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

Date	15 October 2022
Team ID	PNT2022TMID53061
Project Name	Project - Personal Expense Tracker
Maximum Marks	4 Marks

Technical Architecture

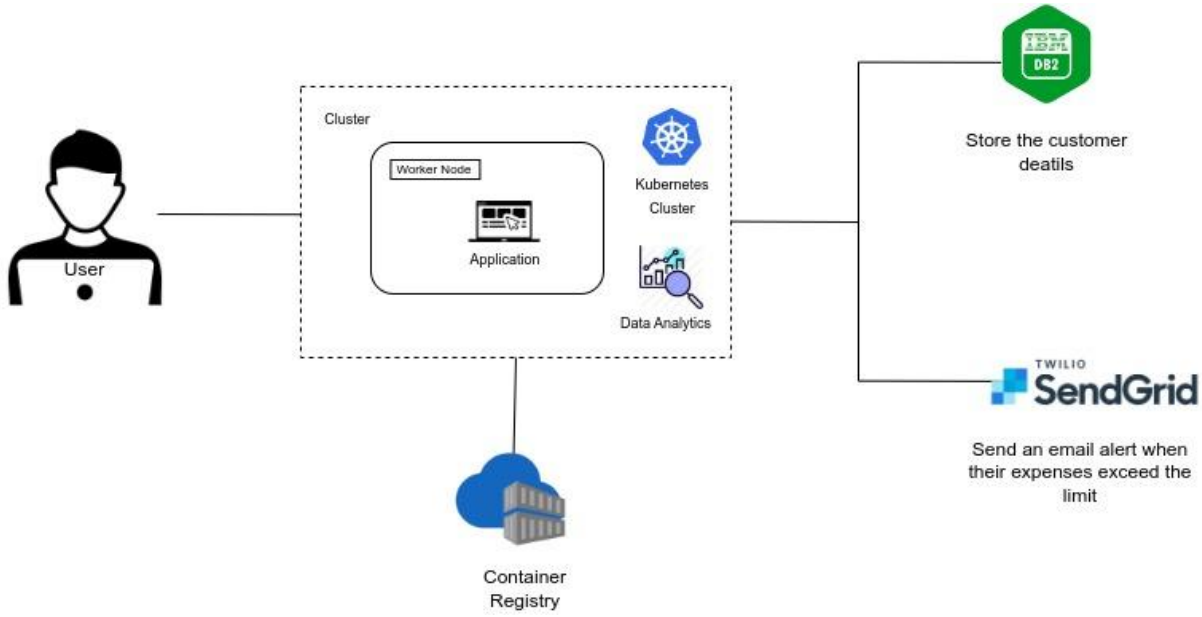

Table-1 : Components & Technologies

S.No	Component	Description	Technology
1.	User Interface	The user interacts with our web-application to carry the operations provided by system	HTML, CSS, Javascript, Jinja Template
2.	Creating an account	The user registers for a new account and these details are stored in IBM Db2 to keep track them	Flask App runs Kubernetes Cluster IBM DB2
3.	Logging in	When user logging into the web-app, the system verifies the credentials by checking the available data in IBM db2	Flask App runs Kubernetes Cluster IBM DB2
4.	Create a category for an expense	The user can select a category for a specific expense from the list of categories obtained from the IBM db2	Flask App runs Kubernetes Cluster and IBM DB2
5.	Summary of Expenses	The user can view the summary of expenses in the web-app by providing them visual representations.	Flask App running using Kubernetes
6.	Set monthly budget	The user can set the monthly budget to keep their expenditures correctly and the budget is saved for the user in IBM db2.	Flask App running using Kubernetes and IBM DB2

7.	Database	User details are stored in the database and retrieved whenever the data is useful	IBM DB2
8.	Cloud Database	The above-mentioned database and its metadata will be present in IBM DB2 accessible to only the owners/developers of the application.	IBM DB2
9.	External API- SendGrid	The SendGrid service will be used to alert users of various notifications etc as defined by the user.	SendGrid Service
10.	Deployment	Application Deployment on Local System / Cloud	IBM Cloud Registry, IBM Cloud Object,Storage, IBM DB2, Docker, Kubernetes

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask is an open source framework used to develop a web-UI and web-server. Docker has some open source components.	Flask, Docker
2.	Security Implementations	Access to the DB2 database system is managed by facilities that reside outside the DB2 database system (authentication), whereas access within the DB2 database system is managed by the database manager (authorization).	IBM db2
3.	Scalable Architecture	Applications related to Python are scaled using Flask. Scaling of Flask applications can be incorporated through the use of a new container image that is to be run by Kubernetes. The data is stored majorly in IBM DB2 and IBM	IBM DB2, IBM Cloud Object Storage, Kubernetes, Docker, Flask

		Cloud Object storage which have inherent scalability features.	
4.	Availability	Since this is a web-app, the availability for all users ensures that they have internet access. Also the cloud storage we have is available easily from IBM. Docker images can be easily downloaded and used. SendGrid is a private organisation which provides us email API and it is correctly maintained from them.	IBM Cloud Object Storage, Kubernetes, Docker Images, IBM DB2, SendGrid
5.	Performance	The performance is based on the number of users registering for the application. SendGrid gives a limited subscription based on the number of users. In the deployment part, the stable internet connection is needed to provide high performance for the users	IBM Cloud Object Storage, Kubernetes, Docker Images, IBM DB2, SendGrid

References:

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