

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

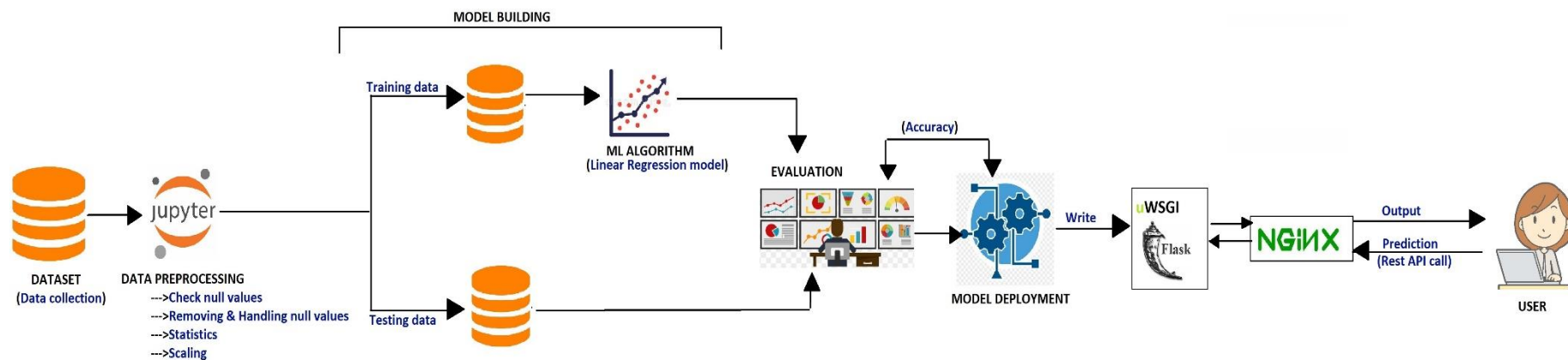
Date	13 October 2022
Team ID	PNT2022TMID01039
Project Name	Project - Trip Based Modeling Of Fuel Consumption In Modern Fleet Vehicles Using Machine Learning
Maximum Marks	4 Marks

**Technical Architecture:**

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

Guidelines:

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



**Table-1 : Components & Technologies:**

S.No	Component	Description	Technology
1.	User Interface	How user interacts with prediction model through the application	HTML
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations	Python

6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloud DB, IBM_DB(python package)
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	Data pre-processing	Pre processing the received data set in order to fetch good result and check , remove , handle all the null values	pandas , numpy ,matplotlib ,seaborn,
9.	External API-2	Purpose of External API used in the application	Aadhar API etc.,
10.	Machine Learning Model	Purpose of Machine Learning Model	SKlearn, algorithm- linear regression, random forest , neural networks
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

**Table-2: Application Characteristics:**

<b>S.No</b>	<b>Characteristics</b>	<b>Description</b>	<b>Technology</b>
1.	Open-Source Frameworks	open-source frameworks used	Jupyter, Spider
2.	Security Implementations	security / access controls implemented, use of firewalls etc.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	scalability of architecture (3 – tier, Micro-services)	Pandas, numpy, sci-kit learn
4.	Availability	availability of application	Ground cloud, IBM cloud, Artificial Intelligence
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	load balancers, distributed servers, supply chain management, safety programs, predictive analytics and accurate reporting