Alpha Presentation
Audit Automation Tool

The Capstone Experience
Team United Airlines Quality Assurance

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Project Overview

• Leverage AI to make auditing process automated for United Airlines

• By creating a web application to compare FAA and United Airlines regulations to vendor servicing manuals

• Showcase missing standards not found in the vendor manuals to streamline auditing process – reducing manpower required for auditing as well as the elongated auditing process time – bringing capacity back to the team
System Architecture

Front-end UI

React

JS

API

DynamoDB Database

Microsoft .NET

AWS Lambda

Train Model

Back end

AWS SageMaker
Home Page
Upload Page

Audit Automation Tool

Request an audit

Upload a vendor manual and fill out the form below to get an AI-generated audit.

Create New Audit

- Engine Components
- Other Components

Upload United Airline and FAA requirements

Choose Files
No file chosen

Upload Vendor Manuals

Choose Files
No file chosen

Submit
### Summary of your Audit:

In a recent United Airlines Boeing 777 audit, a comprehensive evaluation of aviation safety and operational standards was conducted. The audit covered various critical aspects of aircraft maintenance, crew proficiency, and regulatory compliance. The audit revealed that United Airlines demonstrated a strong commitment to safety with well-maintained Boeing 777 aircraft and a highly trained crew. Maintenance records for the Boeing 777 fleet were meticulously maintained, ensuring the airworthiness of each aircraft. Additionally, the airline had effective safety protocols in place, including robust emergency response plans tailored to the Boeing 777.

Furthermore, the audit assessed various operational procedures, and United Airlines exhibited high standards of efficiency and effectiveness during the audit.

#### Audit Automation Tool

<table>
<thead>
<tr>
<th>Task</th>
<th>Completed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Review the support functions that are available such as oxygen servicing, sheet metal, composites, aircraft wash, IFE, fuel tank entry and repair, towbarless towing, etc. soGAEC and MTISc</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>4. Determine if any additional checklists are required for this station: 058-Line MRO / 019-Stores / 086-GSE / GMM 04-15-15</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>5. Determine station special training qualifications (Taxi/Engine Run, Respirator, CAT, ETOPS, fuel tank entry, oxygen servicing, etc.), GMIs Chapters 10 and 11.</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>6. Review assigned tooling inventory and calibration in eTIPS</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>7. Review previous audit and investigation findings and verify the effectiveness of the corrective action during this audit. QAAS</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>8. Conduct a review of the published station Organizational Charts. Are the charts and job descriptions current and accurate? Any deficiencies noted during the audit will be reported to the attention of the organization leader for each item</td>
<td>01-40-10</td>
<td>None</td>
</tr>
</tbody>
</table>

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**The Capstone Experience**

Team United Airlines Quality Assurance Alpha Presentation
# History Page

## Audit History

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023-10-29</td>
<td>Other Component</td>
<td>Wing Structural Integrity Review</td>
</tr>
<tr>
<td>2023-10-13</td>
<td>Engine Component</td>
<td>Engine Efficiency Audit</td>
</tr>
<tr>
<td>2023-09-07</td>
<td>Other Component</td>
<td>Avionics Systems Inspection</td>
</tr>
<tr>
<td>2023-05-03</td>
<td>Other Component</td>
<td>Cabin Safety Assessment</td>
</tr>
<tr>
<td>2022-05-01</td>
<td>Engine Component</td>
<td>Maintenance Record Verification</td>
</tr>
<tr>
<td>2022-03-09</td>
<td>Engine Component</td>
<td>Maintenance Record Verification</td>
</tr>
<tr>
<td>2022-02-24</td>
<td>Engine Component</td>
<td>Engine Efficiency Audit</td>
</tr>
<tr>
<td>2022-01-09</td>
<td>Engine Component</td>
<td>Maintenance Record Verification</td>
</tr>
<tr>
<td>2021-12-29</td>
<td>Engine Component</td>
<td>Engine Efficiency Audit</td>
</tr>
<tr>
<td>2021-12-25</td>
<td>Engine Component</td>
<td>Maintenance Record Verification</td>
</tr>
<tr>
<td>2021-12-12</td>
<td>Other Component</td>
<td>Cabin Safety Assessment</td>
</tr>
<tr>
<td>2021-11-09</td>
<td>Engine Component</td>
<td>Maintenance Record Verification</td>
</tr>
</tbody>
</table>
What’s left to do?

• Basic Log-in Page
• Capability to upload multiple checklist files
• Use results to auto-complete checklist pdf
• Make model more accurate
• Increase efficiency of generating results
Questions?