

Project Design Phase-II

Solution Architecture

Date	27 October 2023
Team ID	591-581
Project Name	Travel Insurance Prediction
Maximum Marks	4 Marks

Solution Architecture:

For my project, I will start by gathering historical data on travel insurance purchases. This dataset will include information such as age, employment type, education status, annual income, family size, chronic diseases, travel enthusiasm, and international travel history.

Next, I'll focus on data preprocessing. This involves cleaning and preparing the data, addressing missing values, ensuring consistent formatting, and then encoding categorical variables, normalizing numerical values, and splitting the dataset into training and testing sets.

Moving on, I'll perform feature selection to identify the most influential factors for prediction. Key considerations include features like age, income, family size, and travel history.

For model selection, I'll opt for machine learning algorithms suitable for binary classification, with Gradient Boosting being a promising choice. The model will be trained on the designated training dataset.

Once trained, I'll evaluate the model's performance using metrics such as accuracy, precision, recall, and F1 score on the testing dataset. Fine-tuning of hyperparameters will be conducted for optimal results.

Considering scalability, I'll ensure that the architecture can handle increasing data volumes over time. This may involve leveraging scalable cloud platforms or distributed computing resources.

Upon successful testing, I'll proceed to deploy the model in a production environment, enabling real-time predictions and integration with necessary systems for seamless functionality.

To ensure ongoing effectiveness, I'll establish mechanisms for monitoring the model's performance and regularly update it with new data for sustained accuracy and relevance.

If deemed necessary, I may also develop a user interface for easy interaction with the prediction model, allowing users to input data and view results in a user-friendly manner.

Lastly, I'll create comprehensive documentation outlining the solution architecture. This documentation will cover details such as data sources, preprocessing steps, model specifics, and deployment procedures, recognizing that the specifics may vary based on the unique requirements and constraints of my project.

Solution Architecture Diagram:

