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

Date	16 October 2022
Team ID	PNT2022TMID15490
Project Name	Project – Estimate the crop yield using data analytics
Maximum Marks	4 Marks

Technical Architecture:

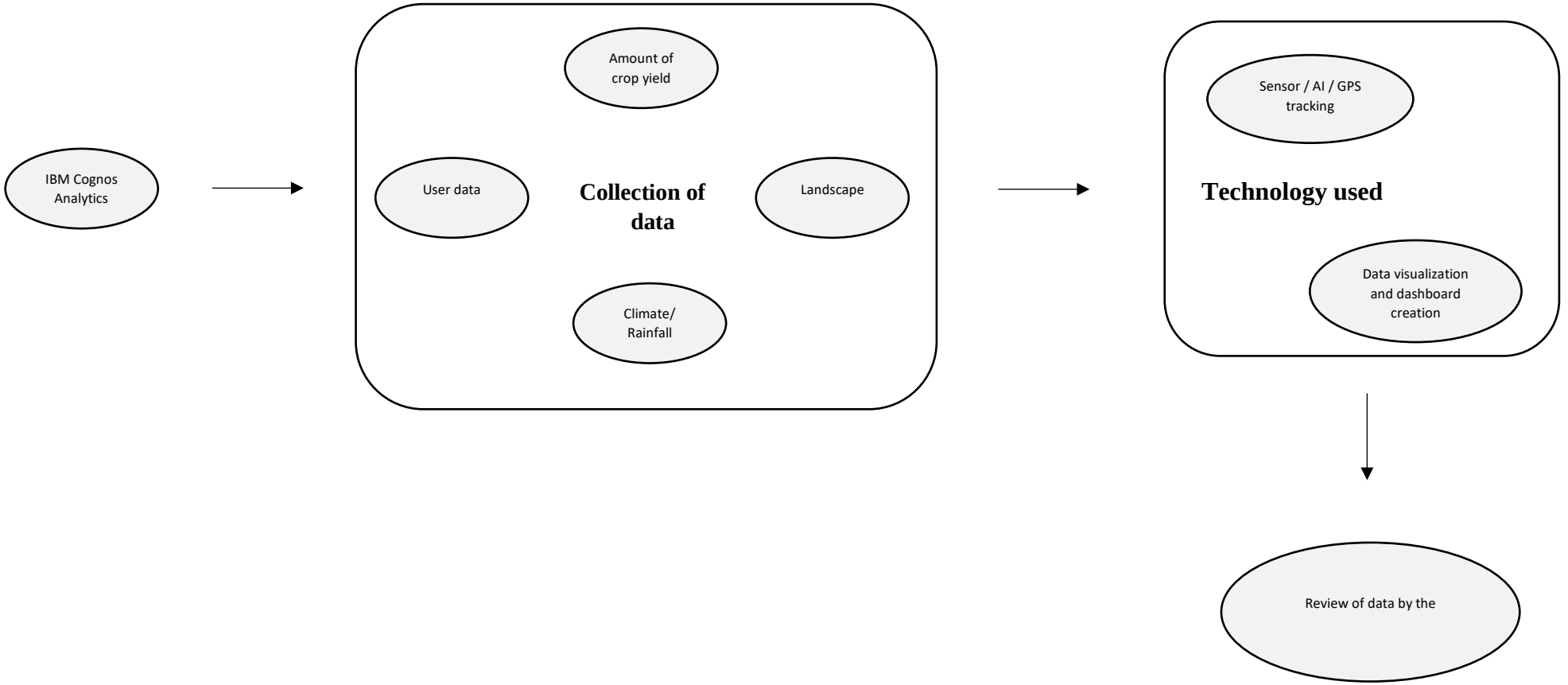

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Predict climate resilient	Absorb climatic changes and the factors affecting or contributing to the crop yield.	AI, IoT and blockchain
3.	Pesticide management	Management and usage of proper pesticides that contribute to the higher production of crops	IoT and conventional pesticides
4.	Farm management	Absorbing and implementing the decisions involved in organizing and operating a farm for maximum production and profit	Farm automation
5.	Database	A database is a collection of inter-related information or data stored electronically in a computer system	MySQL, PostgreSQL, Big Query
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	Data API	Data APIs within the IBM Environmental Intelligence Suite tap into the breadth and depth of climate, environmental and weather data to provide current and forecasted conditions, seasonal and sub-seasonal forecasts.	IBM Weather API, etc.
9.	Power API	It allows external applications to connect and interact with Power data, which is solar and meteorological data from satellite observations.	NASA APIs
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :l	Local, Cloud Foundry, Kubenetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	A software wherein original source code is made freely available and may be redistributed and modified according to the user requirement.	Apache Spark and Hadoop
2.	Security Implementations	User must be logged in with their credentials in order to view information about any concepts.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	A 3-tier architecture wherein application gets data from various sources, manipulates it, stores them in IBM Cloud and visualize them through IBM Cognos.	IBM Cloud, IBM Cognos
4.	Availability	The application being developed is made available to all users(farmers).	Cognos Analytics
5.	Performance	Multiple technologies and services that will improve the usability in agricultural activities	Robots, IoT Agriculture sensors.