Project Design Phase-II
Technology Stack (Architecture & Stack)
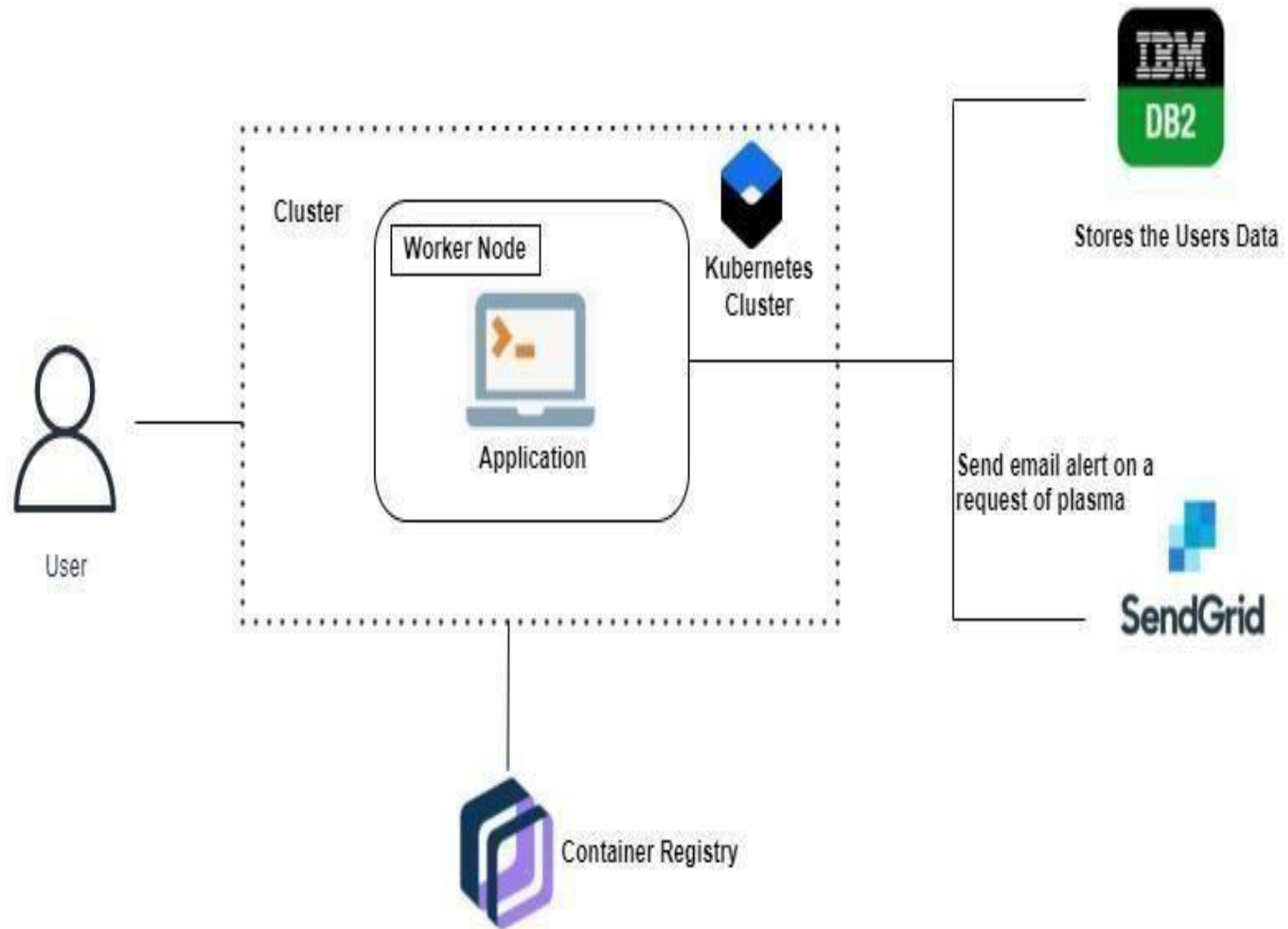
Date	10 October 2022
Team ID	PNT2022TMID08777
Project Name	Plasma Donor Application
Maximum Marks	4 Marks

Technical Architecture:

Title: Plasma Donor Application

Technical Architecture (TA) is **a form of IT architecture that is used to design computer systems**. It involves the development of a technical blueprint about the arrangement, interaction, and interdependence of all elements so that system-relevant requirements aremet.

- The user interacts with the application.
- Registers by giving the details as a donor.
- The database will have all the details and if a user posts a request then the concerned blood group donors will get notified about it.

Cluster

Worker Node

Application

Kubernetes
Cluster

User

DB2

Stores the Users Data

Send email alert on a
request of plasma

SendGrid

Container Registry

Table-1 : Components & Technologies:

IBM Watson STT service

S.No	Component	Description	Technology
1.	User Interface	The user interacts with the application through the Web UI, mobile app, etc.	HTML, CSS, Angular JS, React JS, JavaScript (Web Application)
2.	Application Logic-1	The framework used for designing the application.	Java/Python
3.	Application Logic-2	Accessing the cloud and storing the details of the users both donor and recipient.	IBM Watson STT Service
4.	Application Logic-3	The logic for a process. Docker is an open-source platform for building, deploying and managing containerized applications in the application	IBM Watson Assistant
5.	Database	The place where data of donors and recipients can be stored and retrieved during the execution of the application.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2,IBM Cloudant etc.
7.	File Storage	Stores the details of donors that recipients require.	Local File system or IBM Block Storage or other Storage Service.
8.	External API-1	Purpose of External API used. They make it easier for donors to store their details and recipients to manage and choose the right donors.	IBM Weather API, etc.
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local Server Configuration: Local Cloud Server Configuration: IBM Watson (Cloud), Cloud Foundry, Kubernetes, etc

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used, Application Deployment on Local system /cloud	Python Flask server
2.	Security Implementations	List all the security/access controls implemented, Email Verification and authentication, etc.	Password protected
3.	Scalable Architecture	To ensure that enough details is allocated on the hosting platform to avoid mismatch.	Python Libraries, IBM Cloud Kubernetes Service
4.	Availability	This application provides all-time availability.	IBM Cloud hosting, Kubernetes Cluster
5.	Performance	Multiple prediction requests should be handled simultaneously without affecting the speed and accuracy of the prediction	Flask, Docker, Distributed Servers.

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