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

Date	06 May 2023
Team ID	NM2023TMID21277
Project Name	Project - A Reliable Energy Consumption Analysis System For Energy-Efficient Appliances

Technical Architecture:

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

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.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Linear regression is a model used to predict the relationship between a dependent variable and one or more independent variables.	Python
3.	Application Logic-2	Pickle is a module that allows for the serialization of Python objects, enabling easy storage of data structures.	Python
4.	Application Logic-3	A scalable cloud computing platform with a variety of services for application development and deployment.	IBM Watson Assistant
5.	Cloud Database	A scalable and accessible database service hosted on the cloud, providing flexibility, high availability, and ease of data management for applications and users	IBM DB2, IBM Cloudant
6.	File Storage	Comma-Separated Values, a plain-text format for storing tabular data, where each line represents a row and values within a line are separated by commas.	Local Filesystem

7.	External API-1	Access and utilize powerful language models, like ChatGPT, for natural language processing tasks through an application programming interface.	Open AI API
8.	External API-2	Programmatic access to Kaggle's datasets, competitions, and kernels for data exploration and collaboration.	Kaggle API
9.	Machine Learning Model	LSTM model is a type of RNNarchitecture that can effectively capture long-range dependencies in sequential data.	Long short-term memory model, Linear Regression
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Apache Cloud Server Configuration : IBM	Apache, IBM Cloudant

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask Apache spark Tensorflow Pandas	Python, Apache software foundation
2.	Security Implementations	Authentication and Authorization Secure communication Secure hosting	OAuth HTTPS SSL/TLS
3.	Scalable Architecture	3-tier architecture, Backend, Predictive Model, Frontend	Python, Flask, Cloud hosting