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

Date	15 October 2022
Team ID	PNT2022TMID40513
Project Name	Project – Estimate the crop yield using data analytics
Maximum Marks	4 Marks

Technical Architecture:

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

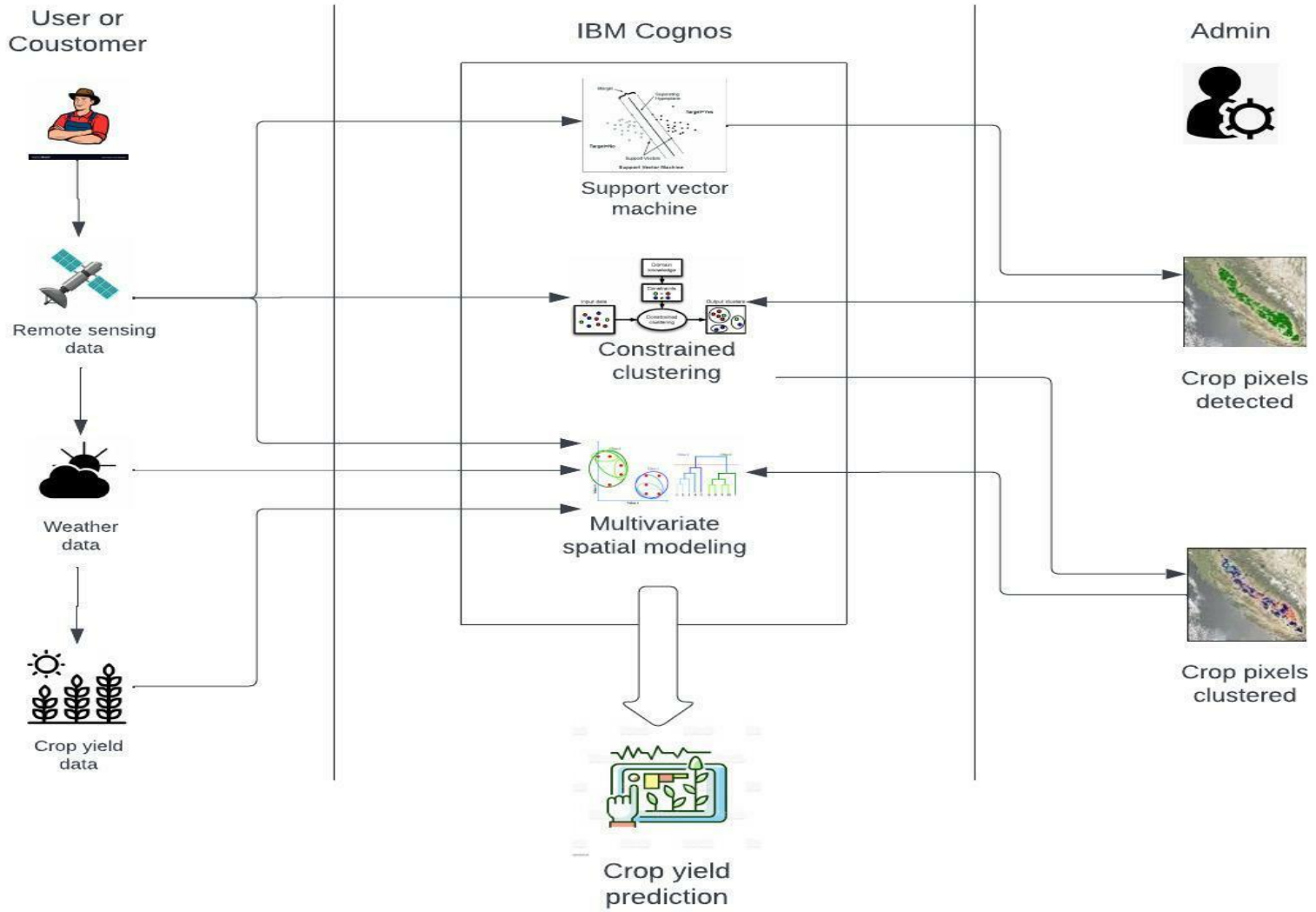
User or Coustomer
IBM Cognos
Admin
Remote sensing data
Weather data
Crop yield data
Support vector machine
Constrained clustering
Multivariate spatial modeling
Crop yield prediction
Crop pixels detected
Crop pixels clustered

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.	IBM Cognos/ Python
2.	Remote sensing data	The data prepared for estimate crop yield	Python
3.	Weather data	The weather data prepared for crop production	IBM Watson service
4.	Crop yield data	Data for amount of a crop harvested in sample area	IBM Watson Assistant
5.	IBM Cognos	Data analytics platform	IBM Watson service
6.	Support vector machine	To choose the right crop to the area and climatic condition	IBM Assistant
7.	Constrained clustering	Semisupervised approach to clustering data while incorporating domain	IBM Cognos
8.	Multivariate spatial modeling	Multivariate spatial processes are specified with matrix-valued cross-covariance function	IBM Cognos
9.	IBM Cloud	Storage of data	IBM DB2.
10.	Crop pixels detected and clustered	Purpose of external API to detected and clustered	Object Recognition Model
11.	Admin	Purpose of data model	Recognition of data model etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source	open-source model is used for the data	Python
2.	Security Implementations	Security for our data	SHA-256,SHA 1
3.	Scalable Architecture	The estimate of crop yield is based on soil, meteorological, environmental, and crop parameters	Python

S.No	Characteristics	Description	Technology
4.	Availability	The availability of technology used in data analytics	Python-Anaconda distribution and jupyter notebook is available and open source application
5.	Performance	The performance of the application and its efficiency	Python and other languages is that pythonis usually interpreted