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

Date	03 October 2022
Team ID	PNT2022TMID20578
Project Name	Project - Estimate the crop yield using data analytics
Maximum Marks	4 Marks

Technical Architecture:

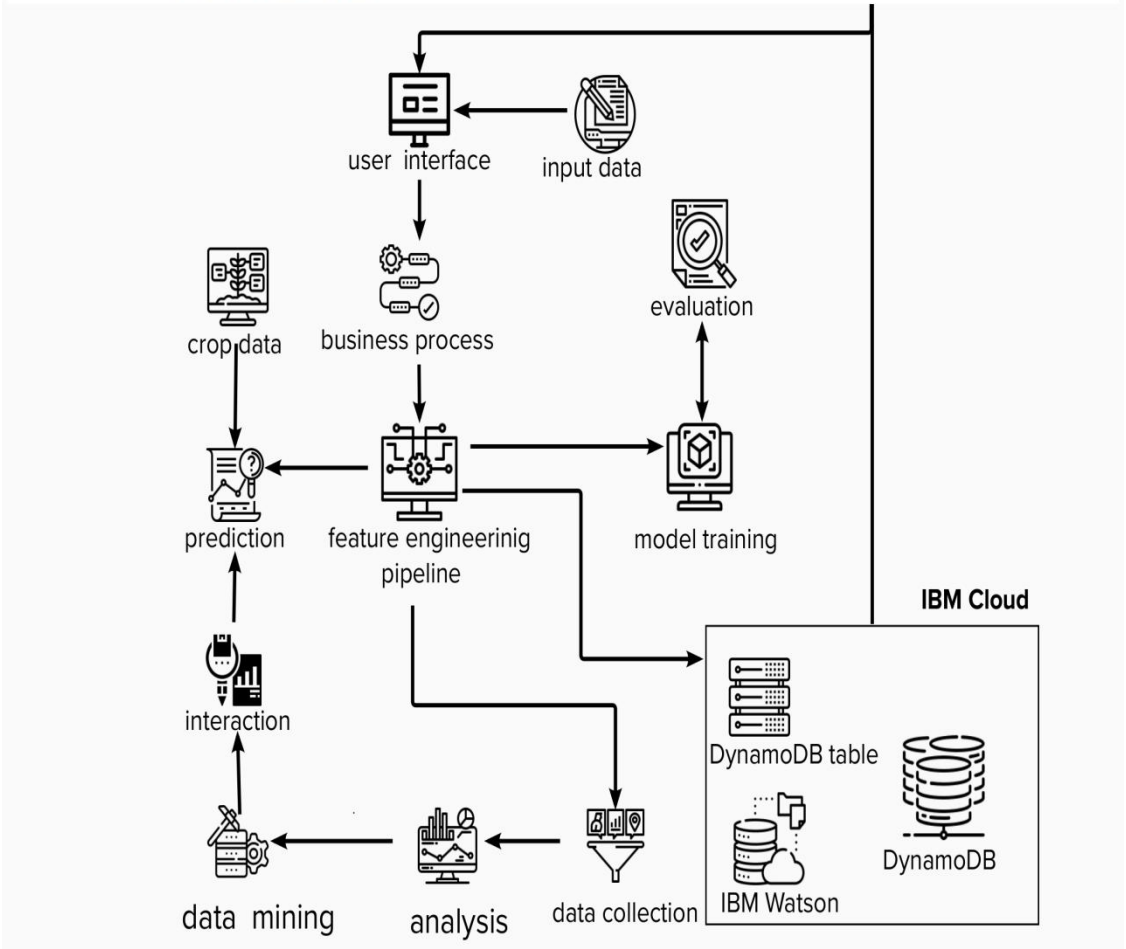

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with application for the estimation of crop yield to increase the production in farming sector	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Prediction unit	This function is used to forecast results from newly training data in order to carry out new activities and address new issues.	Decision trees, Regression, Neural networks.
3.	Model Training kit	It discovers patterns in the data. They then employ these patterns to carry out certain tasks.	Multiclass Classification Model, Regression Model, etc.
4.	Feature Engineering Pipeline	Raw data cannot be understood by algorithms. The algorithm needs our data to be selected, altered, combined, and prepared in different ways so that it can discover useful patterns.	pattern extraction, etc.
5.	Interactive services	to interact with our model and present it with challenges. Typically, this appears as a user interface, an API, or a command-line interface.	Application programming interface, et
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	Evaluation system	It monitors that how Algorithm performs on data as well as during training.	Chi-Square, Confusion Matrix, etc.
8.	. Data collection unit	Data **is merely** useful if it's accessible, so it **must be stored ideally during a** consistent structure and conveniently in one place	BM Cloud, SQL Server.
9.	Data generation system	Every machine learning application lives off data. That data **has got to** come from somewhere. Usually, it's generated by **one among** your core business functions.	Synthetic data generation.

10.	Database management system	An organized collection of data stored in database, so that it can be easily accessed and managed.	MySQL, DynamoDB e
11.	Infrastructure (Server / Cloud) IBM Cloud services	Processed data stored in cloud service which can be access by the admin anywhere over the internet.	IBM Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Hadoop open in new is an assortment of open source software for distributed and parallelized computing, specifically for the task of analyzing and processing large data sets	Tensorflow,numpy
2.	Security Implementations	Authentication	Encryption and decryption
3.	Scalable Architecture	Application interface	Android and Web Development (PhoneGap, ReactNative, and NativeScript).
4.	Availability (both Online and Offline work	its include both online and offline work.	Caching, backend server.
5.	Performance	Personalization	HubSpot