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

Date	09 November 2022
Team ID	PNT2022TMID51168
Project Name	Exploratory Analysis of Rainfall Data in India for Agriculture
Maximum Marks	4 Marks

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Mobile	Downloads and installs the application, logs into it	HTML, CSS, Flask, python
2.	Registration	Enters the phone number and gets an OTP message to login	Python, Flask
3.	Rainfall Prediction	Enters the month and year	Python, Flask
4.	Database	Rainfall data set downloaded from the web	MySQL.
5.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc. .
6.	Data Preprocessing	Data is processed and missing values are omitted, so the data can be used to training the model	Pandas, NumPy, Matplotlib modules of python
7.	Machine Learning Model	Random forest algorithm is used with decision trees to improve the accuracy of prediction	Sklearn, Seaborn

8.	Result	This application shows the predicted rainfall data with the crop's suggestions	Python, Flask
9.	Crops	This shows the list of crops and its details about it	HTML, CSS, Flask

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python, Flask	Python
2.	Security Implementations	The personal details of the farmers are secured and protected	Encryption methods
3.	Scalable Architecture	It can grow and adapt with ease. It is designed for scalability and flexibility that offers help to farmers	Python, Flask
4.	Availability	The infrastructure of the system provides recoverability and protection from system failure	Flask
5.	Performance	The application is developed in such a way to predict rainfall for multi user at a same time	Python, Flask

References:

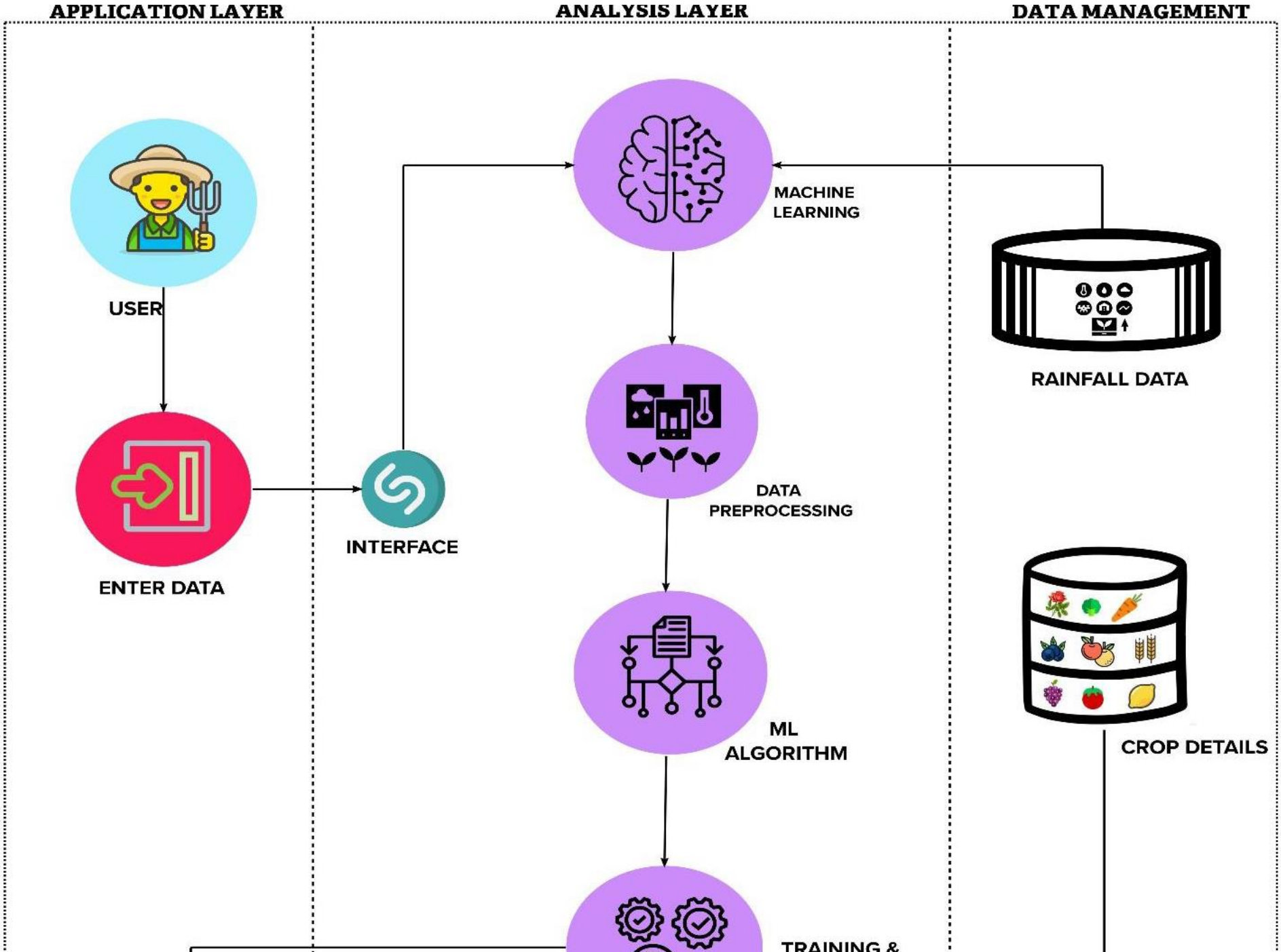
https://c4model.com/

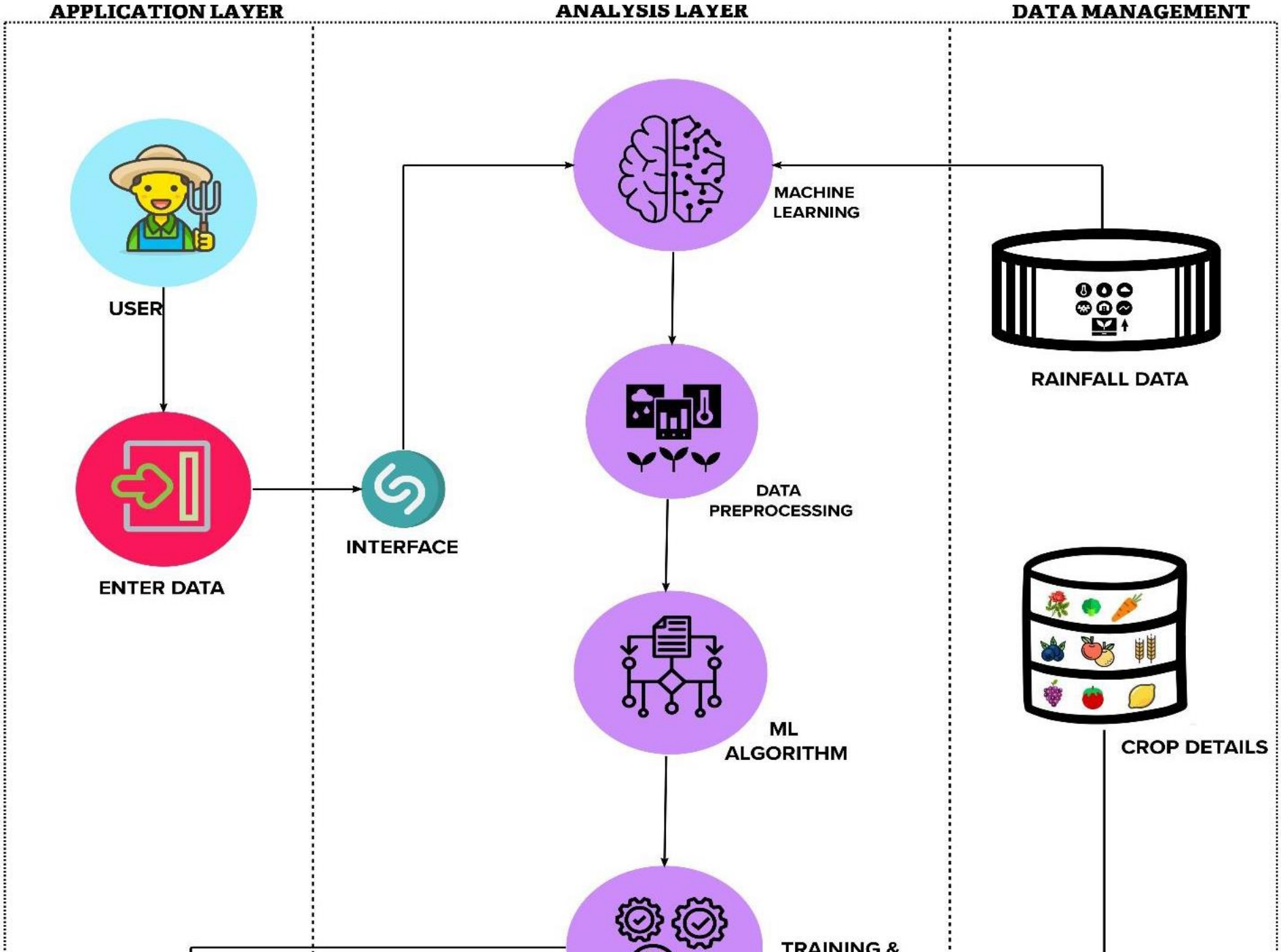
https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

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

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d


APPLICATION LAYER
ANALYSIS LAYER
DATA MANAGEMENT
USER
ENTER DATA
INTERFACE
MACHINE LEARNING
DATA PREPROCESSING
ML ALGORITHM
RAINFALL DATA
CROP DETAILS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