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

Date	15 October 2022
Team ID	PNT2022TMID35969
Project Name	Project - AI-powered Nutrition Analyzer for Fitness Enthusiasts
Maximum Marks	4 Marks

Technical Architecture:

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

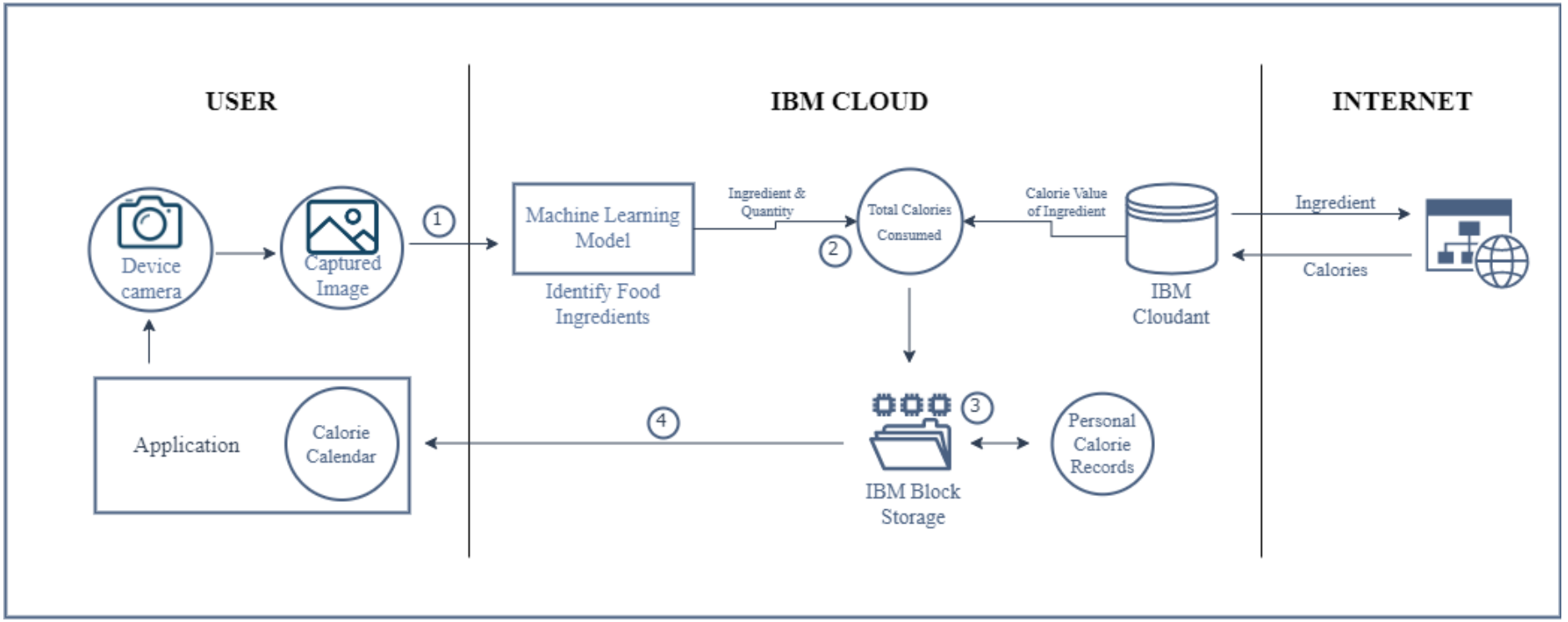

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	An application where users create a profile, capture images of the ingredients they use in their food, and have access to a bespoke nutrition calendar	HTML, CSS, JavaScript
2.	Image Capture	Users must capture the image(s) of the ingredients they consume	IBM Maximo Image Inspection
3.	Ingredient Detection Model	The ingredients used must be identified from the captured image	Machine Learning & Image Processing using Python
4.	Calorie Consumption Monitoring	The application keeps track of the calories consumed by the user in a day and notifies when there is over-consumption	IBM Push Notifications
5.	Database of Ingredients	The data of ingredients and their corresponding calories are stored	MySQL
6.	Cloud Database for Back-up	Data used by the application is stored here for back-up and monthly calendars are stored as consolidated reports	IBM Cloudant
7.	File Storage	Per-day calorie consumption along with items consumed is kept track using a file system. This is used to generate a personal calorie calendar as well	IBM Block Storage
8.	Calorie Value Consolidation	A web-scraping API is employed to find the calorie values of ingredients which are stored in the database	Beautiful Soup
9.	Machine Learning Model	Captured images are processed using machine learning models to identify ingredients	Object Recognition Model to Label Ingredients
10.	Infrastructure (Server / Cloud)	The application is deployment on cloud for use Cloud Server Configuration :	Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Google Colab, VS Code, Online Websites	Python, HTML, CSS, JavaScript
2.	Security Implementations	E-mail based authentication for data access and encryption of text before storing in files	SMTP, Encryption Algorithms
3.	Scalable Architecture	Application is revised based on user experience and feedback including updates, bug fixes, and inclusion of new features	Customer feedback, reviews, and ratings
4.	Availability	Users should be able to access the application that is hosted on the cloud at all times and should not face any issues such as application crash	IBM Cloud
5.	Performance	Application should handle large number of requests and should not compromise on quality of results and time taken	Testing - Black, White, and Beta Revise application in spiral model