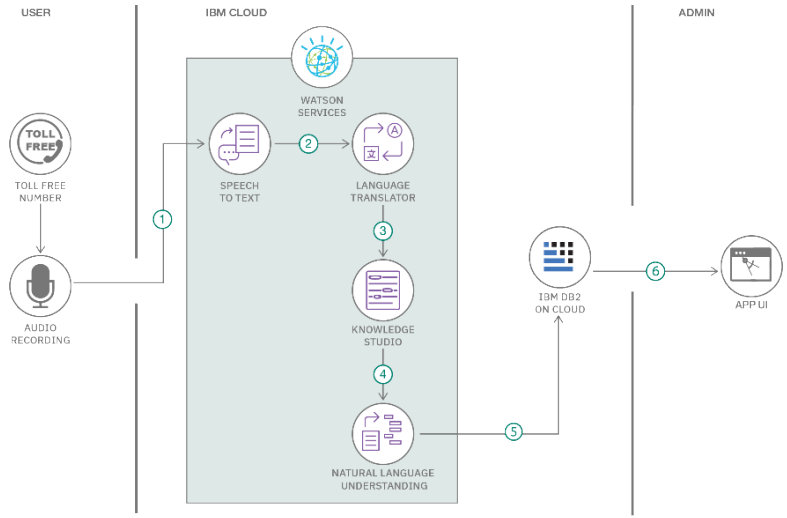
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	17 October 2022
Team ID	PNT2022TMID16260
Project Name	University Admit Eligibility Predictor
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)

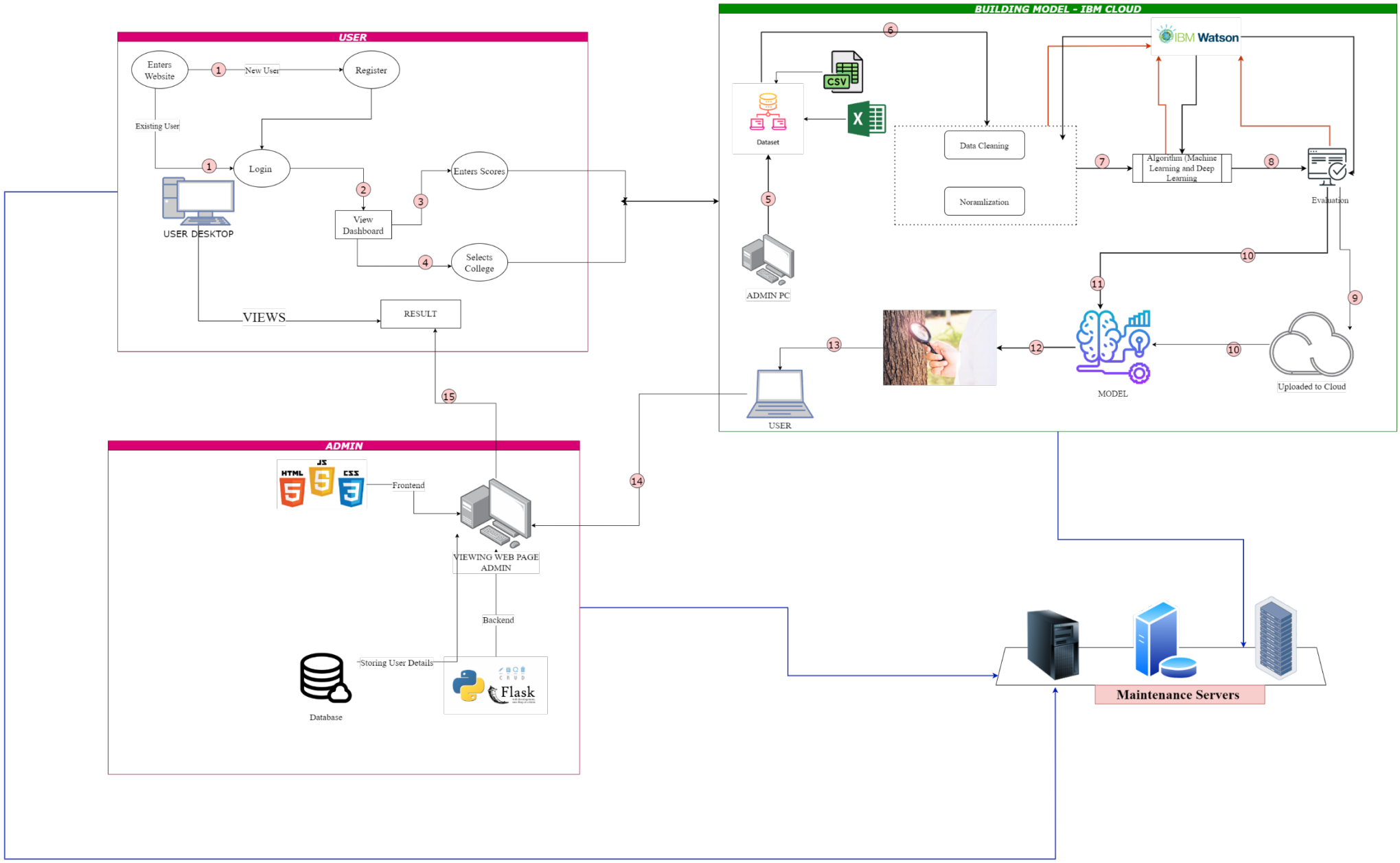

USER
Enters Website
1
New User
Register
Existing User
1
Login
2
View Dashboard
3
Enters Scores
4
Selects College
USER DESKTOP
VIEWS
RESULT
BUILDING MODEL - IBM CLOUD
6
IBM Watson
CSV
Dataset
Data Cleaning
Noramlization
7
Algorithm (Machine Learning and Deep Learning
8
Evaluation
5
ADMIN PC
10
11
9
13
12
10
MODEL
Uploaded to Cloud
USER
15
ADMIN
HTML
JS
CSS
Frontend
14
VIEWING WEB PAGE ADMIN
Backend
Storing User Details
Flask
Database
Maintenance Servers

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application. Frontend Development for example Web UI, Mobile App.	HTML, CSS, JavaScript.
2.	Application Logic – 1	Logic for a process in the application. To develop the backend for the application.	Python.
3.	Application Logic – 2	Logic for a process in the application. To train the dataset that is used for the prediction in this product.	IBM Watson Assistant
4.	Database	Data Type, Datasets. Data Type for storing user details of registration, Datasets are for analysis of the prediction model that is to be developed.	MySQL for Datatype and CSV file for different sets of data.
5.	Cloud Database	Database Service on Cloud.	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements.	IBM Block Storage or Other Storage Service or Local Filesystem.
8.	External API – 1	Purpose of External API used in the application. To use the model that is been developed on the IBM Watson.	IBM Cloud API Key.
9.	Internal API – 2	Purpose of Internal API used in the application. To run the full stack application on the internal server to check the functionality of the website.	Localhost.
10.	Machine Learning Model	Purpose of Machine Learning Model. For the supervised and unsupervised learning of the model that is used for the prediction.	Object Recognition Model, etc.
11.	Deep Learning Model	Purpose of Deep Learning is to make the model to be more very accurate in predicting the values.	Prediction Matrix.

12.	Infrastructure (Server / Cloud)	Application Deployment on Local System / **Cloud Local Server Configuration:** The local server is to check the functioning of the website. **Cloud Server Configuration:** The main server configuration is to been done regularly to maintain the proper working of the server for the users to use the website.	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used. For the development of backend for website framework is used.	Python Flask – Open-Source framework.
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services). The product is scalable as the infrastructure provides the efficiency for many users to use the website without lagging of the website.	Docker, Testing.
4.	Availability	Justify the availability of application (E.g., use ofload balancers, distributed servers etc.)	NGNIX, HAP Roxy.
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Atatu's and Solar Winds Server.