Project Problem Description

Project Objective:

Your objective is to develop a computer vision and AI based passenger boarding kiosk for the airport operations that will assist airline passengers to onboard the plane.

In details:

- ID card and Boarding pass are scanned at the kiosk
- The kiosk extracts passenger information from the boarding pass and then verify it from the ID card.
- Kiosk then take a short (30-second) video of the person and perform facial recognition to match the live person at the kiosk with the ID card provided during the scan.
- Kiosk scan carry-on baggage and identify any prohibited item and stop the passenger from boarding.
- If all scanning and validation goes well, the kiosk send out the approval to board. If not, if will ask for human assistance.

Working flow:

- A passenger manifest (list of passengers boarding in the plane) is created with a list of 5+ passengers with the following info
- Fabricated Digital IDs for all the passengers listed in the manifest are created
- Fabricated boarding passes for all the passengers listed in the manifested are created
- The project owner fabricated ID card is also part of passengers list to validate the face recognition using the project owner video
- A 20 seconds video of project owner is used as the Kiosk face recognition system
- Passenger carry-on items are also scanned for lighter and if lighter is present, the passenger is flagged for prohibited items in the carry-on baggage.
- All of this data is processed by various Azure computer vision services to simulate the automated airline boarding process.

Input Data Sources:

- Flight Manifest List for all passengers (6)
- Passenger ID card (6 including one face photo for the project owner)
- Passenger Boarding Pass (6)
- Passenger 20 second video showing their face (Project owne video)

- Passenger carry-on items photo (Please use the sample images provided in the project)

The Solution Strategy:

- Using the **Azure Form recognizer service**, a model will be trained to extract passengers information from the Boarding passes
- Using **Azure Form recognition digital ID** service will be used to extract the face and personal information from the passengers digital ID
- The passenger information extracted from the boarding pass, will be validated from the manifest list
- If person name exist in the manifest list then person identity will be validated from the personal ID
- The face photo extracted from the digital ID will be verified from the face photo extracted from the passenger video (as provided) using **Azure Video Indexer service**.
- Using the various lighter images provided in the project, a machine learning model for the lighter identification is created using **Azure custom vision services**.
- As the learning exercise, you can test your Azure custom vision model (which you trained for lighter images identification), using the sample carry-on images provided in the project.
- Once the boarding pass validation is done and then the final message of either successful or unsuccessful validation is displayed as the part of the last step in this project.