Technical Architecture

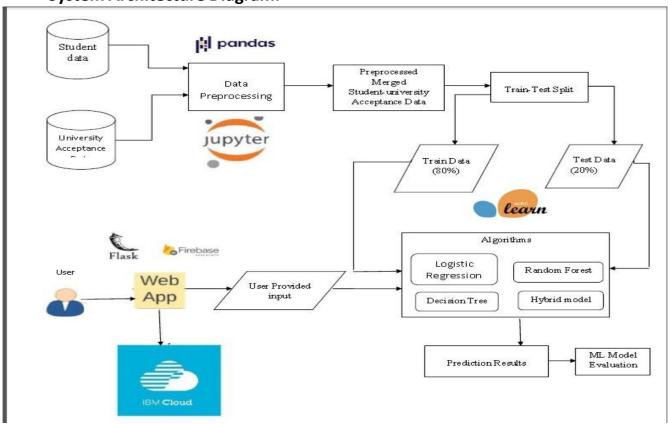|	
Date	29 October 2022
Team ID	PNT2022TMID38951
Project Name	University Admit Eligibility Predictor
Maximum Marks	4 Marks

System Architecture Diagram:

Table-1: Components & Technologies

SNO.	Component	Description	Technology
1.	User Interface	The Front-end part of the application for accepting user data.	Flask, Streamlit

2.	Dataset pre-processing	Removing inconsistencies in the dataset.	Pandas, Numpy, Python
3.	Application Logic	The core business logic of the application.	Python
4.	Database	For storing student & university details.	MySQL, IBM DB2, IBM Cloudant, etc.
5.	Data Visualization	Graphical visualization of student data, University's past acceptance trends, Heatmaps depicting the correlation of different attributes that play a crucial role in determining acceptance, etc	Matplotlib, Seaborn, Plotly
6.	File Storage	For storing the SOPs, LORs and other relevant PDF documents uploaded by the user.	IBM Cloud File Storage
7.	ML Model	Models to be used for prediction – Logistic Regression, DTree, Random Forest and a Hybrid Deep Learning based model.	Scikit-Learn
8.	Performance Metrics	Accuracy of the ML model on the trained and tested data.	Root Mean Squared Logarithmic Error (RMSLE), Mean Squared Error (MSE)
9.	Infrastructure	Cloud Server Configuration for hosting the web app.	IBM Cloud Hosting

Table-2: Application Characteristics:

SNO.	Characteristics	Description	Technologies Used
1.	Security Implementations	Authenticating the users before making the predictions.	Cloud authentication services with modern, secure encryption schemes like SHA 256
2.	Availability	Since the web app is hosted on cloud, it can be accessed from any device, anywhere. Also, load balancing will be implemented using IBM cloud services to distribute the load across multiple servers.	IBM Cloud Hosting, IBM Load Balancer
3.	Performance	We will be implementing 4 different ML models – Logistic Regression, Decision Tree, Random Forest and a	Scikit-Learn, Root Mean Squared Logarithmic Error

		Hybrid model and then determine which model gives the highest accuracy after comparing the model-accuracy, precision and recall values.	(RMSLE), Mean Squared Error (MSE)
4.	Scalable Architecture	The proposed architecture is scalable even if the no. of users registering the web app increases exponentially as the system has a cloud storage for storing the pdf documents, which can easily handle many requests. Also, the possibility of the website crashing is very minimal even if the number of users increase as IBM Load balancer takes care of distributing the load across the various servers.	IBM Cloud Services