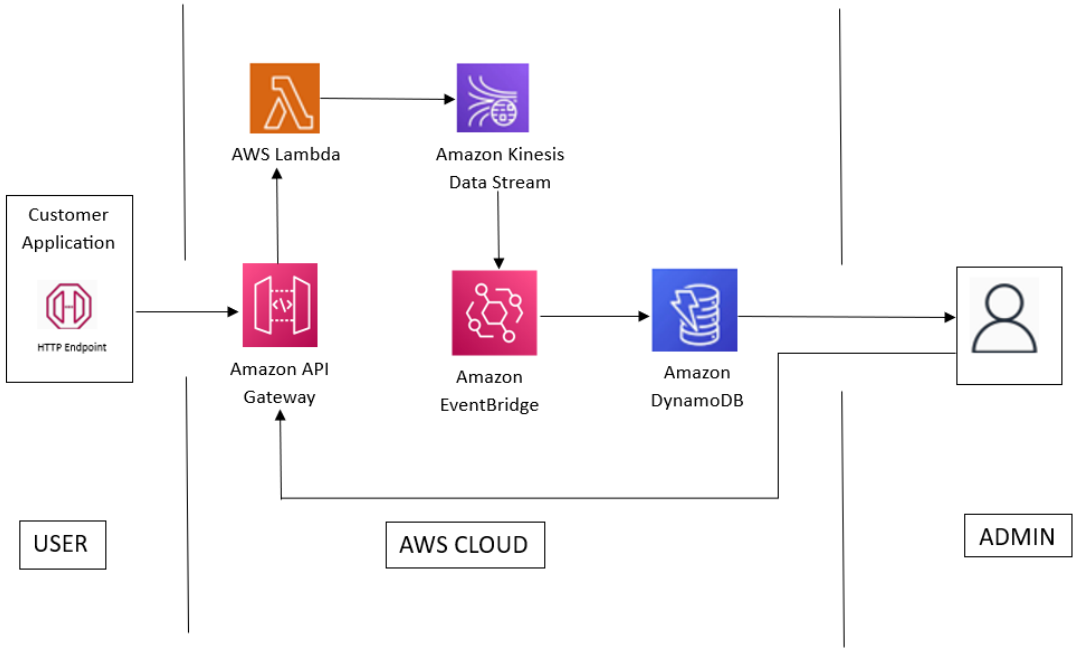
Project Design Phase-II

Technology Stack(Architecture & Stack)

Date	**26th October 2023**
Team ID	**Team- 591267**
Project Name	**Project on Tata Power Stock Analysis**

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



The technical architecture diagram for the Tata Power Data Analytics Dashboard shows a cloud-based architecture that uses a variety of AWS services to provide a scalable, reliable, and secure solution. Amazon API Gateway is used to expose the dashboard to users and provide a way for them to interact with it. AWS Lambda is used to generate the dashboard HTML, CSS, and JavaScript on demand.

Amazon Kinesis Data Stream is used to ingest and process real-time data from the Company Stock Data API. Amazon Kinesis Analytics is used to analyse the data from Amazon Kinesis Data Stream and generate insights, such as real-time stock prices and trends. Amazon DynamoDB is used to store the insights from Amazon Kinesis Analytics and other dashboard data.

The architecture is designed to be scalable and reliable. AWS Lambda functions can be scaled up or down automatically based on demand, and Amazon Kinesis Data Stream and Amazon Kinesis Analytics can handle large volumes of data. The architecture is also secure, with Amazon DynamoDB providing data encryption and Amazon API Gateway and Amazon CloudFront providing protection against denial-of-service attacks.

This technical architecture provides a solid foundation for the Tata Power Data Analytics Dashboard, and it can be adapted to meet the specific needs of the business.

Table-1 : Components & Technologies:

S. No.	Component	Description	Technology
1	Subscriber Application	This is the application/website that the subscribers interact with to view the dashboard	HTML, CSS, JavaScript
2	Amazon API Gateway	This service exposes the dashboard to subscribers and provides them a way to interact with it.	API Gateway REST API
3	AWS Lambda	This serverless computing service is used to generate the dashboard HTML, CSS, and JavaScript.	Lambda function
4	Amazon Kinesis Data Stream	This messaging service is used to ingest and process data streams in real time	Kinesis Data Stream
5	Amazon DynamoDB	This database is used to store the real-time insights from the dashboard data.	DynamoDB table
6	Amazon EventBridge	This event bus is used to trigger AWS Lambda functions when new data is available in Amazon DynamoDB.	EventBridge rule and target

Table-2: Application Characteristics:

S. No.	Characteristics	Description	Technology
1	Availability	The website should be available to users 24/7.	Amazon Route 53, Amazon Elastic Load Balancing
2	Performance	The website should load quickly and respond to user requests promptly.	Amazon CloudFront, Amazon DynamoDB
3	Scalability	The website should be able to handle a large number of users and requests simultaneously.	Amazon Auto Scaling, Amazon Elastic Compute Cloud (Amazon EC2)
4	Security	The website should be secure and protect user data from unauthorized access.	AWS Shield, Amazon Cognito
5	Functional	The website should provide all of the features and functionality that users need.	HTML, CSS, JavaScript, AWS Lambda
6	Ease of use	The website should be easy to use and navigate.	Bootstrap, React
7	Responsive	The website should be responsive and look good on all devices, including desktop computers, laptops, tablets, and smartphones.	React Native, Media Queries