

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

Date	03October 2022
Team ID	PNT2022TMID50307
Project Name	Project - Estimate the crop yield using data analytics.
Maximum Marks	4 Marks

Technical Architecture:

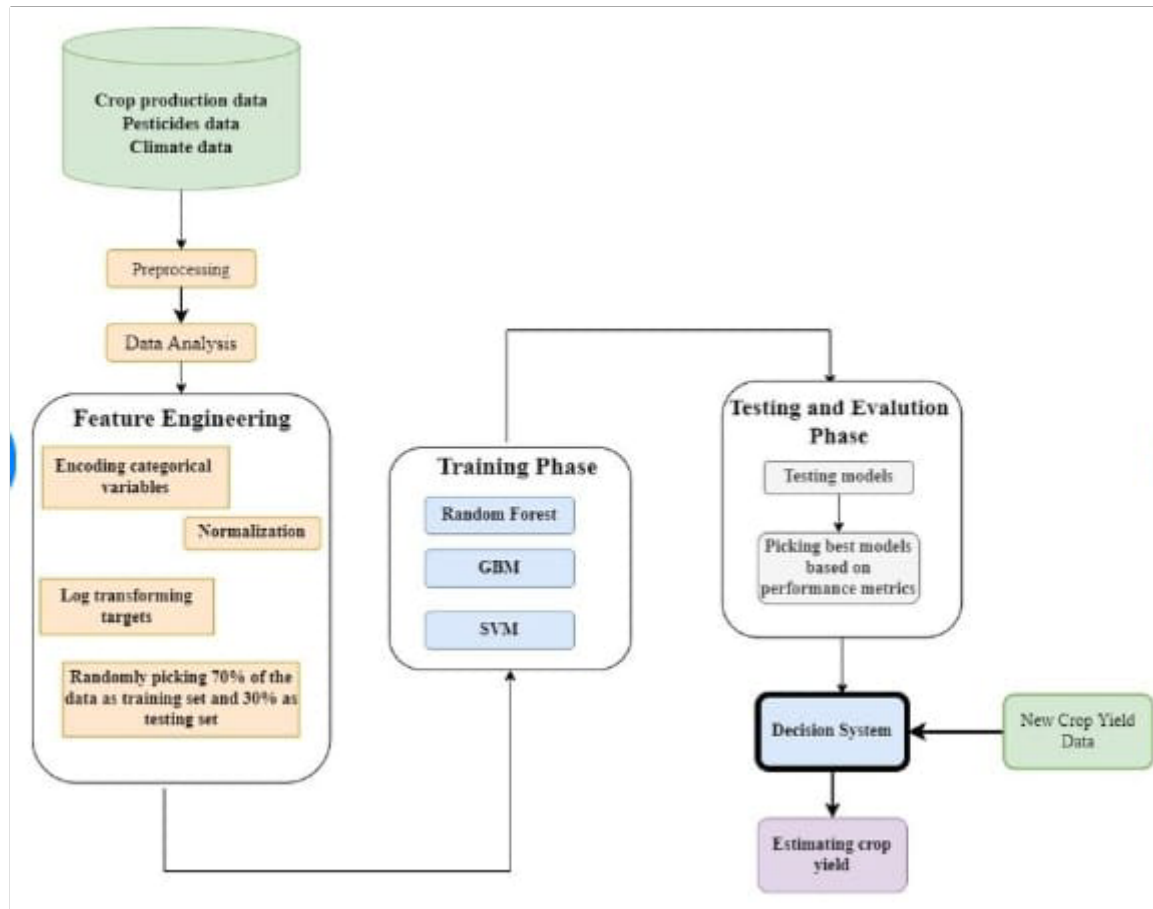


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
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1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML/Java script/Php/angular
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM cognos
4.	Application Logic-3	Logic for a process in the application	k means clustering, Apriori and Naive Bayes
5.	Database	Data Type, Configurations etc.	MySQL
6.	Cloud Database	Database Service on Cloud	IBM Cloud
7.	File Storage	File storage requirements	Local file system
8.	External API-1	Purpose of External API used in the application	Weather data
9.	External API-2	Purpose of External API used in the application	Crop yield data
10.	Machine Learning Model	Purpose of Machine Learning Model	Yield prediction and estimation
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Private cloud Database

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	IBM cognos
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Encryption, SHA-256

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Random forest
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Microsoft sql server
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	It is not only helps in predicting these parameters for throughout the year, but also assists in predicting the yield of various crops in various seasons based on past trends. Hence it allows the farmers to decide the best crop to grow to suffer minimum losses.