Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03October 2022
Team ID	PNT2022TMID04288
Project Name	University Admit Eligibility Predictor
Maximum Marks	4 Marks

Technical Architecture:

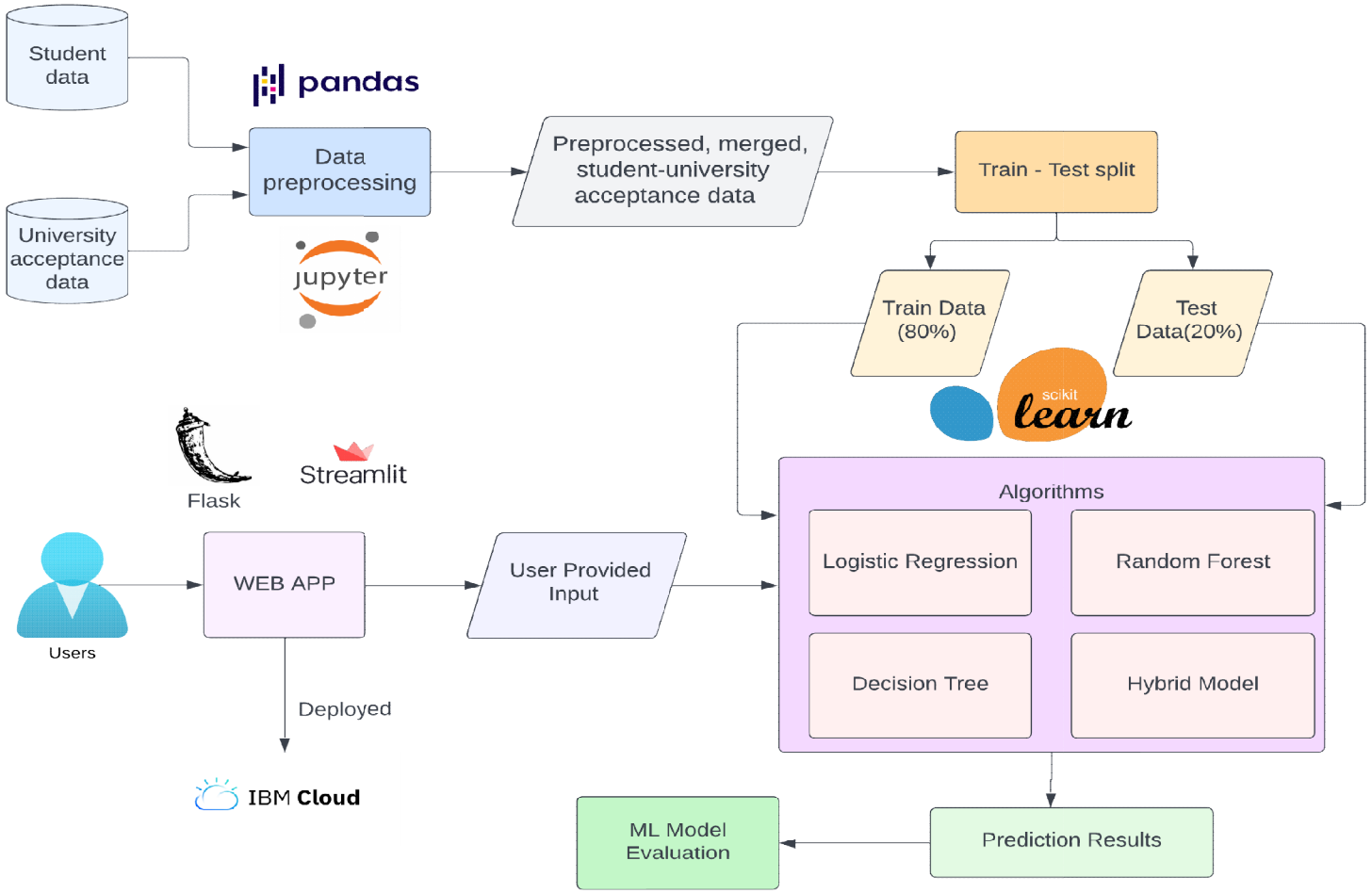

Table-1 :Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	Flask, Streamlit
2.	Dataset pre-processing	Logic for a process in the application	Java / Python
3.	Infrastructure	Setting up a cloud server to host the web application.	IBM Cloud Hosting
4.	ML Model	Logistic regression, Decision Tree, Random Forest, and a hybrid deep learning model are the models to be utilised for prediction.	Scikit-Learn
5.	Application Logic	Business strategy behind the application.	Python
6.	Database	to keep track of student and university information.	MySQL, IBM DB2, IBM Cloudant, etc.
7.	File Storage	As a place to save the SOPs, LORs, and other pertinent PDF files that users upload.	IBM Cloud File Storage
8.	Data Visualization	Heatmaps showing the association of several criteria that are very important in deciding admission, graphic depiction of student data, historical acceptance patterns at the university, etc.	Matplotlib, Seaborn, Plotly
9.	Performance Metrics	The ML model's accuracy with respect to the training and tested data.	Root Mean Squared Logarithmic Error (RMSLE), Mean Squared Error (MSE)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Availability	➢ Since the web application is hosted in the cloud, it is accessible from any location and on any device. ➢ In order to divide the demand over several servers, load balancing will also be done utilising IBM cloud services.	IBM Cloud Hosting, IBM Load Balancer
2.	Security Implementations	➢ Prior to generating predictions, users should be authenticated.	Cloud authentication services with modern, secure encryption schemes like SHA 256
3.	Performance	➢ We will use four alternative machine learning (ML) models—Logistic Regression, Decision Tree, Random Forest, and a Hybrid model—and compare the model-accuracy, precision, and recall scores to see which one provides the best accuracy.	Scikit-Learn, Root Mean Squared Logarithmic Error(RMSLE), Mean Squared Error (MSE)
4.	Scalable Architecture	➢ The system contains cloud storage for storing the pdf documents, which can easily manage multiple requests, therefore the suggested architecture is scalable even if the number of users registering the web app rises dramatically. ➢ Additionally, even if user traffic increases, there is very little chance that the website will crash since IBM Load Balancer manages to evenly distribute the load across the numerous servers.	IBM Cloud Services