

**MICHIGAN STATE**  

---

**U N I V E R S I T Y**

# Project Plan

## Training Scheduling and Optimization System III

### The Capstone Experience

#### Team United Airlines Training

Amanda Hackbardt

Weiyu Huang

George Poliakov

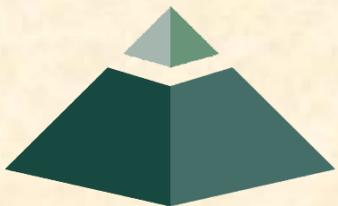
Sam Vitu

Sean Wisely

Department of Computer Science and Engineering

Michigan State University

Spring 2020



*From Students...  
...to Professionals*

# Functional Specifications

---

- Update and Finalize the Learning Scheduling system from the 2 previous capstone teams
- Improve back end to reflect United Airlines standards
- Improve workflow in current application
- Allows the Tech Ops team to update information in the system as they need to



# Design Specifications

---

- Web application for scheduling for United Airlines
- Create optimal schedules based on pre-selected criteria
- This application needs to be integrated into production systems
- Develop a new scheduling workflow



# Screen Mockup: Landing Page

localhost:5000/home

**UNITED** Learning Scheduling System Mcdaniel, Lynda

HOME

- CALENDARS
- COURSE SCHEDULE
- SCHEDULE PLANNER
- ADD A CLASS
- SCHEDULE OPTIMIZER
- CONFLICT OVERVIEW
- TRAINING REQUESTS
- COURSE CATALOG
- EXCEPTIONS
- INSTRUCTOR QUALIFICATIONS
- ATTENDANCE
- ADMIN

**Today** Location Cal Planner

Course Code	Course Title [hrs]	Start Time	Start Date	Location	Supervisor	Instructor

**Exception Requests** Add

Action	Supervisor	Instructor	Exception	Date Range
<input checked="" type="checkbox"/> <input type="checkbox"/>	Battaglia, Laura	Bussey, Frank P.	DAT	2/4/20 - 2/4/20
<input checked="" type="checkbox"/> <input type="checkbox"/>	Battaglia, Laura	Bussey, Frank P.	DAT	1/23/20 - 1/23/20
<input checked="" type="checkbox"/> <input type="checkbox"/>	Battaglia, Laura	Bussey, Frank P.	DAT	1/31/20 - 1/31/20
<input checked="" type="checkbox"/> <input type="checkbox"/>	Battaglia, Laura	Bussey, Frank P.	DAT	1/28/20 - 1/28/20

**Planner**

Course Code	Course Title [hrs]	Start Time	Start Date	Location	Supervisor	Instructor
ABES	Airbus Boeing Electrical Skills [40]	10:00:00	3/16/20	SAT	Battaglia, Laura	Derheim, Gary M.
CRF01	Composite Repair Fundamentals [80]	10:00:00	1/15/20	SFO	Battaglia, Laura	Paskell, Thomas H.
767SAR	B767 Systems Avionics Reliability (2 Week) [80]	08:00:00	1/29/20	SFO	Battaglia, Laura	Cruz, Martin ..

**Training Requests**

Action	Course	Location	Needed By	Shift	Reason	# of Students	Requested By	Requested Time	Contact
<input checked="" type="checkbox"/> <input type="checkbox"/>	787RDC: B787 Damage Check Procedure Ramp Damage Checker	NHC	11/17/19	Days	New Hires	5	Mcdaniel, Lynda	10/17/19, 3:06 PM	demo@demo.com 555555555
<input checked="" type="checkbox"/> <input type="checkbox"/>	737RELB1: B737 Reliability Training	NHC	11/17/19	Days	Other	20	Mcmath, Jeff	10/17/19, 2:41 PM	demo@demo.com 555555555

Scheduler



# Screen Mockup: Calendar

UNited Learning Scheduling System

McDaniel, Lynda

Location Calendar | Instructor Calendar | Instructor Availability Calendar | Course Calendar

Location Calendar | Instructor Calendar | Instructor Availability Calendar | Course Calendar

Class Filter:  Location Filter:

Published Planned Holiday

January 2020							February 2020																
Su	Mo	Tu	We	Th	Fr	Sa	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8
29	30	31	1	2	3	4																	
5	6	7	8	9	10	11																	
12	13	14	15	16	17	18																	
19	20	21	22	23	24	25																	
26	27	28	29	30	31																		

- CLE: Hangar 2, Building 212: 1
- CLE: Hangar 2, Building 212: 2
- DEN: DIA Hangar: 1041-A
- DEN: DIA Hangar: 1041-B
- DEN: FTC: A001
- DEN: FTC: A005
- DEN: FTC: A011
- DEN: Local
- EWR: Hangar 100: 211
- EWR: Hangar 100: 212
- EWR: Hangar 100: 213
- EWR: Hangar 100: 217
- EWR: Hangar 55: Flr-2
- EWR: Hangar 55: Flr-3
- GUM: AD General Office: AT-3
- HNL: Hangar: A
- HOU: Building 2: 1
- HOU: Building 2: 4
- IAD: Hangar: 217



# Screen Mockup: Adding Classes

## Add a Class

Course Code

Location Calendar

Instructor Calendar

Instructor Availability Calendar

Course Calendar

767PWES: B767 Pratt & Whitney ETOPS Systems (Hours: 4, Max Size: 20)

Start Date

2020-01-24

End Date

2020-01-29

Enable/disable weekends

Start Time

08 : 00

End Time

12 : 00

## Location and Room

Location

SAT

Choose Room

Room: Vendor

## Select Instructors

Add Instructors

Williams, Richard A.  
Hollingsworth, Jerry A.

## Select Instructors

Add Instructors

Williams, Richard A.  
Hollingsworth, Jerry A.

## Select Instructor Times

Williams, Richard A.

Start Date

2020-01-24

End Date

2020-01-27

Hollingsworth, Jerry A.

Start Date

2020-01-27

End Date

2020-01-29

## Request Information

Request Type

Other

Requester

United Airlines

Comments

Submit

Cancel



# Screen Mockup: Schedule Optimizer

The screenshot displays the United Learning Scheduling System interface. On the left is a dark blue navigation sidebar with the United logo and menu items: HOME, CALENDARS, COURSE SCHEDULE, SCHEDULE PLANNER, ADD A CLASS, SCHEDULE OPTIMIZER (highlighted), CONFLICT OVERVIEW, TRAINING REQUESTS, COURSE CATALOG, EXCEPTIONS, INSTRUCTOR QUALIFICATIONS, ATTENDANCE, and ADMIN. The main content area has a dark blue header with the text "Learning Scheduling System". Below this, there are input fields for "Start Date" (2/3/2020) and "End Date" (2/28/2020), an "Enable Time Limit" checkbox, and a "Priority" dropdown menu set to "Total Instructors - Minimize Travel". There are "Optimize" and "Add Class" buttons. A small text box explains: "The optimizer will minimize the instructor travel to teach courses. Specifically, the total number of instructors who have to travel will be minimized." Below this is a "Schedule Optimizer" section with a search bar and a table. The table has columns for Action, Course Code, Course Title, Start Time, Location, and Frequency. Each row includes a checkbox, a pencil icon, and a trash icon.

Action	Course Code	Course Title	Start Time	Location	Frequency
<input type="checkbox"/>	757APUR	B757 APU Reliability	09:00:00	GUM	1
<input type="checkbox"/>	SRMACOMP	Airbus Composite Repair SRM Familiarization	10:00:00	HOU	3
<input type="checkbox"/>	67PNEU	B767 Pneumatic System Troubleshooting	08:00:00	ORD	3
<input type="checkbox"/>	767SAR	B767 Systems Avionics Reliability	10:00:00	HOU	3
<input type="checkbox"/>	773D	777-300 Differences Overview	08:00:00	GUM	3
<input type="checkbox"/>	37MD	737MAX Systems / Avionics Differences	08:00:00	DEN	3
<input type="checkbox"/>	767APUR	B767 APU Reliability	08:00:00	DEN	1
<input type="checkbox"/>	767RELB1	B767 Reliability Training	10:00:00	CLE	1
<input type="checkbox"/>	37MD	737MAX Systems / Avionics Differences	08:00:00	SFO	1
<input type="checkbox"/>	737RELB1	B737 Reliability Training	13:04:00	LAX	1
<input type="checkbox"/>	787RDC	B787 Damage Check Procedure Ramp Damage Checker	17:34:00	OPC	1



# Screen Mockup: Optimizer Cont.

## Optimizer Results

Class Filter:  Location or Instructor Filter:

Published  Planned  Optimizer Results  Exception  Holiday

January 2020							February 2020																					
Su	Mo	Tu	We	Th	Fr	Sa	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<input type="checkbox"/> CLE: Hangar 2, Building 212: 1 <input type="checkbox"/> CLE: Hangar 2, Building 212: 2 <input type="checkbox"/> DEN: DIA Hangar: 1041-A <input checked="" type="checkbox"/> DEN: DIA Hangar: 1041-B <input type="checkbox"/> DEN: A001 <input type="checkbox"/> DEN: FTC: A005 <input type="checkbox"/> DEN: FTC: A011 <input type="checkbox"/> DEN: Local <input type="checkbox"/> EWR: Hangar 100: 211 <input type="checkbox"/> EWR: Hangar 100: 212 <input type="checkbox"/> EWR: Hangar 100: 213 <input type="checkbox"/> EWR: Hangar 100: 217 <input type="checkbox"/> EWR: Hangar 55: Ftr-2 <input type="checkbox"/> EWR: Hangar 55: Ftr-3 <input type="checkbox"/> GUM: AG General Office: AT-3 <input type="checkbox"/> HNL: Hangar: A <input type="checkbox"/> HOU: Building 2: 1 <input type="checkbox"/> HOU: Building 2: 4 <input type="checkbox"/> IAD: Hangar: 217 <input type="checkbox"/> IAD: Local							737MAX Systems / Avionics Differenc																					
							8767 Systems Avionics Reliability (2 Week)																					



# Screen Mockup: Optimizer Cont.

Optimizer Results									
#	Action	Conflict(s)	Course Code	Location	Classroom	Start Time	Start Date	End Date	Instructor
1			37BSI	ORD	Service Center - 8	07:00:00	1/1/20	1/1/20	Walter, Douglas ...
2			37MD	DEN	FTC - A001	08:00:00	1/22/20	1/28/20	Murphy, Michael R.
3			67PNEU	ORD	Service Center - 9	08:00:00	1/1/20	1/3/20	Besch, Patrick E.
4			67PNEU	ORD	Service Center - 9	08:00:00	1/6/20	1/8/20	Besch, Patrick E.
5			67PNEU	ORD	Service Center - 9	08:00:00	1/9/20	1/13/20	Besch, Patrick E.
6			737RELB1	MCO	N Hangar - N	07:15:00	1/3/20	1/6/20	Murphy, Michael R.
7			737RELB1	MCO	N Hangar - N	07:15:00	1/9/20	1/10/20	Bottazzi, Gianni S.
8			737RELB1	MCO	N Hangar - N	07:15:00	1/7/20	1/8/20	Baez, Alberto ...
9			757RRES	HOU	Building 2 - 1	08:00:00	1/1/20	1/1/20	Hollingsworth, Jerry A.
10			757RRES	HOU	Building 2 - 1	08:00:00	1/2/20	1/2/20	Kellogg, Daniel E.
11			757RRES	HOU	Building 2 - 1	08:00:00	1/3/20	1/3/20	Kellogg, Daniel E.
12			767SAR	HOU	Building 2 - 1	10:00:00	1/20/20	1/31/20	Sperb, Anthony P.
13			767SAR	HOU	Building 2 - 4	10:00:00	1/6/20	1/17/20	Sperb, Anthony P.
14			773D	GUM	AQ General Office - 1E1	08:00:00	1/20/20	1/20/20	Williams, Richard A.
Classes Not Included in Results									
Course Code	Course Title [hrs]	Start Time	Location	Frequency	Reason				
757APUR	B757 APU Reliability	09:00:00	GUM	3	No instructor is available.				
SRMACOMP	Airbus Composite Repair SRM Familiarization	10:00:00	HOU	3	No instructor is available.				
757APUR	B757 APU Reliability	08:00:00	MCO	1	No instructor is available.				

Add Results to Planner

Cancel



# Screen Mockup: Conflict Overview

The screenshot shows a web application interface for the Learning Scheduling System. The top navigation bar includes the United logo and the text 'Learning Scheduling System'. A left sidebar contains a menu with the following items: HOME, CALENDARS, COURSE SCHEDULE, SCHEDULE PLANNER, ADD A CLASS, SCHEDULE OPTIMIZER, CONFLICT OVERVIEW (highlighted), TRAINING REQUESTS, COURSE CATALOG, EXCEPTIONS, INSTRUCTOR QUALIFICATIONS, ATTENDANCE, and ADMIN. The main content area is titled 'Conflict Overview' and contains a table with the following data:

Conflict(s)	Course Title	Start Date	End Date	Start Time	Created At	Location	Room	Supervisor	Instructor
Jury Duty	Besch, Patrick E.	2/03/2020	2/07/2020	2/3/20	1/24/20	CLE	141A	Mcdaniel, Lynda	Decastro, Jefferson



# Screen Mockup: Training Requests

Code  From  To  Coordinator  Location  Status

**Training Requests** [Export](#) [Request Class](#)

Action	Course	Location	Needed By	Shift	Reason	# of Students	Requested By	Requested Time	Contact	Comment
 	787RDC: B787 Damage Check Procedure Ramp Damage Checker	NHC	11/17/19	Days	New Hires	5	McDaniel, Lynda	10/17/19, 3:06 PM	demo@demo.com 555555555	
Approved 	AHMAB: Health Monitoring Airbus Company	NHC	12/12/19	Days	Operational	15	Bussey, Frank	10/17/19, 2:42 PM	demo@demo.com 555555555	
 	737RELB1: B737 Reliability Training	NHC	11/17/19	Days	Other	20	Mcmath, Jeff	10/17/19, 2:41 PM	demo@demo.com 555555555	
Scheduled	37BS: B737 Boeing Sky Interior Familiarization And Basic Trouble Shooting	NHC	1/7/20	Days	New Hires	25	Mitchell, Terrence	10/17/19, 2:39 PM	demo@demo.com 555555555	



# Screen Mockup: Course Catalog

Category

Course Catalog <span>Export</span>					
Course Code	Course Title	Hours	Max Size	Special Req	
37BSI	B737 Boeing Sky Interior Familiarization and Basic Trouble Shooting	8	6		
37MD	737MAX Systems / Avionics Differences	40	16	Prerequisite is to attend 737NG training (378D, 37SA, 37SA2, or 37SA3).	
37PNEU	B737NG Pneumatic System Troubleshooting	8	6	None	
57DOOR	B757 Main Entry Door (MED) Rig	16	6	757 Systems avionics or 757 Airframe General Familiarization training necessary.	
57PNEU	B757 Pneumatic System Troubleshooting	16	10		
67PNEU	B767 Pneumatic System Troubleshooting	24	6		
737NGFDSO	737NG Flight Deck System Operations	80	2	37SA2 or 37SA3 or 737SAR and 737NGFDOJT	
737RELB1	B737 Reliability Training	16	8	Current MyBoeing Fleet Account (with Password) and with Toolbox/AHM access.	
737SAR	B737 NG Systems Avionics and Reliability (2 Week)	80	18	Students must bring their United iPad (Tablet) to class daily.	
757APUR	B757 APU Reliability	8	18	Systems Avionics Reliability Recommended	
757PWES	B757 Pratt & Whitney ETOPS Systems	4	20		
757RELB1	B757 Reliability Training	40	8	Current MyBoeing Fleet Account (with Password) and AHM access.	
757RRES	B757 Rolls Royce ETOPS Systems	4	20		
757SAR	B757 Systems Avionics and Reliability (2 Week)	80	18	Students must bring their United iPad (Tablet) to class daily.	
767APUR	B767 APU Reliability	8	18	Systems Avionics Reliability Recommended	
767PWES	B767 Pratt & Whitney ETOPS Systems	4	20		
767RELB1	B767 Reliability Training	40	8	Current MyBoeing Fleet Account (with Password) and AHM access.	
767SAR	B767 Systems Avionics Reliability (2 Week)	80	18	Students must bring their United iPad (Tablet) to class daily.	



# Screen Mockup: Exceptions

united-lss.azurewebsites.net/exceptions

**UNITED** Learning Scheduling System

Code: [ ] Start: [ ] End: [ ] Instructor: [ ] Point: [ ] Status: [ ]

Search [ ] **Exceptions** [Instructor Calendar](#) [Export](#) [Add Exception](#)

Action	Instructor	Point	Exception	Start Date	End Date	Request Time	Response Time	Last Updated	Supervisor	Request Comment	Response Comment
Approved	Wise, Dave ..	NHC	IN: Instructing Course	2/10/20	2/19/20	1/24/20, 8:55 PM	1/24/20, 8:55 PM	Mcdaniel, Lynda	Decastro, Jefferson		
Approved	Martin, Wayne ..	NHC	IN: Instructing Course	2/3/20	2/7/20	1/24/20, 8:55 PM	1/24/20, 8:55 PM	Mcdaniel, Lynda	Decastro, Jefferson		
Approved	Allen, Russell D.	DEN	BH: Birthday Holiday	7/6/20	7/10/20	10/30/19, 1:03 PM	10/30/19, 1:03 PM	Mcdaniel, Lynda	O Rourke, Kenneth		
Approved	Adkins, Robert ..	NHC	BH: Birthday Holiday	7/6/20	7/10/20	10/30/19, 1:00 PM	10/30/19, 1:00 PM	Mcdaniel, Lynda	Decastro, Jefferson		
Approved	Bussey, Frank P.	SFO	CW: Courseware Work	3/3/20	3/6/20	10/19/19, 4:17 AM	10/19/19, 4:17 AM	Decastro, Jefferson	Battaglia, Laura		
	Bussey, Frank P.	SFO	DAT: Vacation Day at a Time	2/4/20	2/4/20	10/19/19, 4:06 AM		Bussey, Frank	Battaglia, Laura		
	Bussey, Frank P.	SFO	DAT: Vacation Day at a Time	1/31/20	1/31/20	10/17/19, 9:32 PM		Bussey, Frank	Battaglia, Laura		
	Bussey, Frank P.	SFO	DAT: Vacation Day at a Time	1/28/20	1/28/20	10/17/19, 9:20 PM		Bussey, Frank	Battaglia, Laura		



# Screen Mockup: Instructor Qualifications

Instructor  Course  Status

**Instructor Qualifications** [Export](#) [Add to Instructor](#)

Action	Instructor	Course Code	Course Title	Status	Comment
	Adkins, Robert ..	TS20	Taxi/Engine Run Student A319/A320	Teach All	
	Adkins, Robert ..	ABENH	Airbus A319 A320 Enhancements	Teach All	
	Adkins, Robert ..	A320PNEU	A319/A320 Pneumatic System Troubleshooting	Upgrade - Teach None	Start - Self Study 08/12/19
	Adkins, Robert ..	WIFI	WIFI / GCS Equipped, Multi Fleet	Teach All	
	Adkins, Robert ..	AHMAB	Health Monitoring Airbus Company	Teach All	SME
	Adkins, Robert ..	A320LGC	LGCIU Crane Proximity Sensing Technology Testing/Troubleshooting	Teach All	
	Adkins, Robert ..	A320TS	A319/A320 Troubleshooting Philosophy	Teach All	
	Adkins, Robert ..	A320SA2	A319/A320 Systems Avionics (2 Week)	Teach All	
	Adkins, Robert ..	ABSAR	A319/A320 Systems Avionics and Reliability (2 Week)	Teach All	
	Adkins, Robert ..	DTINSTQ	Train The Trainer	Teach All	
	Adkins, Robert ..	A320CIDS	Airbus Cabin Intercommunication Data System Troubleshooting	Teach All	
	Adkins, Robert ..	A320SA	A319/A320 Systems Avionics (3 Week)	Teach All	
	Adkins, Robert ..	A319ENH	A319 Enhancements for China Southern Aircraft	Teach All	
	Adkins, Robert ..	POTS	Principles OF Troubleshooting	Teach All	
	Adkins, Robert ..	ABRELB11	Airbus Reliability Training	Teach All	
	Allen, Russell D.	AS03A	Electrical Wiring Interconnect Systems-Boeing	Teach All	
	Allen, Russell	BO0ED011	HAIL MAPPING AND DAMAGE ASSESSMENT	Teach All	



# Screen Mockup: Attendance

The screenshot shows a web browser window with the URL `united-iss.azurewebsites.net/attendance`. The page header includes the United logo and the text "Learning Scheduling System". A dark blue sidebar on the left contains a menu with the following items: HOME, CALENDARS, COURSE SCHEDULE, SCHEDULE PLANNER, ADD A CLASS, SCHEDULE OPTIMIZER, CONFLICT OVERVIEW, TRAINING REQUESTS, COURSE CATALOG, EXCEPTIONS, INSTRUCTOR QUALIFICATIONS, ATTENDANCE (highlighted), and ADMIN. The main content area is titled "My Classes" and features a table with the following data:

Action	Course Code	Course Title [hrs]	Start Date	End Date	Start Time	Location	Room	Point	Supervisor	Instructor
 	787SA2	B787 Systems Avionics (3 Week) [120]	2/3/20	2/21/20	07:00:00	NHC	148	NHC NHC	Decastro, Jefferson Decastro, Jefferson	Martin, Wayne .. Wise, Dave ..



# Screen Mockup: Admin

Learning Scheduling System

McDaniel, Lynda

Manage Users | Manage Locations | Manage Courses

Search for a user

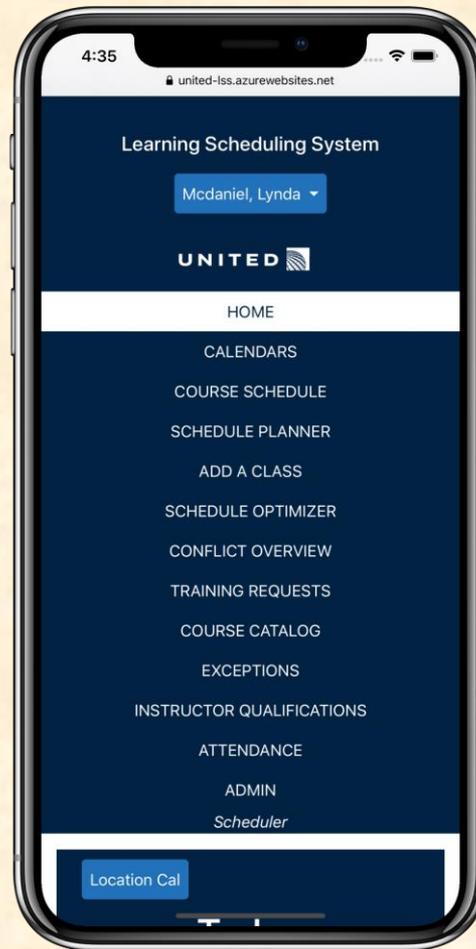
**Manage Users** [Export](#) [Add New User](#)

Action	First	Middle	Last	File Number	Username	Point	Role
	-	-	Import	IMPORT	IMPORT	OPC	Guest
	Visor	D.	Super	u000000	u000000	LAX	Guest
	Bobby	G.	Beckham	u003138	u003138	SFO	Instructor
	Terrence	A.	Mitchell	u006080	u006080	SFO	Supervisor
	Darlan	A.	Beebe	u006617	u006617	SFO	Instructor
	Frank	P.	Bussey	u008130	u008130	SFO	Instructor
	Charles	F.	Knight	u010770	u010770	OPC	Instructor
	Gary	M.	Derheim	u018734	u018734	SFO	Instructor
	Douglas	T.	Hermanson	u027866	u027866	SFO	Instructor
	Wayne	R.	Coats	u029829	u029829	SFO	Instructor
	Michael	P.	Murphy	u032674	u032674	OPC	Instructor
	Michael	R.	Murphy	u033519	u033519	DEN	Instructor
	Barbara	J.	Paresa	u036744	u036744	SFO	Supervisor
	Patrick	E.	Beech	u038876	u038876	MHC	Instructor
	Thomas	H.	Parkell	u038900	u038900	SFO	Instructor
	David	R.	Slavik Jr	u039367	u039367	DEN	Supervisor
	Thomas	R.	Burns	u054726	u054726	SFO	Instructor
	Russell	D.	Allen	u060167	u060167	DEN	Instructor
	James	-	Stelvis	u063200	u063200	DEN	Instructor
	Jerry	B.	Tsuimoto	u063429	u063429	SFO	Instructor
	Jose	A.	Marquez	u069622	u069622	DEN	Instructor

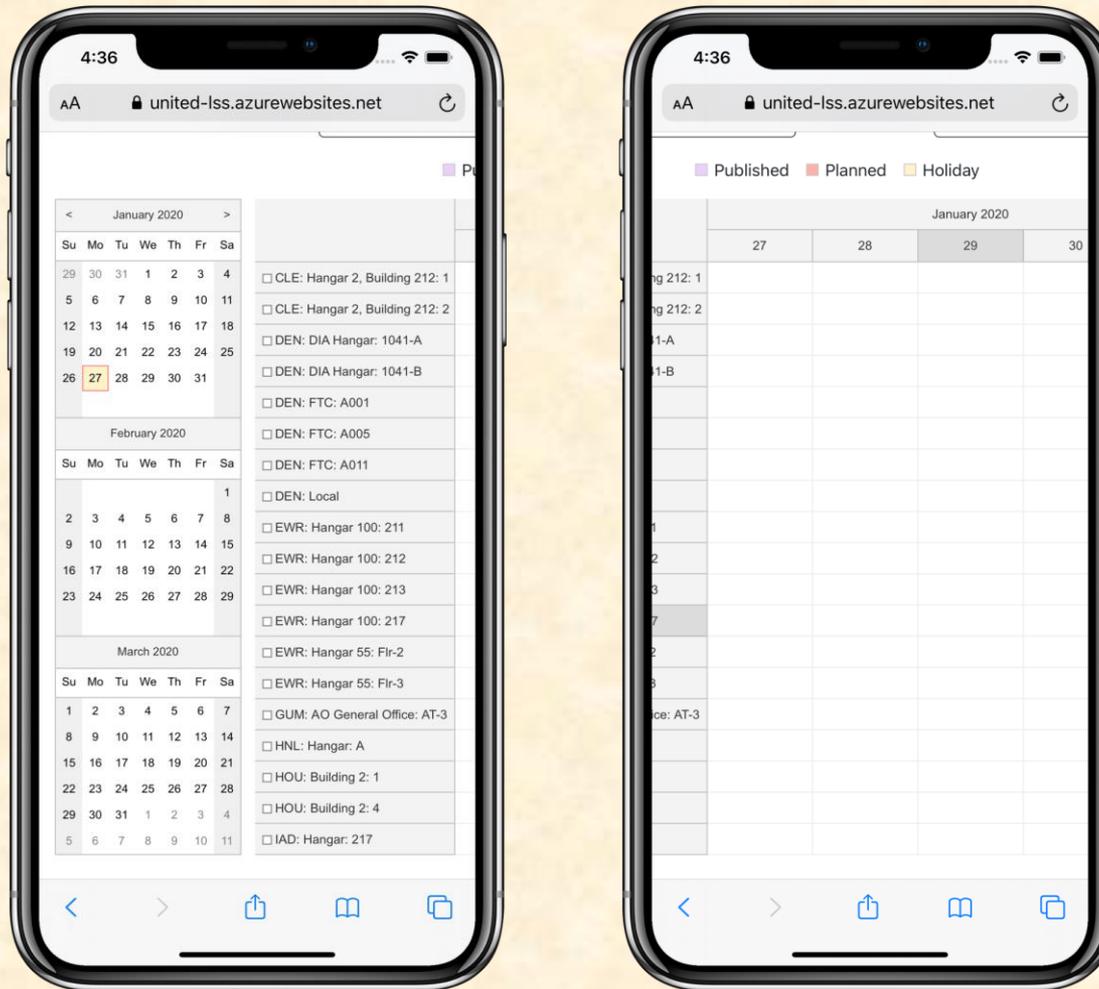
Scheduler



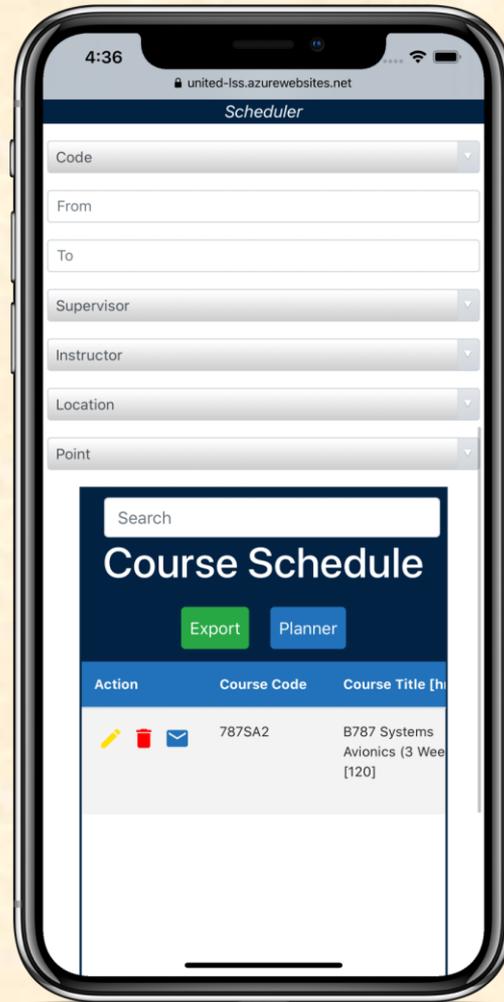
# Screen Mockup: Mobile Home



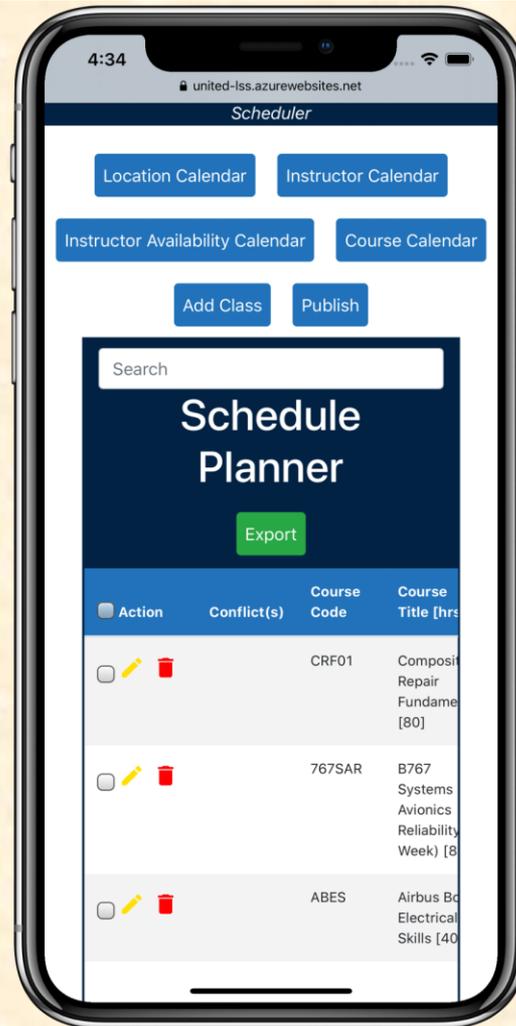
# Screen Mockup: Mobile Calendar



# Screen Mockup: Mobile Course Schedule



# Screen Mockup: Mobile Schedule Planner



# Screen Mockup: Mobile Add Class

4:33  
united-iss.azurewebsites.net

Location Calendar    Instructor Calendar

Instructor Availability Calendar

Course Calendar

## Add a Class

Course Code  
-- Select Course --

Start Date

End Date

Enable/disable weekends

Start Time  
HH : MM

End Time  
HH : MM

4:33  
united-iss.azurewebsites.net

## Location and Room

Location  
-- Select Location --

Choose Room

## Select Instructors

Add Instructors

## Select Instructor Times

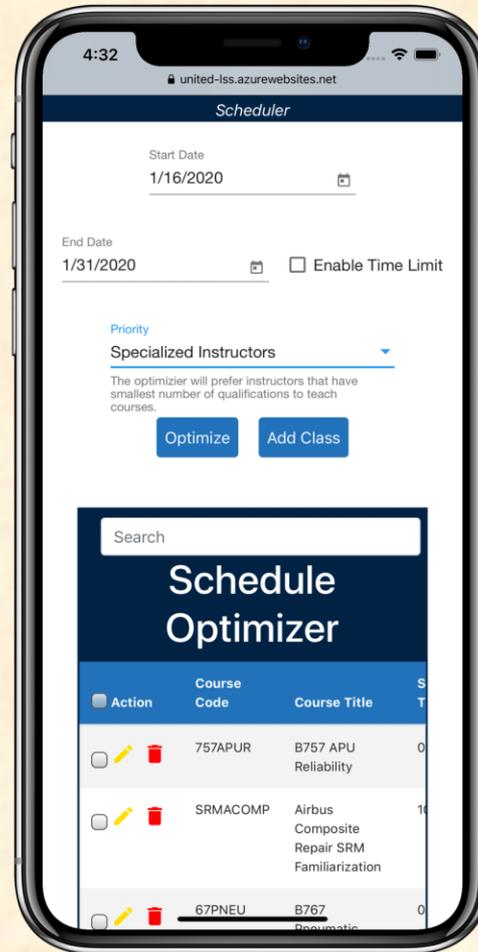
## Request Information

Request Type

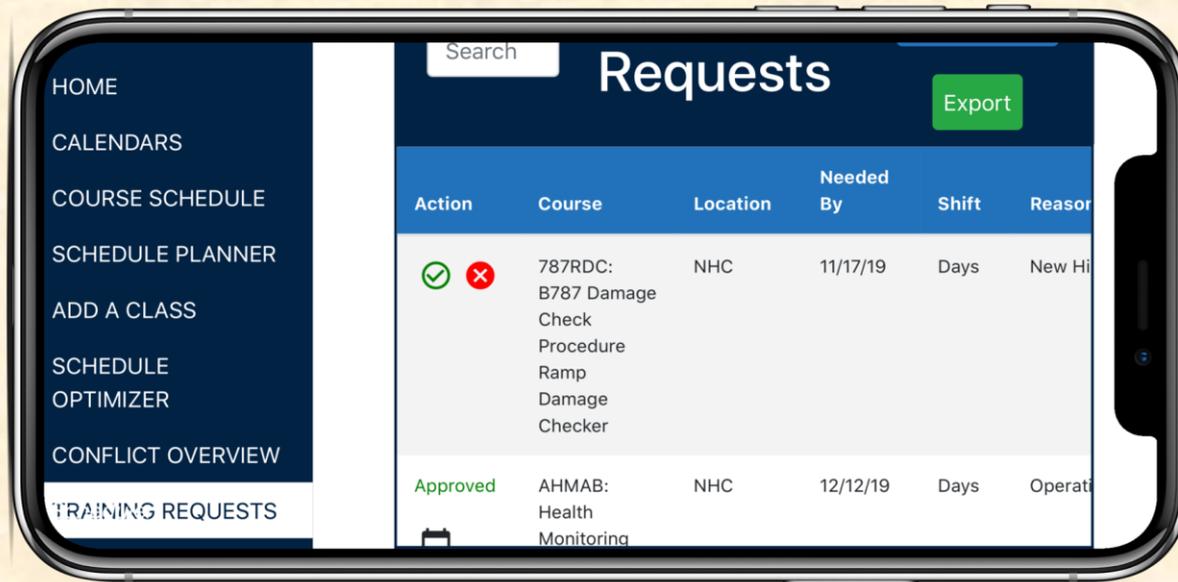
Requester



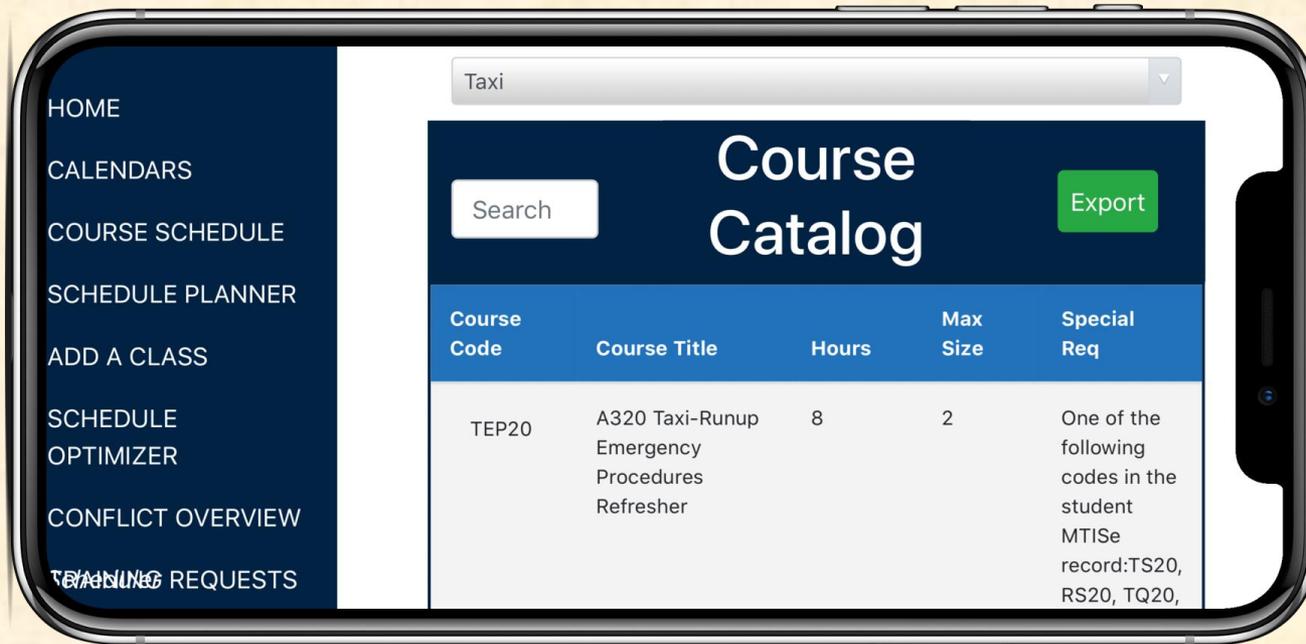
# Screen Mockup: Mobile Optimizer



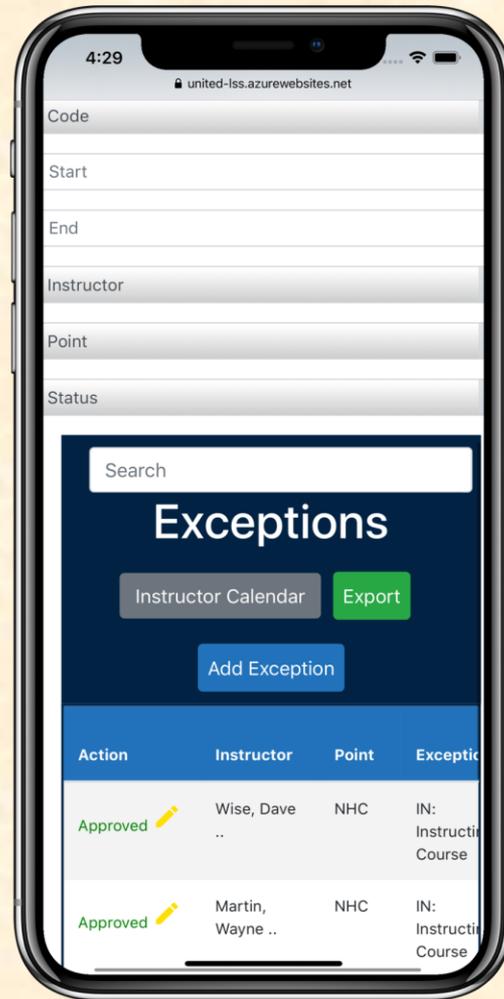
# Screen Mockup: Mobile Training Requests



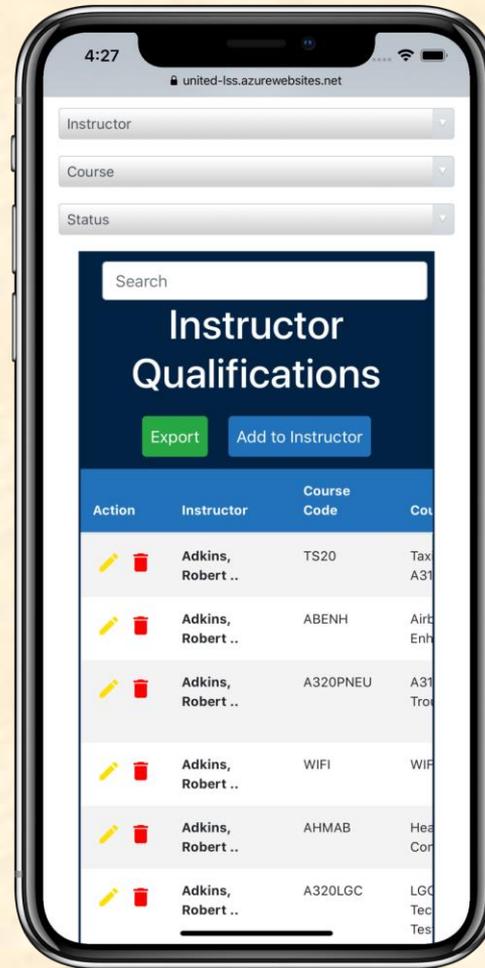
# Screen Mockup: Mobile Course Catalog



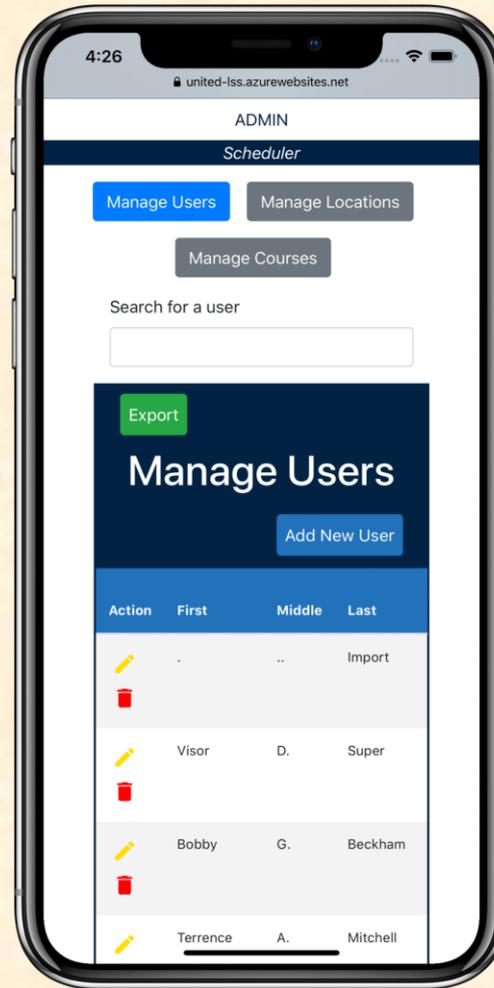
# Screen Mockup: Mobile Exceptions



# Screen Mockup: Mobile Qualifications



# Screen Mockup: Mobile Admin



# Technical Specifications

---

- Microsoft SQL Server Database
- Azure Data Studio
- Node JS, Angular, Entity Framework, ASP .Net Core, C#
- Azure Cloud Server

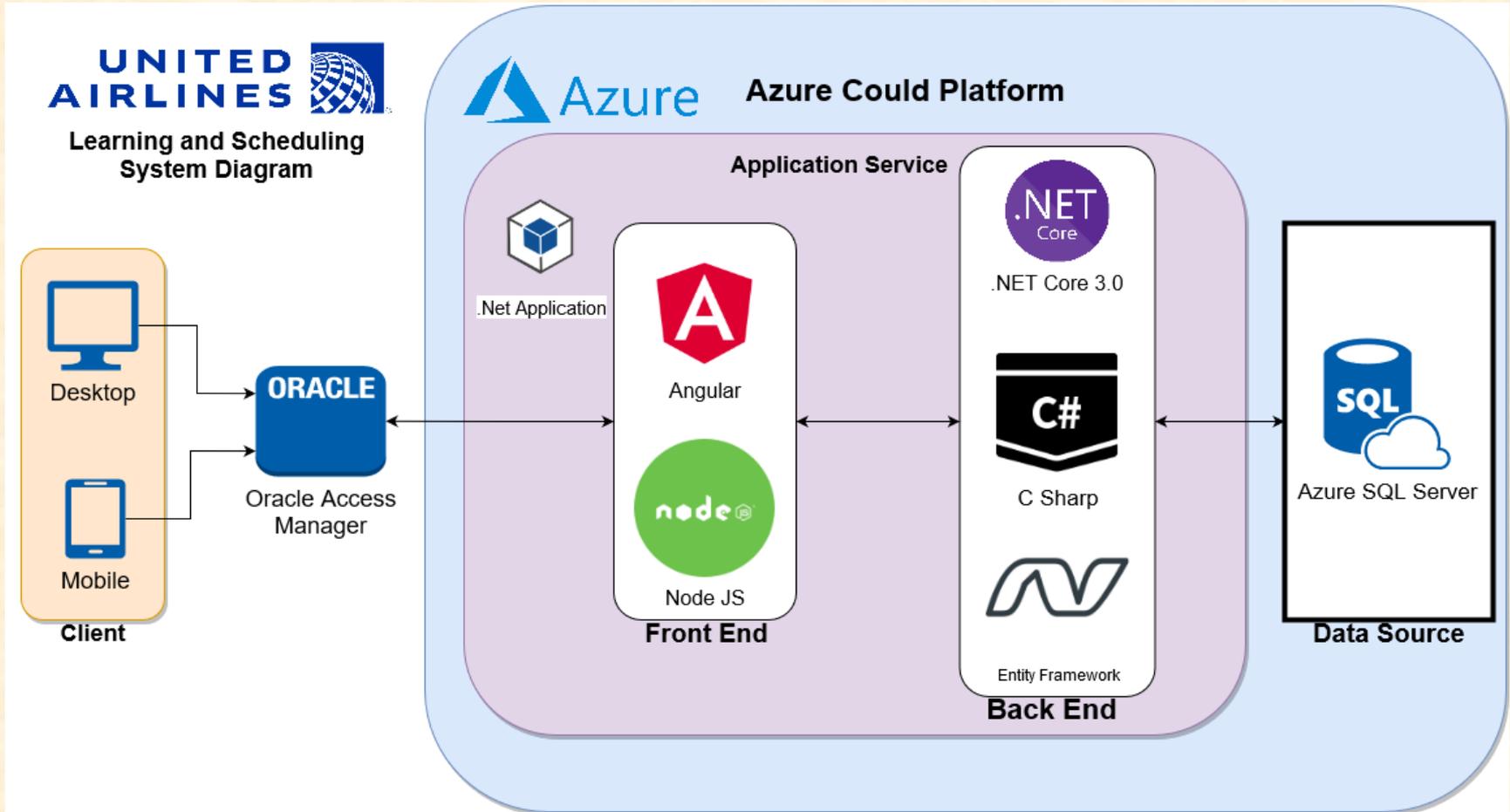


# Front-End Design Specifications

- Angular
- HTML
- CSS
- Bootstrap



# System Architecture



# System Components

---

## Hardware Platforms

- Azure Server
- Personal laptops
- Virtual Machine and SQL database running on Azure

## Software Platforms / Technologies

- Visual Studio
- Azure Git
- Azure Data Studio
- Oracle Access Manager (OAM)



# Risks

- Updating from ASP .NET 2.2 to 3.1
  - There are several documented code breaks upon upgrade
  - Mitigate by researching/testing upgrade immediately
- Dealing with Historical Data
  - Unfamiliar with scope/format and how to clean the data
  - Mitigate by researching how to put data in a template
- Running Oracle Access
  - Previous team couldn't integrate OAM
  - Mitigate by researching OAM use in Azure App Service
- Optimizer Functionality
  - The optimizer is inefficient
  - Mitigate by studying the algorithm and improvements



# Questions?

---

?

?

?

?

?

?

?

?

?

