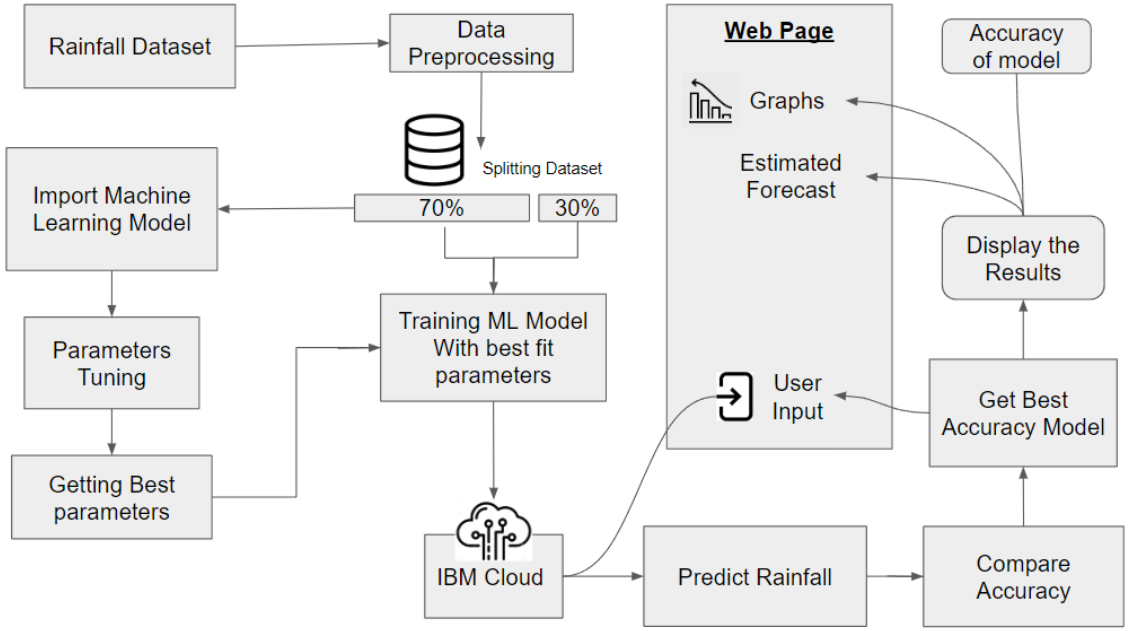
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID36050
Project Name	Project - Exploratory Analysis of RainFall Data in India for Agriculture
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:

- All the processes are listed under the Application logic block.
- The Trained model will be uploaded in the IBM cloud.
- API will get the data from the cloud when requested
- Input from the user will be taken through the web page and will be processed in the cloud.
- Accuracy will be shown according to the inputs.

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How a user interacts with an application, for example, a mobile app or a web UI.	HTML, CSS, Node JS, JavaScript, Bootstrap
2.	Database	A structured set of data held in a computer, especially one that is accessible in various ways.	MongoDB, NOSql
3.	Cloud Database	A database service built and accessed through a cloud platform	IBM Cloudant, IBM Db2
4.	API	Mechanisms that enable two software components to communicate with each other using a set of definitions and protocols	Django or PythonFlask
5.	Application Logics	The logic governing what a computer program is trying to accomplish; domain logic.	Python, Javascript
6.	Machine Learning Model	A file that has been trained to recognize certain types of patterns.	XGBoost, Decision Tree, Support Vector Machines
7.	Data Pre-processing and Analysis	The available information is arranged or converted into a format that the machine learning model will accept.	Numpy, Seaborn, Matplotlib, Pandas, Datacleaner, GridsearchCV

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Python, PythonFlask, MongoDB, IBM DB2
2.	Security Implementations	Request Authentication using JSON web tokens	SSL Certis, Direct Verification using Backend frameworks, Flask Security
3.	Scalable Architecture	Supporting multiple sample predictions and defending the architecture's scalability.	Three-Tier Architecture, Python & Flask
4.	Availability	The measure used to evaluate whether an application is functioning properly and usable to meet the requirements of an individual or business.	IBM Cloud, IBM DB2
5.	Performance	Various ways to evaluate a machine learning model's performance (Precision and Accuracy)	Distributed Servers and Load Balancers (like Application, Network, and Classic Load Balancer)

References:

https://assets.researchsquare.com/files/rs-1921429/v1/1a8f515c-7be2-4396-a4ac-f87f37152125.pdf?c=1660065891

https://www.ibm.com/cloud/architecture

https://www.airitilibrary.com/Publication/alDetailedMesh?docid=P20190709001-202207-202207050003-202207050003-349-353