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

Date	27 October 2023
Team ID	Team -591172
Project Name	Project – FordGoBike Analysis
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2
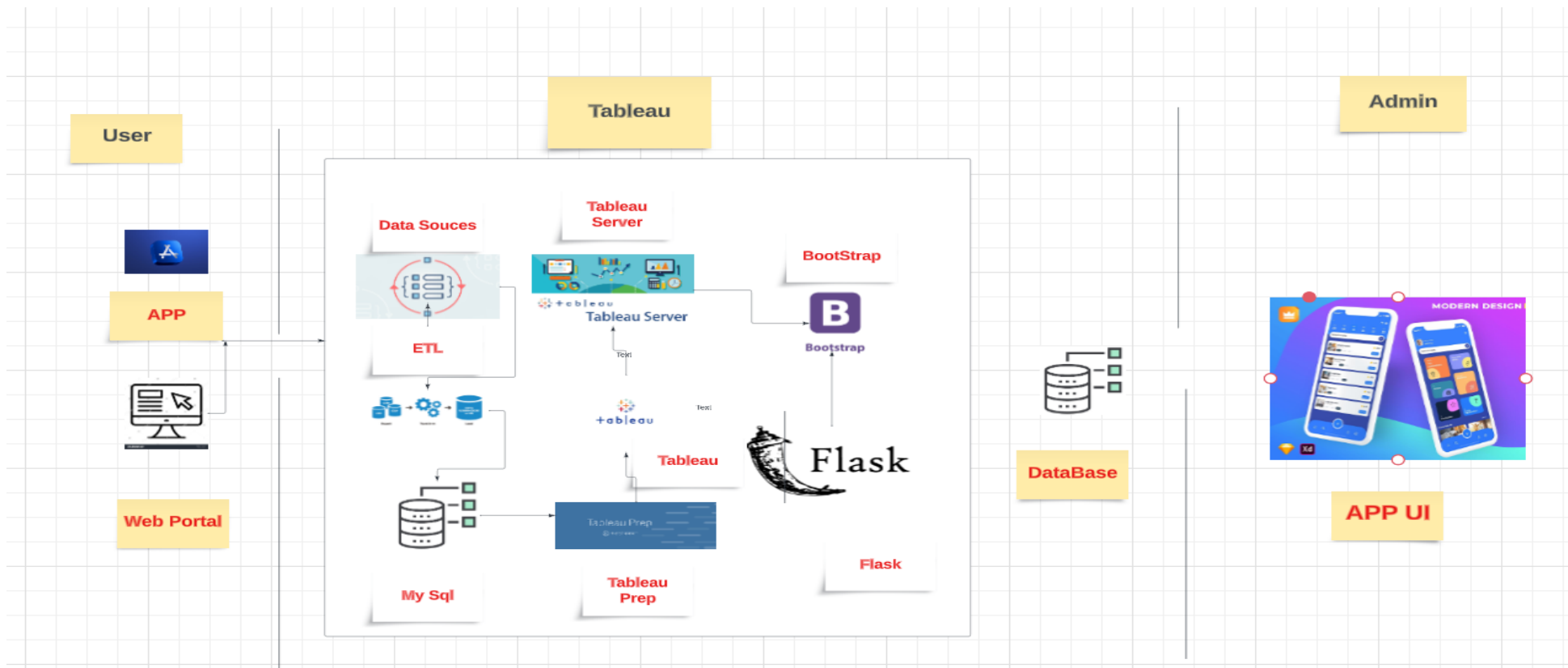
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	How user interacts with application e.g. Web Ui,Mobile Application	HTML,CSS,Java Script/Angular Js/React Js etc.
2	Application Logic-1	Logic for process in the application	Java/Python
3	Application Logic-2	Logic for process in the application	Ford GoBike App Services
4	Application Logic-3	Logic for process in the application	Ford GoBike App Assistant
5	Data Sources	Data set, Data Type	External Data Sources
6	DataBase	Data Type,Configurations etc.	MySQL, NoSQL etc.
7	Data Cleaning	Data Type,Configurations etc.	ETL
8	Data Preparing	Clean,Aggregate,Prepare Data	Tableau Prep
9	Data Visualization	Charts,Dashboard,Story ,Report	Tableau
10	Data Exploration	Charts,Dashboard,Story ,Report	Tableau Server
11	Data Upload	Charts,Dashboard,Story ,Report ,other details	BootStrap ,Flask etc
12	InfraStructure(Server/Cloud)	Application Deloyment on Local System/Cloud Local Server Configuration: Cloud Server Configuration:	Tableau,Tableau Server etc

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Data Storage ,Data Analysis	MySQL,Pandas
2.	Security Implementations	Strong Passwords,VPN ,Virus Protection,Authentication	Password,VPN,Antivirus,Firewall

| 3. | Scalable Architecture | The presentation tier (front end) can be easily scaled horizontally by adding more web servers or utilizing Content Delivery Networks (CDNs). This is particularly useful for handling a large number of user requests for visualizing data through Tableau dashboards The application tier (business logic layer) can also be scaled horizontally. For instance, if there's a need to process a high volume of ETL jobs concurrently, multiple instances of ETL processing servers can be deployed. he data tier (database layer) can be scaled vertically (by adding more resources to existing servers) or horizontally (by partitioning data across multiple database servers). Vertical scaling can handle increased data volume and complex queries, while horizontal scaling can distribute the database workload, ensuring efficient data retrieval and storage. | Tableau,MySql,ETL,BootStrap,Flask etc. |

S.No	Characteristics	Description	Technology
4.	Availability	Load balancers distribute incoming network traffic across multiple servers. Distributing the application across multiple servers provides fault tolerance and high availability. Implementing redundancy and failover mechanisms ensures that if one server or component fails, there is a backup system ready to take over, minimizing downtime. Geographic load balancing routes traffic to different servers based on the user's location.	Nginx, HAProxy, or Amazon ELB, Kubernetes
5.	Performance	Load Testing, Horizontal Scaling, Database Optimization, In-Memory Caching, Static Asset Delivery etc.	Load Runner,MySQL,CDN