2]

- Upcoming DD Meeting and Due Dates
  - 02/11, W: Artwork Immediate Feedback
    - Why: Get Artwork Advice from Dr. D. Before Submitting
    - Who: Persons Responsible for Artwork
    - What: Bring Printout of Team Page
    - Where: Dr. D.'s Office, EB3149
    - When: 1:00-4:00 p.m.
  - 02/11, W: First Zip File Submission Due
  - 02/12, Th: Artwork Feedback in All-Hands
  - 02/12, Th: Second Zip File Submission Due
  - 02/20, Fr: Mid-Semester Team Evaluation Forms Due (5:50 p.m.)
  - 02/20, Fr: Third Zip File Submission Due
  - 03/03, Tu: Spring Break

What's ahead? [2 of 2]

- Upcoming Meetings
  - 02/19, Th: Alpha Presentations
    - 11.0 Days
    - Working Software
    - All Risks Mitigated ←**Note**
    - Template Slide Deck is Posted
    - 10% of Final Grade
  - 02/24, Tu: Alpha Presentations
  - 02/26, Th: Alpha Presentations
  - 02/20, Fr: All Assets Final Draft Zip File Due
  - 03/03, Tu: Spring Break