

## Project Design Phase-I Solution Architecture

Date	21 October 2023
Team ID	592974
Project Name	Airline Review Classification Using ML
Maximum Marks	4 Marks

### Solution Architecture:

1. Data Collection
  - Diverse dataset of airline reviews from multiple sources.
2. Data Preprocessing and Cleaning
  - Text normalization
  - Stop words removal
  - Handle missing or noisy data
3. Feature Extraction and Sentiment Analysis
  - Extract relevant features
  - Perform Sentiment Analysis using NLP
4. Model Selection and Hyperparameter Tuning
  - Choose ML model (e.g., BERT, LSTM)
  - Hyperparameter tuning
5. Interpretability Techniques
  - Implement LIME or SHAP
6. Scalability Planning
  - Design for scalability
  - Consider cloud-based infrastructure
7. Privacy and Ethical Considerations
  - Ensure data compliance
  - Anonymize user data
8. Web App Development
  - Create user-friendly web app
9. User Feedback Integration
  - Implement feedback mechanism
10. Evaluation Metrics and Model Performance Analysis
  - Define evaluation metrics
  - Continuously monitor model performance
11. Proper Documentation
  - Document architecture, data, and model details.

## Solution Architecture Diagram:

Data Sources

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Data Collection Strategy

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Data Preprocessing and Cleaning

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Feature Extraction and Sentiment Analysis

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Model Selection and Hyperparameter Tuning

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Interpretability Techniques

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Scalability Planning

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User Feedback Integration

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Privacy and Ethical Considerations

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Evaluation Metrics and Model Performance Analysis

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Web App Development