Functional Specifications

• Update and enhance the scheduling system from the spring semester
• Implement an optimizer to recommend a schedule based off different priorities
• Make the web application mobile friendly
• Warn the user of potential conflicts when scheduling a class
Design Specifications

• Schedule Optimizer
  ▪ The user can input a time frame, specific classes, and locations, then hit “Optimize”
• Notification system
  ▪ Include popup notifications whenever the user tries to schedule a class that will cause a conflict
• Training requests
  ▪ Connecting training requests with the current schedule
• Support for mobile browser
  ▪ Currently only desktop version of application is correctly displayed
• Updating Calendars
  ▪ Changing the view, adding pop out calendars, adding a planned courses calendar
• Access levels
  ▪ Six different user levels, including guest, manager and admin
  ▪ Users can view specific pages based on their level
Screen Mockup: Schedule Optimizer

![Image of Schedule Optimizer interface]

**Optimize schedule from:**
- **Start**
- **End**

**Search**

**SCHEDULE OPTIMIZER**

<table>
<thead>
<tr>
<th>Action</th>
<th>Course Code</th>
<th>Start Time</th>
<th>Location</th>
<th># of times to run</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>POTS</td>
<td>06:00:00</td>
<td>LAX</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MAG1</td>
<td>22:00:00</td>
<td>ORD</td>
<td>2</td>
</tr>
</tbody>
</table>

The Capstone Experience

Team United Airlines Project Plan Presentation
Screen Mockup: Optimized schedule
Screen Mockup: Mobile Home Screen

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Start Date</th>
<th>Loc.</th>
<th>Instr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>57DOOR</td>
<td>9/23/15</td>
<td>DEN</td>
<td>John Hovel</td>
</tr>
<tr>
<td>PIN1</td>
<td>9/21/15</td>
<td>ORD</td>
<td>Mike Evans</td>
</tr>
<tr>
<td>K777</td>
<td>9/18/15</td>
<td>LHR</td>
<td>Linda Kay</td>
</tr>
<tr>
<td>891AL</td>
<td>9/16/15</td>
<td>SFO</td>
<td>Jay Lee</td>
</tr>
<tr>
<td>NIKE91</td>
<td>10/16/15</td>
<td>ORD</td>
<td>Andrew Kid</td>
</tr>
<tr>
<td>787TR</td>
<td>11/8/15</td>
<td>LAX</td>
<td>Bird Max</td>
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</table>
Screen Mockup: Mobile Side Menu
Technical Specifications

• Web Application
  ▪ ASP.NET Core with Angular UI hosted as an App Service on the Azure Cloud Platform

• Mobile Compatibility
  ▪ Each Angular component will have a unique mobile HTML and CSS to optimize the UI for a smartphone

• Azure Active Directory
  ▪ Will utilize Azure Active Directory for authentication during development and will migrate to OAM for handoff

• Azure SQL Database
  ▪ The client provided testing data will be hosted on Azure
System Components

• Hardware Platforms
  ▪ iMacs and personal laptops
  ▪ MS SQL Server hosted on Azure

• Software Platforms / Technologies
  ▪ Visual Studio 2019 Community Edition
  ▪ DayPilot Calendar Plugin
  ▪ Angular, Node.js, Entity Framework, ASP.NET Core, C#, Azure SQL Database
Risks

• Handoff of Final Code between Team and Client
  ▪ The team will send United a beta version of the code at the end of November to deal with any issues early.
  ▪ Add an app configuration page for the LDAP and email server.

• Runtime for Schedule Optimizer
  ▪ Creating a recursive tree to represent all possible schedules within a time frame will cost a substantial amount of time.
  ▪ Bounding will be used extensively on the recursive tree to minimize the number of branches that are created.

• Oracle Access Manager (OAM)
  ▪ We are unsure if it is possible to integrate OAM with our web application if it is hosted on Azure.
  ▪ We will rebuild the login page of the application to utilize Azure Active Directory.

• Accuracy of Data
  ▪ Currently, we are using test data provided by United.
  ▪ The group will communicate with the client to gain access to the existing data.
Questions?