Project Objective:

This project aims to develop a computer vision and AI-based passenger boarding kiosk for an airport using Azure. The goal is to speed up this process and allow passengers to onboard a plane without human assistance.

The kiosk should have the following workflow:

- A passenger buys a ticket from an airline website, which stores flight and user data in a DB.
- On the day of the flight, the passenger arrives at the airport and approaches a kiosk.
- A passenger scans their ID and Boarding pass
- The kiosk will take a video to verify that the person matches the scanned ID via facial recognition.
- Kiosk scans carry-on bag for prohibited items
- If all tests pass, then the customer is granted access to the flight

The kiosk will execute the following operations to achieve this functionality:

1. Extract passenger information from boarding pass and ID
2. Validate text information is correct (Name, DOB, boarding pass).
3. Face verification
4. Prohibited item verification
5. If all previous steps succeeded, then display a welcome message and grant access to the flight. Otherwise, notify an airline representative.

Input Data Sources:

- Flight manifest list (Created when a ticket is bought)
- Passenger ID Card
- Passenger Boarding Pass
- Passenger video that contains their face
- Passenger carry-on items photo

Solution Strategy:

- **Azure Form Recognizer** will be used to extract text from boarding pass
- **Azure Form Recognition digital ID** service will be used to extract customer face and personal information from ID
- This data will be validated with a manifest list stored in a database at the time of purchase.
- **Azure Video Indexer** will be used to extract the passenger's face from the kiosk video
- **Face Validation** will be used to determine if the passenger matches the ID card

- **Azure Custom Vision** services will be used to detect prohibited items in passenger's <u>carry-on bag</u>