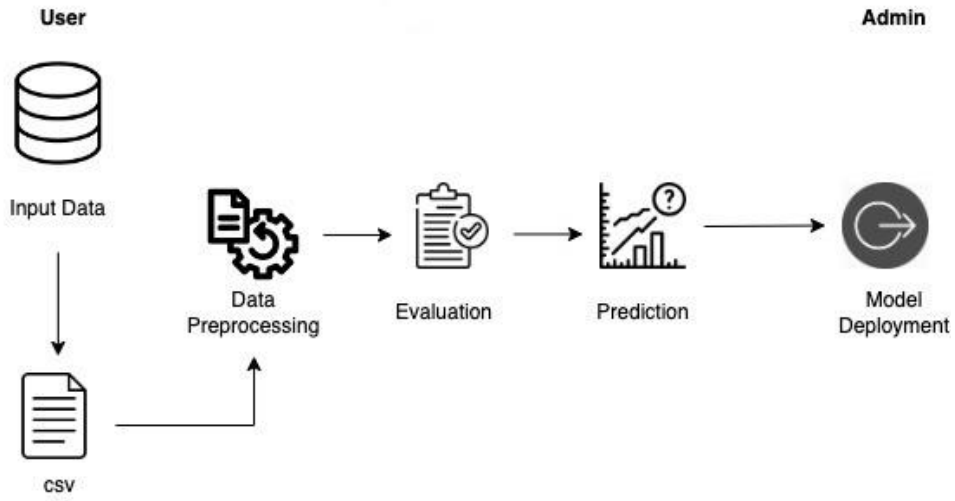
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	07 November 2023
Team ID	591606
Project Name	Project - ENVISIONING SUCCESS: Predicting University Scores using Machine Learning
Maximum Marks	4 Marks

Technical Architecture

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components / services
5. Indicate interface to machine learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Application Logic-1	Logic for a process in the application	Python
2.	Dataset	Data Type, Features etc.	Kaggle, UCI repository etc.
3.	Info to Data/Data Processing	Process the user provided info and transform into format suitable for input to the algo.	Backend.
4.	Input Section/ Data Analysis	Collects input characteristics from the user.	Frontend UI, Html, CSS, Flask Backend.
5.	Algorithm Integration	Integrates ML Algorithm into flask Backend.	ML Algorithm, Backend.
6.	Data testing	Conducts testing on processed data	Backend.
7.	Machine Learning Model	Purpose of Machine Learning Model	Random Forest, SVR, lasso regression, linear regression, Decision Tree
8.	Prediction	Receives prediction results from backend	UI, Backend, Machine learning.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Python's Flask
2.	User-Friendly Interface	This provides an engaging or intuitive experience for users interacting with the application.	HTML, CSS, Bootstrap, JavaScript, UI etc.
3.	Machine learning Algorithms	Integrates machine learning models for data analysis and prediction	ML frameworks and libraries, Scikit-learn.
4.	Scalability/Availability	It can handle a growing number of users and predictions without significant performance degradation.	Load Balancers, Docker, Caching, Database Replication, Scalable architecture designs.
5.	Model update mechanism	If you plan to update the machine learning model.	Version control, CI/CD, Feature flags.
6.	Performance	Design consideration for the performance of the application.	CDN (content delivery network), Caching.