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

| Date | 26 October 2022 |
|---|---|
| Team ID | PNT2022TMID37339 |
| Project Name | Personal Expense Tracker |
| Maximum Marks | 4 Marks |

**Technical Architecture:**
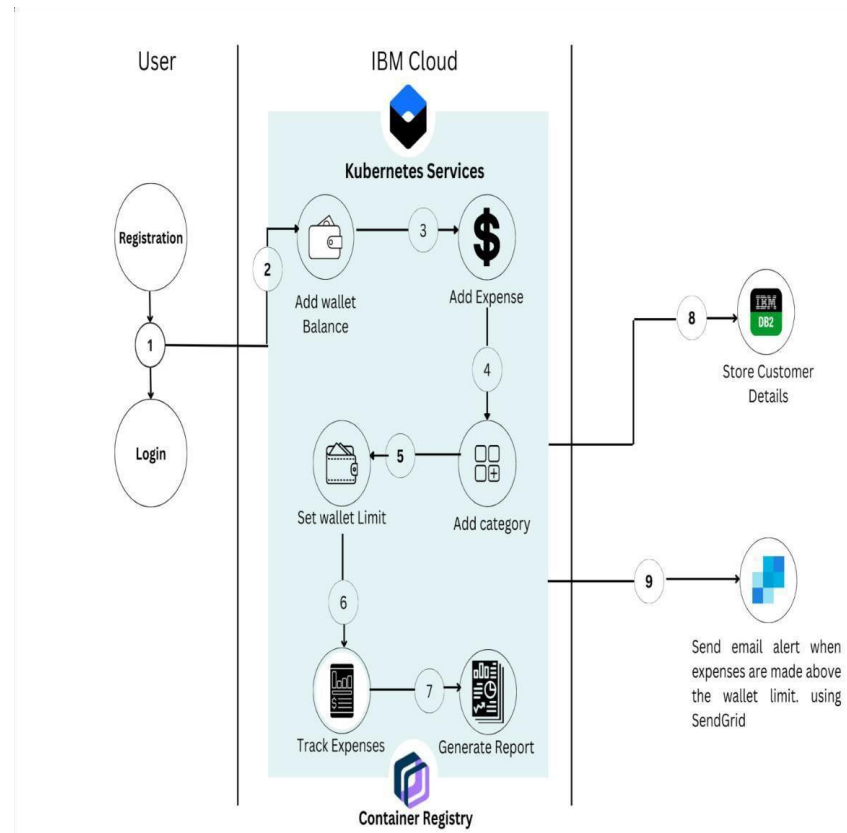
**Table-1 : Components & Technologies:**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1 | User Interface | How user interacts with application e.g. Web UI, Mobile App, Chatbot etc. | HTML, CSS, JavaScript in Python Flask |
| 2 | User Login | The user can login either through their gmail account or an account in the app server | Google Oauth for Google Sign in. 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 | SendGrid | A cloud-based SMTP provider that allows you to send email without having to maintain email servers | SendGrid is used to trigger mail to user emails when a particular condition is met |
| 7 | Google OAuth | OAuth 2.0 allows users to share specific data with an application while keeping their usernames, passwords, and other informationprivate. | Enables login through gmail account, thus making the application accessible |
| 8 | Cloud Deployment | Application Deployment on Cloud Server | Docker and Kubernetes is used for deployment as it promises scalability and high availability |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1 | Open-Source Frameworks | Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries. | 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 is an open-source container orchestration system for automating software deployment, scaling, and management. Availability and Performance enhances user experience | Kubernetes |