Project Design Phase-I
Solution Architecture

Date	10 October 2022
Team ID	PNT2022TMID41699
Project Name	Developing a flight delay prediction model using Machine Learning
Maximum Marks	4 Marks

Architectural Workflow:

User view:

1. User enters flight details in the UI
2. Entered input is sent to the classifier model deployed through IBM Watson.
3. The model predicts the estimated time of departure/arrival delay and sends it to the UI.
4. The predicted value is displayed to the UI

Model view

1. The dataset is preprocessed for handling missing/categorical values.
2. Spatial and other features are extracted.
3. The features are split into training and test set.
4. A Random forest classifier is built and is rained with the training data.
5. The model is evaluated using testing data.
6. The trained model is deployed in IBM Watson.

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                    Data Preprocessing

  ┌──────┐    ┌─────────────────┐    ┌──────────┐    ┌──────────┐
  │ Data │ →  │ Data Visualisation │ → │ Handling │ → │ Encoding │
  └──────┘    └─────────────────┘    │ missing  │    │ Categorical │
                                     │ values   │    │ values   │
                                     └──────────┘    └──────────┘
```

Data Preprocessing

Data

Data Visualisation → Handling missing values → Encoding Categorical values

Preprocessed data

Spatial Feature Extraction

Aviation network construction → Crowdedness calculation

Spatial features

Extraction of other features

Model features

Data Splitting

Training set

Testing set

Training Random Forest classifier

Classifier

Deployed Model

input

Getting input from UI

Flight details

Prediction

Displaying prediction to UI