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

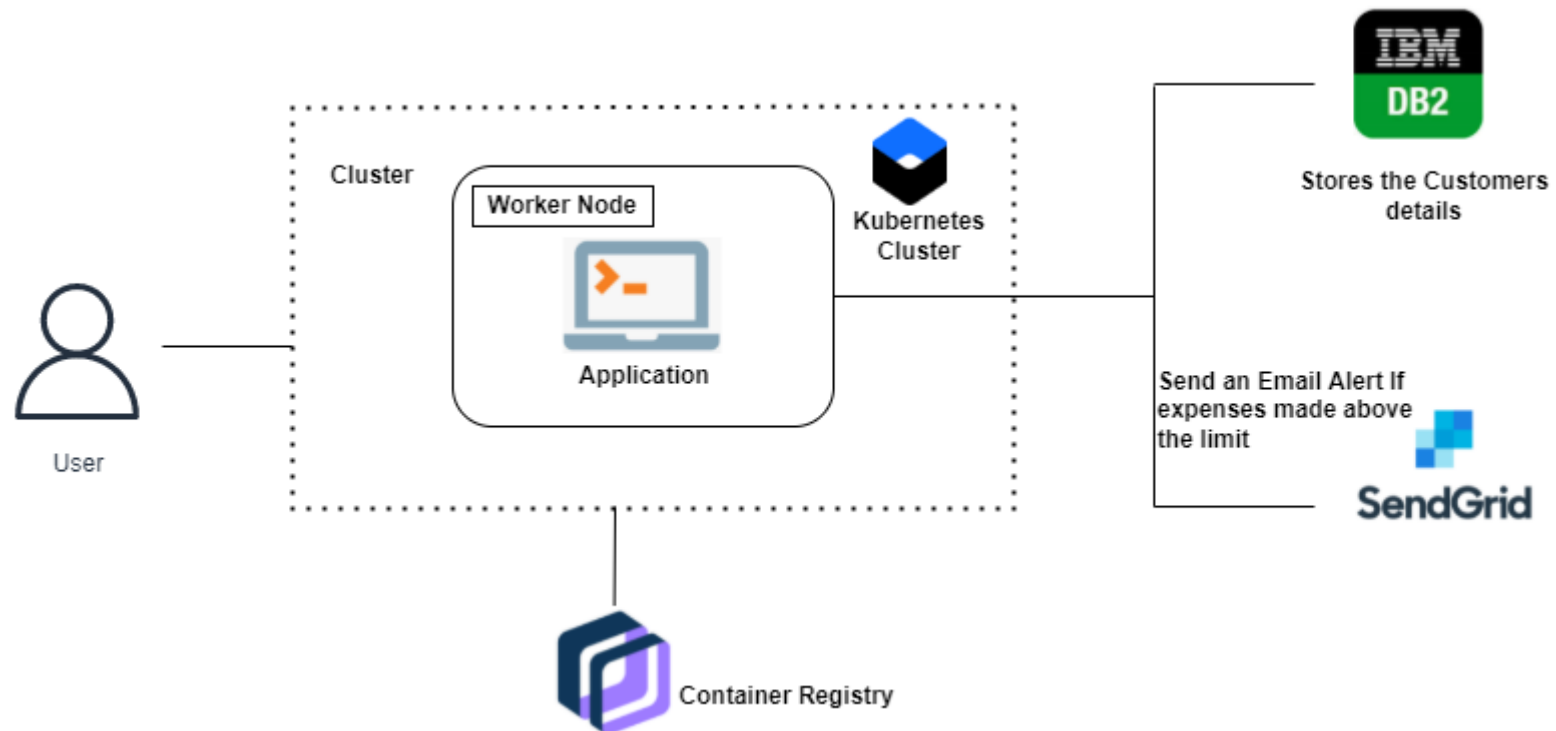| Date	25 October 2022
Team ID	PNT2022TMID03865
Project Name	Project - Personal Expense Tracker Application
Maximum Marks	4 Marks

Technical Architecture:

Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	How user interacts with application for example Web UI, Mobile App etc..	HTML, CSS, JavaScript in Python Flask
2.	User Login	Using Google account or an account in the app server the user can login.	Google Oauth for Google Signin. Hashed password in DB
3.	Graph Visualization	Rendering plots and graphs based on the user spending data.	Seaborn, Mathplotlib
4.	Database	Data Type, Configurations etc.	NoSQL database can be used as it promotes flexible structuring of data
5.	Cloud Database	Database Service on Cloud	IBM DB2 is used to store the user details and the data entries
6.	Google OAuth	OAuth 2.0 is the authorization protocol used by Google APIs.	Enables login through Google account, making the application accessible
7.	Cloud Deployment	Application Deployment on IBM Cloud Server	Docker and Kubernetes is used for deployment as it promises scalability and high availability
8.	SendGrid	SendGrid offers the use of their mail servers to send your emails. This is an excellent option for sending large volumes of emails, where having to do so manually would take a significant amount of time and effort.	SendGrid is used to trigger mail to user emails when a particular condition is met

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask is a lightweight WSGI web application framework. It is designed to make getting started quick and easy, with the ability to scale up to complex applications. It has become one of the most popular Python web application frameworks.	Python Flask Framework
2.	Security Implementations	Passwords can't be stored as plain text so it is hashed and salted	BCrypt
3.	Scalable Architecture	Containerized application is deployed to rapidly increase scale on demand	Docker
4.	Availability, Performance	Kubernetes, also known as K8s, is an open-source system for automating deployment, scaling, and management of containerized applications.	Kubernetes