PROJECT ON TATA POWER STOCK ANALYSIS

By Team 591267-

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Data Analytics

Project Guide :- Ketan Tomar

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1)Introduction

1.1)Project Overview-

An Indian electric utility firm, Tata Power firm Limited is a division of the Tata Group conglomerate. It is one of India's biggest integrated power corporations, producing, transferring, and distributing electricity throughout different areas. The Tata Power stock dataset provides historical data and information related to the company's stock performance in the financial markets.

Key Features of this Dataset-

a)Stock Price Data-The dataset contains Tata Power's historical stock price data, which is typically presented in the form of daily closing prices. It makes it possible to track and analyse changes in the stock's price over a given period of time.

b)Time Frame-The dataset covers a specific time range and contains information covering a few years or a shorter time frame, enabling users to examine both long- and short-term patterns.

c)Stock Metrics-The dataset may contain other variables in addition to stock prices, like trading volume and other relevant financial indicators. These indicators shed light on the company's financial standing and investor attitude.

d)Data Granularity-Data at many granularities, including daily, weekly, monthly, and even intraday intervals, may be available in the dataset. The ability to access data at several time periods gives consumers the flexibility to examine the performance of the stock from various angles.

1.2)Purpose-

The data analysis from the dataset can be used for the following purposes-

a) Stock Performance Analysis- With the help of this dataset, users can examine the past performance of Tata Power's stock, spot trends, and investigate how different factors affect price movement.

b)Technical Analysis-Using a variety of indicators, chart patterns, and statistical tools, traders can use the dataset for technical analysis to forecast future price movements and make well-informed trading decisions.

c)Financial Research-The dataset can be used by researchers to carry out empirical investigations into the dynamics of the stock market, correlations with macroeconomic variables, or relationships with other businesses or industries.

d)Machine Learning Models-The dataset can be used by data scientists to create machine learning models that forecast future stock prices or pinpoint trading opportunities based on past trends and other variables.

2)Literature Survey

2.1)Existing Problem-

Existing stock analytics dashboards often lack the ability to provide comprehensive insights into the company's performance, making it difficult for investors to make informed decisions. These dashboards often rely on outdated data or fail to incorporate key metrics, leading to inaccurate assessments of the company's financial health and growth prospects. Additionally, they are not user-friendly, making it difficult for investors to navigate and find the information they need. This can lead to frustration and missed opportunities.

2.2)References-

a) "Predicting Stock Prices using Technical Analysis and Machine Learning Techniques" by P. Gupta and R. Rastogi (2020)- This paper investigates the prediction of stock prices through the use of machine learning techniques in conjunction with technical analysis indicators. It contrasts how well various machine learning algorithms perform in forecasting future stock prices and analyses Tata Power stock data. The study highlights how important complete and accurate datasets are to producing trustworthy predictions.

b) “An Empirical Study on Factors Affecting Stock Returns in Indian Power Sector" by S. Prasad and S. Swarup (2019)- The factors affecting stock returns in the Indian power industry, which includes Tata Power, are the main subject

of this study. It examines a number of fundamental and market-related elements and how they affect the performance of stocks. The study conducts a thorough empirical analysis using historical stock price data from Tata Power and other companies.

c) "Efficiency of Indian Stock Market: A Study of Power Sector" by P. Singh and S. Gupta (2018)- The effectiveness of the Indian stock market is examined in this paper, with a focus on the power industry. To ascertain market efficiency and the existence of any anomalies, it examines the Tata Power stock data along with stock data from other power sector companies. The efficiency of the stock market is assessed by the study using econometric models and statistical measures.

2.3)Problem Statement Definition-

Perform a comprehensive analysis of Tata Power Company's stock to provide valuable insights and recommendations for investors. The analysis should encompass historical performance, current financial health, market sentiment and potential future prospect of Tata Power stock to assist investors in making informed decisions about buying, holding or selling the company's shares.

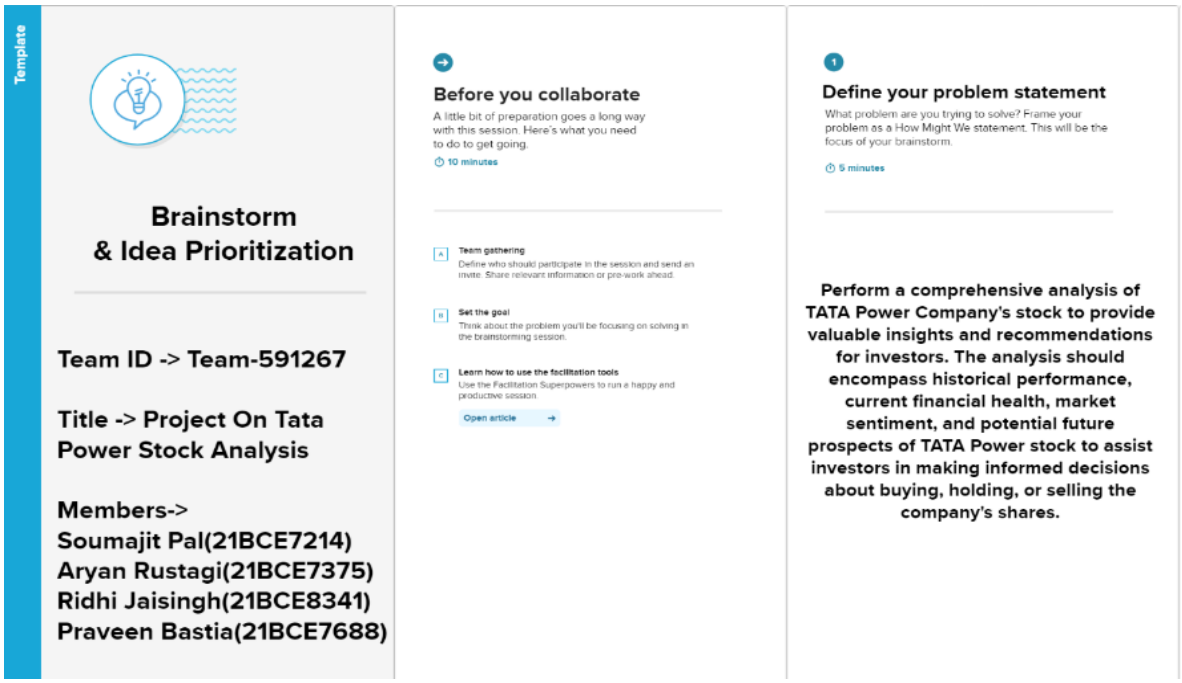
3)Ideation and Proposed Solution

3.1)Empathy Map Canvas-

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

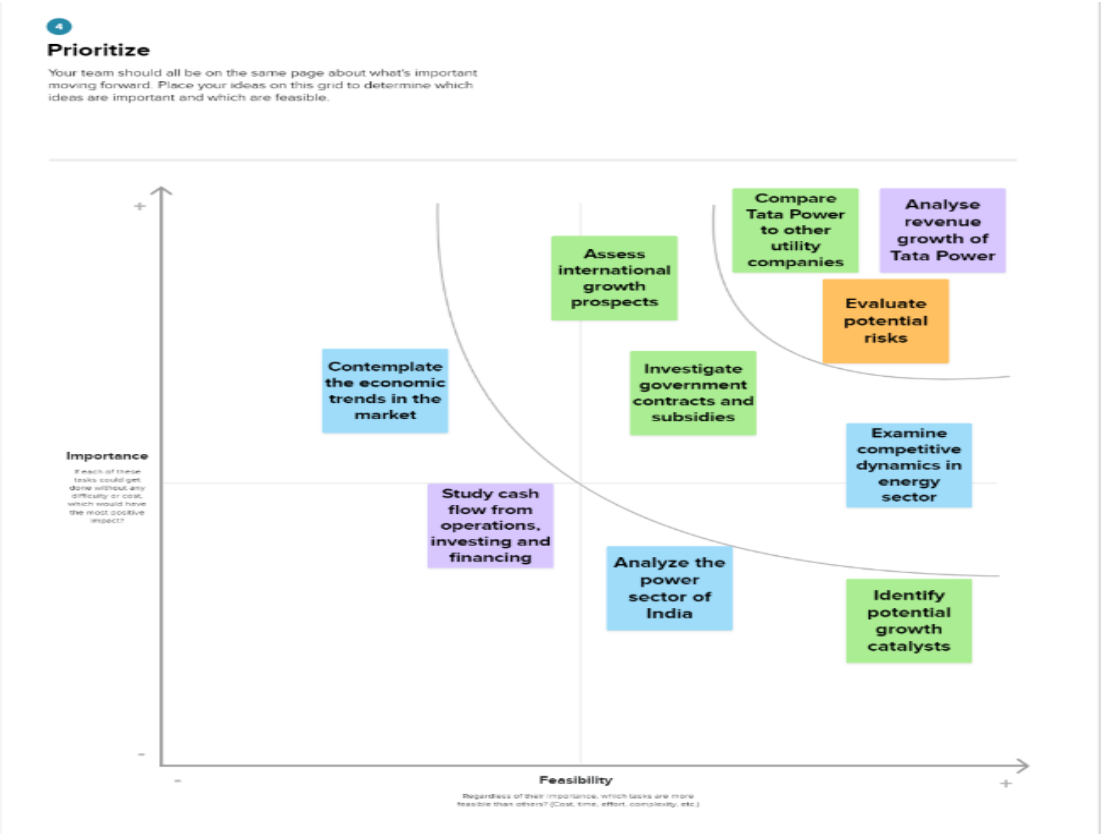
3.2)Ideation and Brainstorming-

Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping

Step-3: Idea Prioritization



4)Requirement Analysis

4.1) Functional Requirement-

The functional requirements for Tata Power Stock Analysis Dashboard are-

a)Data acquisition- The dashboard should be able to acquire data from various sources, including Tata Power's financial statements, news articles, and analyst reports.

b)Data processing- The dashboard should be able to process the acquired data to extract relevant information and perform calculations.

c)Data visualization- The dashboard should be able to visualize the processed data in a clear and informative way, using charts, graphs, and tables.

d)User interaction- The dashboard should allow users to interact with the data, such as filtering, sorting, and drilling down.

4.2)Non-Functional Requirement-

The non-functional requirements for Tata Power Stock Analysis Dashboard are-

a)Performance- The dashboard should be able to handle large amounts of data and respond to user requests quickly.

b)Reliability- The dashboard should be reliable and should not crash or lose data.

c)Usability- The dashboard should be easy to use and should not require specialized training.

d)Scalability- The dashboard should be scalable and should be able to accommodate increasing amounts of data and users.

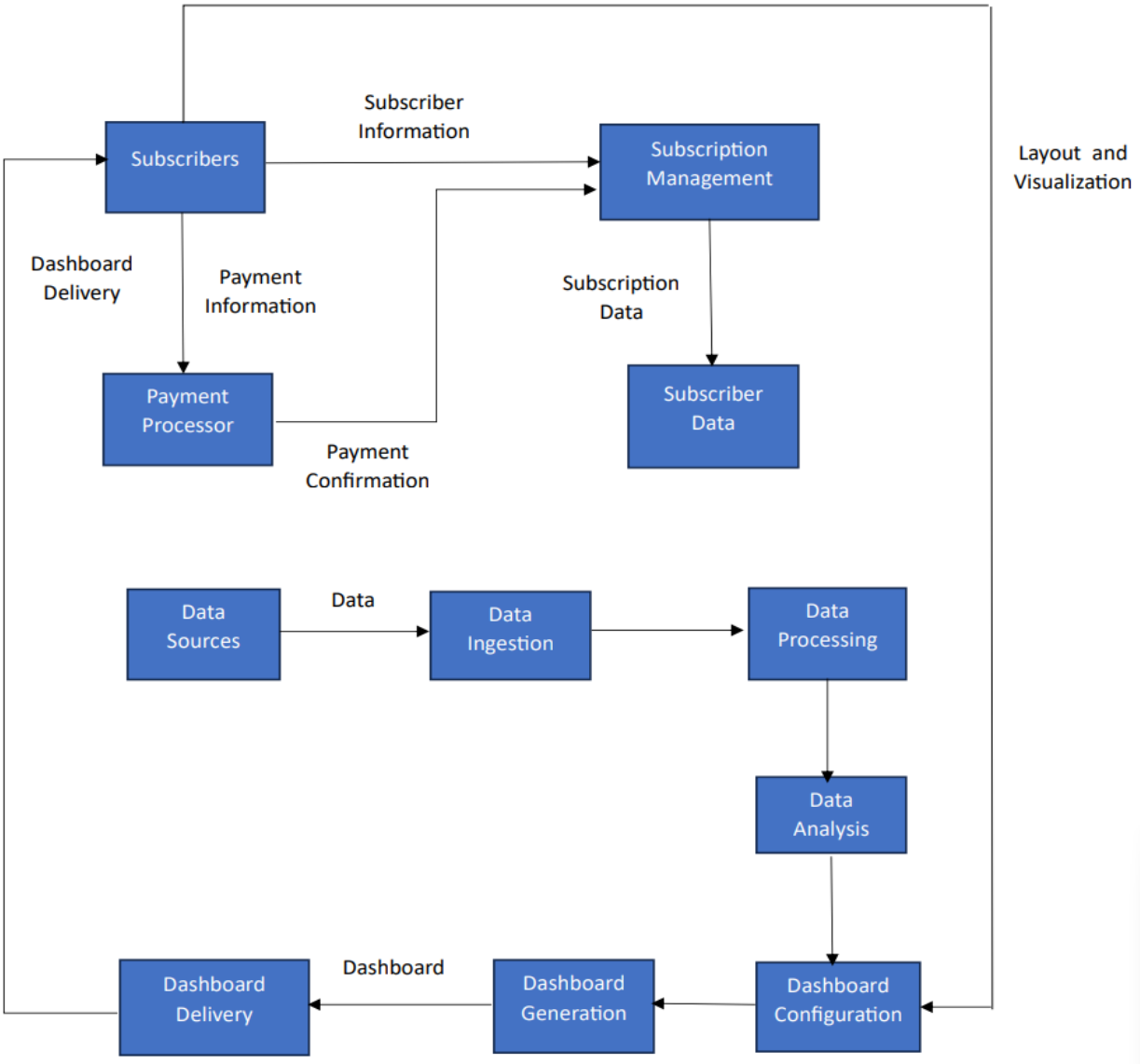
e)Maintainability- The dashboard should be easy to maintain and should be able to be updated with new features and functionality.

5)Project Design

5.1) Data Flow Diagrams and User Stories-

Data Flow Diagram-

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



A subscriber signs up for a Tata Power Stocks dashboard subscription. The subscriber's information is sent to the Subscription Management process. The

subscriber's payment information is sent to the Payment Processor. The Subscription Management process creates a subscription record in the Subscriber Data store. The Payment Processor verifies the payment and sends a confirmation to the Subscription Management process. The Subscription Management process updates the subscription record in the Subscriber Data store with the payment status. Data from different sources like the historical data sources, external data sources etc. is sent to the Data Ingestion process. The Data Ingestion process cleans and transforms the data. The data is then sent to the Data Processing process. The Data Processing process aggregates and enriches the data. The data is then sent to the Data Analysis process. The Data Analysis process applies data analytics models to the data. The Dashboard Generation process generates dashboards based on the data analysis results and the dashboard configurations stored in the Dashboard Configurations data store. The dashboards are then sent to the Dashboard Delivery process. The Dashboard Delivery process delivers the dashboards to the subscribers. The subscribers can use the dashboards to gain insights regarding the Tata Power Stocks.

User Stories-

User Type	Functional Requirement	User Story Number	User Story/Task	Acceptance Criteria	Priority
Subscriber	Ability to drill down into data	USN-1	As a subscriber, I want to be able to drill down into data so that I can explore the underlying details	1) I can click on data points to see more detailed information. 2) I can filter data to narrow down and see trends and patterns in the data.	Medium
	Ability to export data	USN-2	As a subscriber, I want to be able to export data from dashboards so that I can use it in other applications	1) I can export data in a variety of formats, such as CSV, Excel, and PDF. 2) I can use the exported data in a way that is easy to use in other applications.	Low

	Ability to compare data across time periods	USN-3	As a subscriber, I want to be able to compare data across time periods so that I can see how the stocks are performing over time	1)I can select different time periods to compare. 2)I can see the difference in data between the selected time periods	Medium
	Ability to create impromptu reports	USN-4	As a subscriber, I want to be able to create impromptu reports so that I can quickly answer questions about my data.	1)I can create reports without the need for IT assistance. 2)I can see the results of the reports in a clear and concise format.	High
Administrator	Ability to manage data sources	USN-5	As an administrator, I want to be able to manage data sources so that I can ensure that data is accurate and up-to-date	1) IT administrator can create, edit, and delete data sources. 2) IT administrator can specify the credentials used to connect to data sources	Medium
	Ability to monitor dashboard performance	USN-6	As an administrator, I want to be able to monitor dashboard performance so that I can identify and resolve any issues	1) I can view dashboard usage statistics. 2) I can investigate and resolve dashboard performance issues	High

5.2)Solution Architecture-

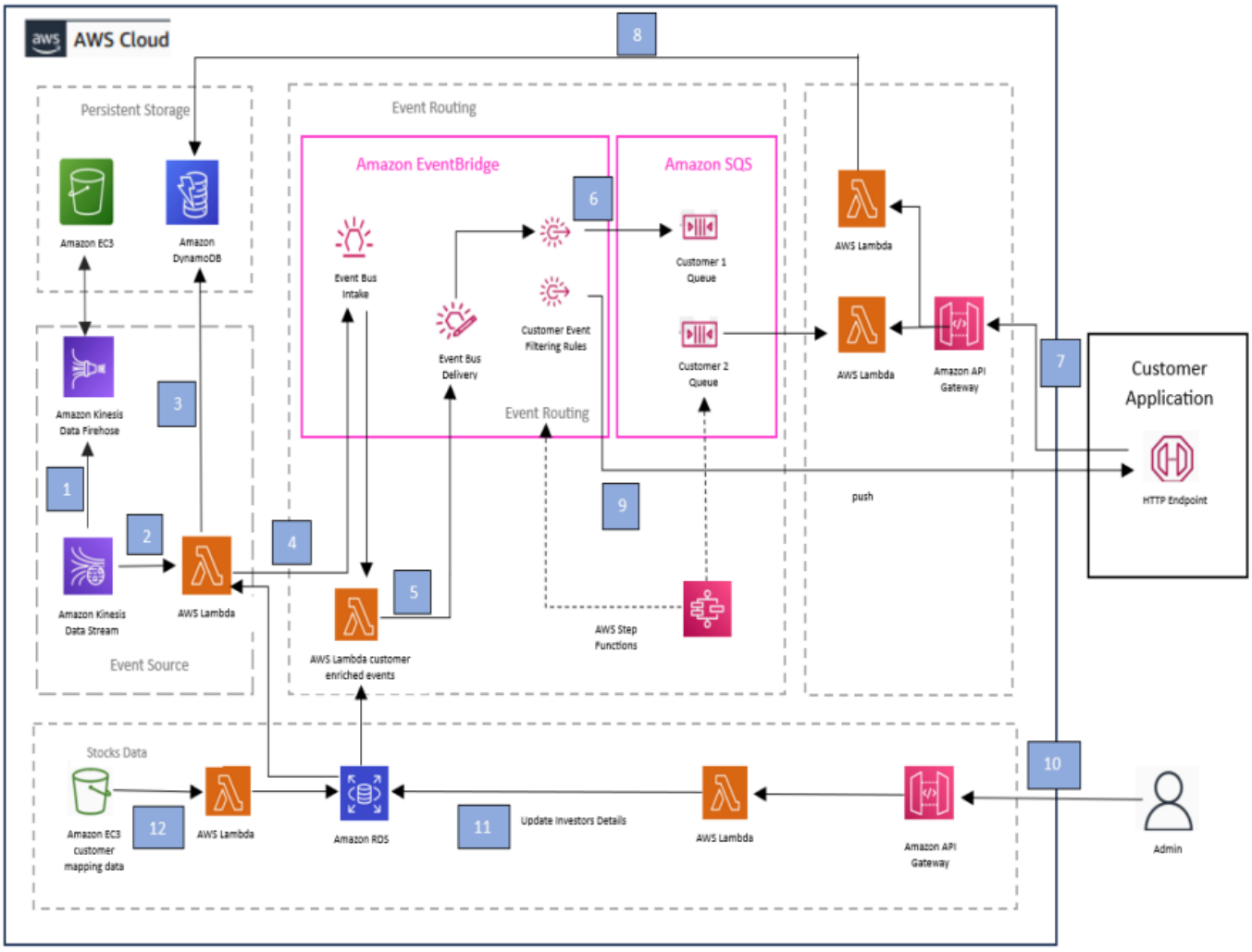
Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

a)Find the best tech solution to solve existing business problems.

b)Describe the structure, characteristics, behaviour, and other aspects of the software to project stakeholders.

c)Define features, development phases, and solution requirements.

d)Provide specifications according to which the solution is defined, managed, and delivered.



Legend/Key-

1) Stream Tata Power stocks data into real-time streaming platforms such as Amazon Kinesis Data Streams Store raw events in Amazon Simple Storage Service (Amazon S3) for long-term retention.

2) AWS Lambda process streaming events such as event validation, transformation, filtering, and more. Amazon Relational Database Service (RDS) contains reference data—including subscription status, event schema, and event types—required to process events.

3) Lambda stores processed events in Amazon DynamoDB. DynamoDB serves as data layer for on-demand request APIs.

4) Lambda sends transformed events to the Amazon EventBridge default event bus.

5) Lambda retrieves events from the EventBridge default event bus, enriches them with data stored in Amazon RDS, and sends them to a delivery event bus.

6) EventBridge rules process the matching events and route them to customer specific Amazon Simple Queue Service (Amazon SQS) queues to be buffered until consumed.

7) The HTTP endpoint(which can also be made a starting point) makes an API call to Amazon API Gateway which invokes Lambda to process the API requests.

8) For real-time streaming data, Lambda pulls events from Amazon SQS queues. For on-demand requests, Lambda reads events from a DynamoDB table .

9) Alerts and other time-sensitive events are routed to customer-specific HTTP endpoints using an EventBridge API target.

10) An admin invokes Amazon API Gateway to onboard new customers requesting subscriptions for Tata Power Stock data.

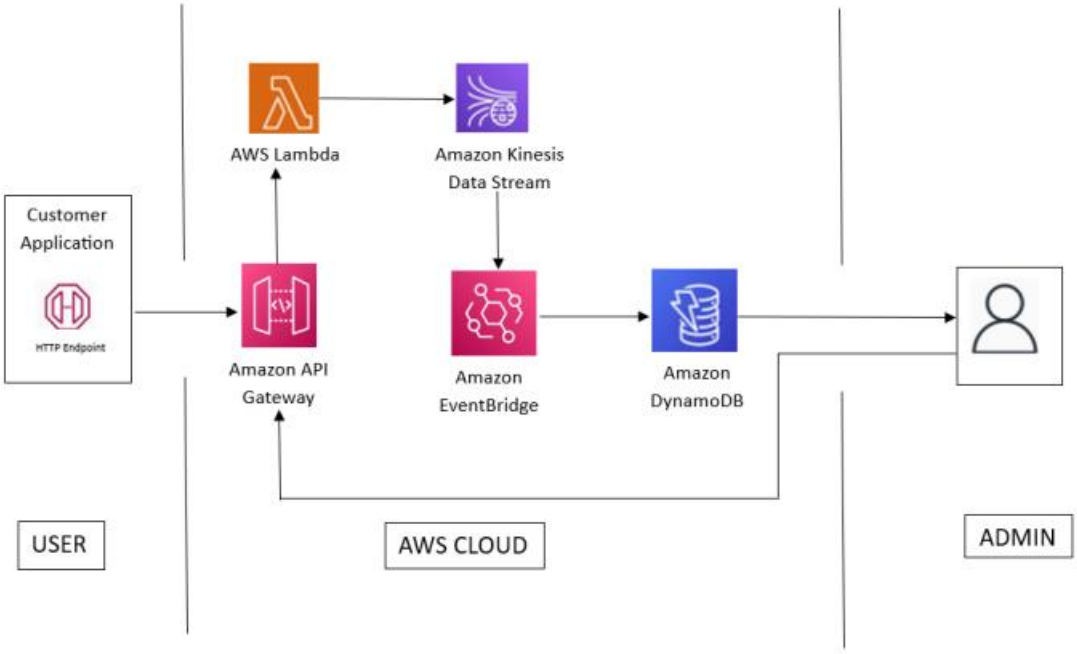
11) AWS Lambda stores customer data subscription request details in the Amazon Relational Database Service (Amazon RDS) database.

12) A bulk or batch reference data point regarding investors and stock data is uploaded/updated into an Amazon Simple Storage Service (Amazon S3) bucket and Lambda loads it into the database

6)Project Planning and Scheduling

6.1) 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.

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

6.2)Sprint Planning and Estimation-

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Point	Priority	Team Member
Sprint-1	Drill down into data	USN-1	As a subscriber, I want to be able to drill down into data so that I can explore the underlying details.	2	Medium	Soumajit
Sprint-1	Export data	USN-2	As a subscriber, I want to be able to export data from dashboards so that I can use it in other applications.	1	Low	Ridhi
Sprint-1	Compare data across time periods	USN-3	As a subscriber, I want to be able to compare data across time periods so that I can see how the stocks are performing over time.	2	Medium	Aryan
Sprint-1	Create impromptu reports	USN-4	As a subscriber, I want to be able to create impromptu reports so that I can quickly answer questions	2	High	Praveen

			about my data.			
Sprint-2	Manage data sources	USN-5	As an administrator, I want to be able to manage data sources so that I can ensure that data is accurate and up-to-date.	2	Medium	Aryan, Ridhi
Sprint-2	Monitor dashboard performance	USN-6	As an administrator, I want to be able to monitor dashboard performance so that I can identify and resolve any issues.	3	High	Soumajit

6.3)Sprint Delivery Schedule-

Sprint	Total Story Point	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	7	13 Days	15 Oct 2023	27 Oct 2023	5	29 Oct 2023
Sprint-2	5	10 Days	24 Oct 2023	3 Nov 2023	5	3 Nov 2023

Velocity-

The team's average velocity (AV) per iteration unit (story points per day)-

AV1=sprint duration/velocity= 7/13=0.538

AV2=sprint duration/velocity=5/10=0.5

Burndown Chart-

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

7) Coding and Solutioning-

7.1)Features-

The following are the features added in the project along with the code-

a)Interactive Dashboard-

The website has interactive dashboard allowing the customer to have a more user-friendly experience with the data.

Code-

```
<section id="services" class="services section-bg">
    <div class="container" data-aos="fade-up">


     <div class="section-title">
      <h2>Dashboard</h2>
```

Our dashboard will provide you with insights regarding the Tata Power Stocks and help you make informed decisions while investing.

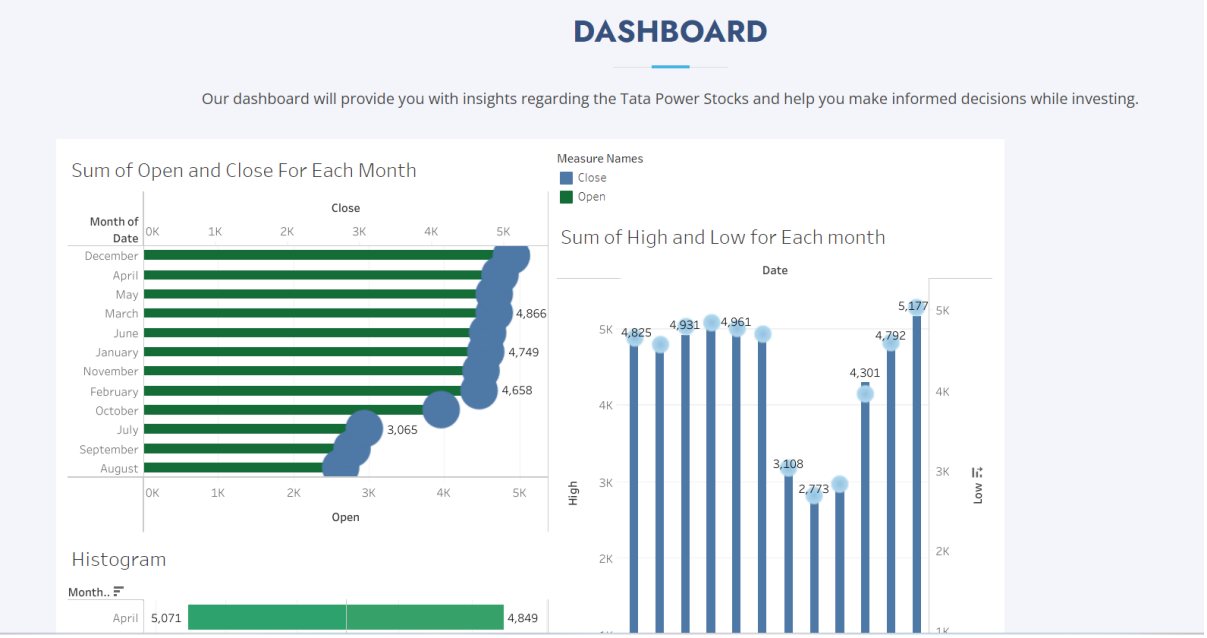
<noscript></noscript><object class='tableauViz' style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='site_root' value='' /><param name='name' value='DA_Project1_-_Copy_21/Dashboard1' /><param name='tabs' value='no' /><param name='toolbar' value='yes' /><param name='static_image' value='https://public.tableau.com/static/images/DA/DA_Project1_-_Copy_21/Dashboard1/1.png' /> <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-US' /></object> <script type='text/javascript'> var divElement = document.getElementById('viz1699436183164'); var vizElement = divElement.getElementsByTagName('object')[0]; if (divElement.offsetWidth > 800) { vizElement.style.width='1000px';vizElement.style.height='827px';} else if (divElement.offsetWidth > 500) { vizElement.style.width='1000px';vizElement.style.height='827px';} else { vizElement.style.width='100%';vizElement.style.height='1177px';} var scriptElement = document.createElement('script'); scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js'; vizElement.parentNode.insertBefore(scriptElement, vizElement); </script>

<noscript></noscript><object class='tableauViz' style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='site_root' value='' /><param name='name' value='DA_Project1_-_Copy1/Dashboard2' /><param name='tabs' value='no' /><param name='toolbar' value='yes' /><param name='static_image' value='https://public.tableau.com/static/images/DA/DA_Project1_-_Copy1/Dashboard2/1.png' /> <param name='animate_transition'

value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-US' /></object> <script type='text/javascript'> var divElement = document.getElementById('viz1699436201041'); var vizElement = divElement.getElementsByTagName('object')[0]; if (divElement.offsetWidth > 800) { vizElement.style.width='1000px';vizElement.style.height='827px';} else if (divElement.offsetWidth > 500) { vizElement.style.width='1000px';vizElement.style.height='827px';} else { vizElement.style.width='100%';vizElement.style.height='1377px';} var scriptElement = document.createElement('script'); scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js'; vizElement.parentNode.insertBefore(scriptElement, vizElement); </script>

</section>

Output-



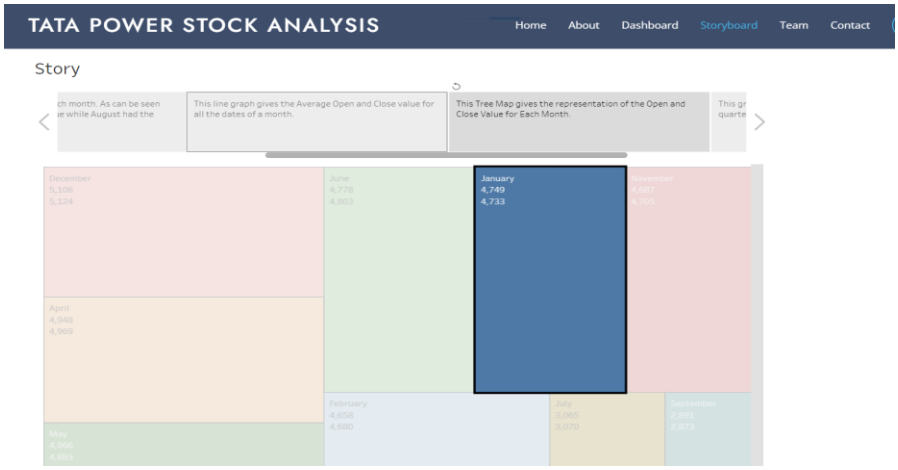
b)Storyboard-

The website has a storyboard which allows the customer to have a better understanding of the data.

Code-

```
<section id="portfolio" class="portfolio">
    <div class="container" data-aos="fade-up">
      <div class="section-title">
        <h2>Storyboard</h2>
      </div>
      <div class='tableauPlaceholder' id='viz1699419279616' style='position: relative'><noscript><a href='#'><img alt='Story ' src='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;DA&#47;DA_Project11&#47;Story&#47;1_rss.png' style='border: none' /></a></noscript><object class='tableauViz'  style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='path' value='views&#47;DA_Project11&#47;Story?:language=en-US&amp;:embed=true&amp;publish=yes' /> <param name='toolbar' value='yes' /><param name='static_image' value='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;DA&#47;DA_Project11&#47;Story&#47;1.png' /> <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-US' /><param name='filter' value='publish=yes' /></object></div>                <script type='text/javascript'>                    var divElement = document.getElementById('viz1699419279616');                    var vizElement = divElement.getElementsByTagName('object')[0];                    vizElement.style.width='1016px';vizElement.style.height='991px';                    var scriptElement = document.createElement('script');                    scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';                    vizElement.parentNode.insertBefore(scriptElement, vizElement);                </script>
    </div>
  </section>
```

Output-



c)Different prices for different needs-

There are two different price ranges, one a free model and the other a subscription model. The subscription model has all the features of the model plus some added features.

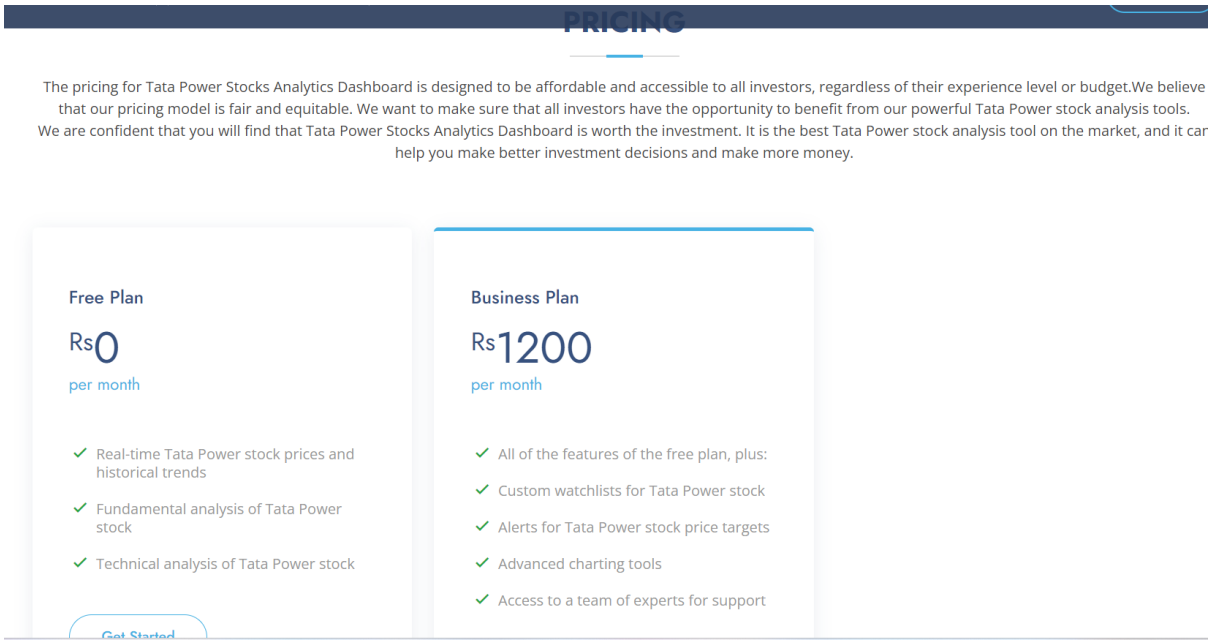
Code-

```
<section id="pricing" class="pricing">

    <div class="container" data-aos="fade-up">


      <div class="section-title">

        <h2>Pricing</h2>

        <p>The pricing for Tata Power Stocks Analytics Dashboard is designed to be affordable and accessible to all investors, regardless of their experience level or budget. We believe that our pricing model is fair and equitable. We want to make sure that all investors have the opportunity to benefit from our powerful Tata Power stock analysis tools.</p>

        <p>We are confident that you will find that Tata Power Stocks Analytics Dashboard is worth the investment. It is the best Tata Power stock analysis tool on the market, and it can help you make better investment decisions and make more money.</p>

      </div>


      <div class="row">
```

```
<div class="col-lg-4" data-aos="fade-up" data-aos-delay="100">
  <div class="box">
    <h3>Free Plan</h3>
    <h4><sup>Rs</sup>0<span>per month</span></h4>
    <ul>
      <li><i class="bx bx-check"></i> Real-time Tata Power stock prices and historical trends</li>
      <li><i class="bx bx-check"></i> Fundamental analysis of Tata Power stock</li>
      <li><i class="bx bx-check"></i> Technical analysis of Tata Power stock</li>
    </ul>
    <a href="#" class="buy-btn">Get Started</a>
  </div>
</div>

<div class="col-lg-4 mt-4 mt-lg-0" data-aos="fade-up" data-aos-delay="200">
  <div class="box featured">
    <h3>Business Plan</h3>
    <h4><sup>Rs</sup>1200<span>per month</span></h4>
    <ul>
      <li><i class="bx bx-check"></i> All of the features of the free plan, plus:</li>
      <li><i class="bx bx-check"></i> Custom watchlists for Tata Power stock</li>
      <li><i class="bx bx-check"></i> Alerts for Tata Power stock price targets</li>
      <li><i class="bx bx-check"></i> Advanced charting tools</li>
      <li><i class="bx bx-check"></i> Access to a team of experts for support</li>
    </ul>
    <a href="#" class="buy-btn">Get Started</a>
  </div>
</div>
</div>
```

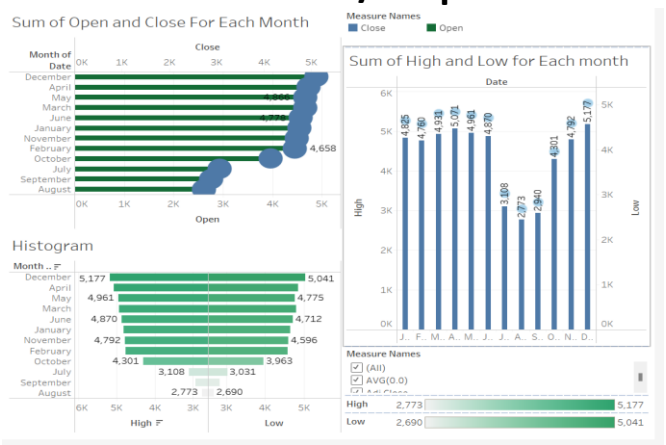
</section>

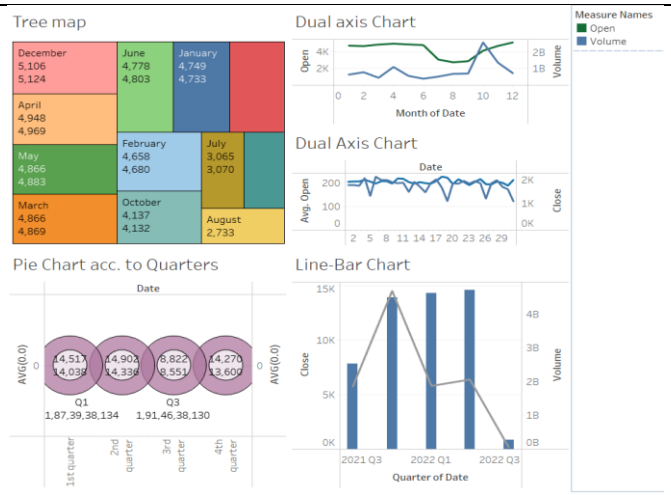
Output-

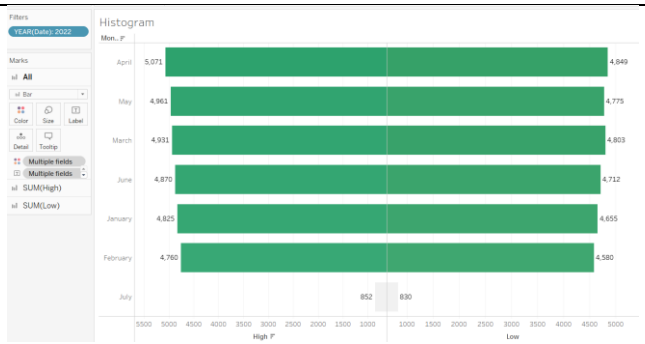
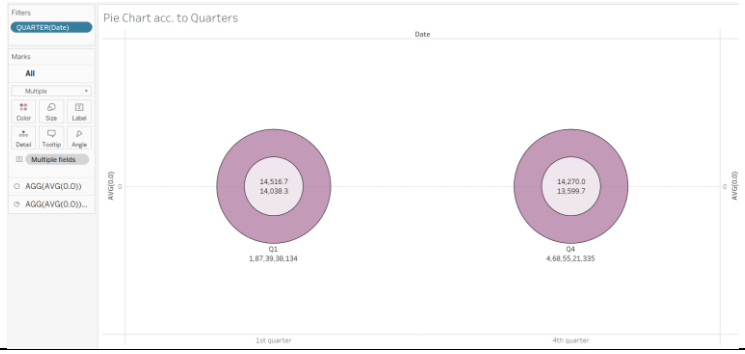
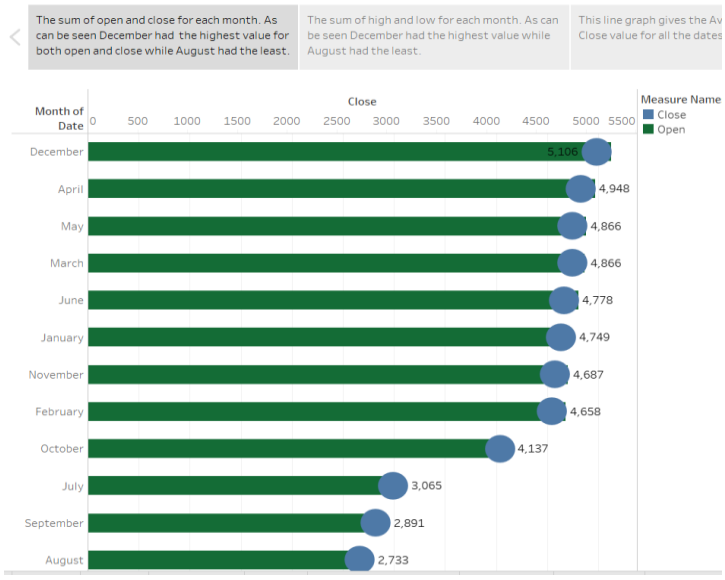


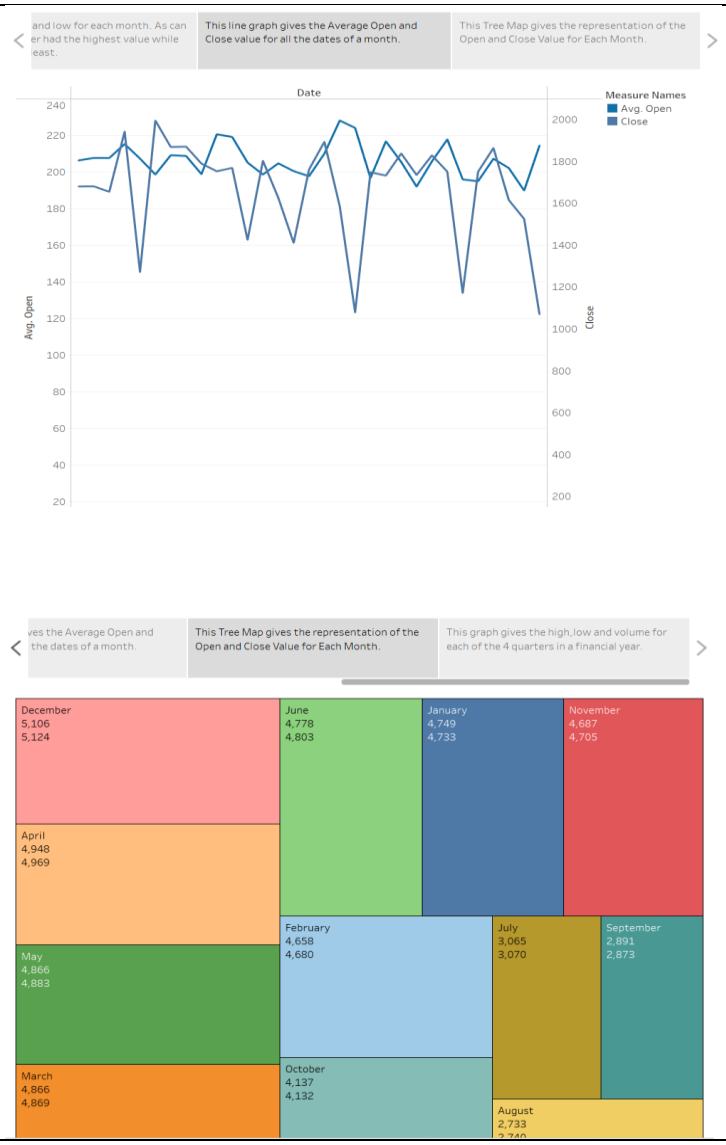
8)Performance Testing

8.1)Performance Metrics-

S. No.	Parameter	Screenshot/Value
1	Dashboard Design	No. of visualizations/Graphs- 8 

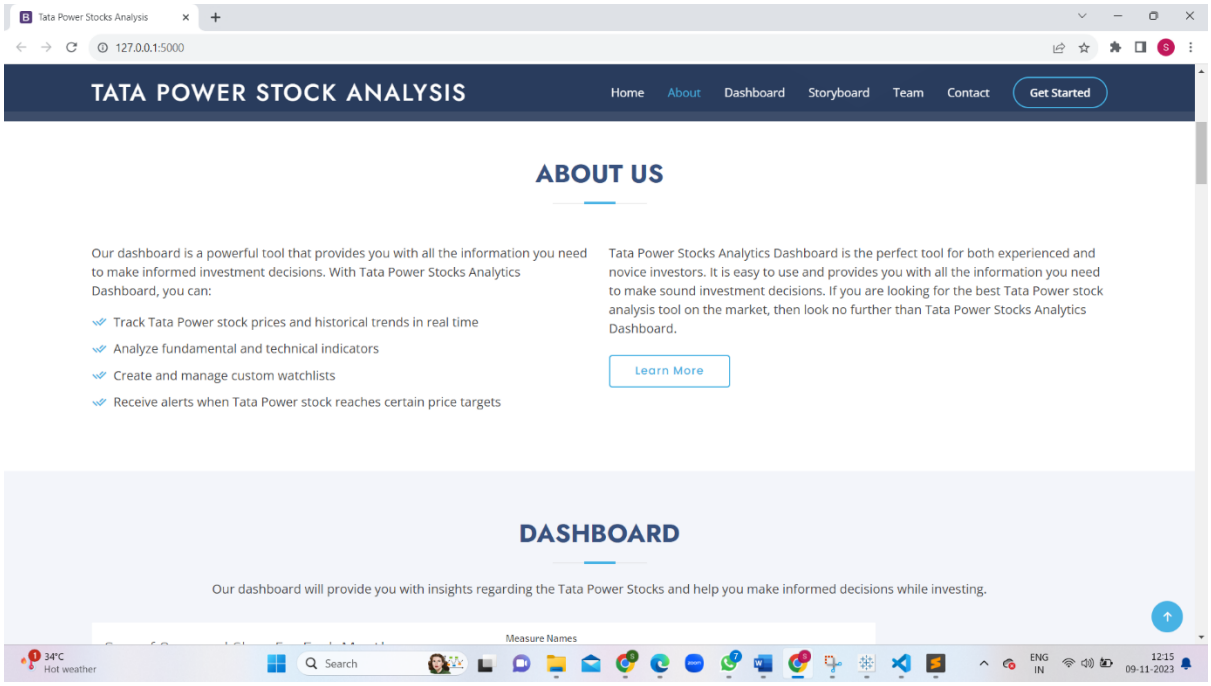
		
2	**Data Responsiveness**	
3	**Amount Data to Rendered(DB2 Metrics)**	**The amount of data to be rendered was 251 rows.**

4	**Utilization of Data Filters**	 
5	**Effective User Story**	**No of Scene Added- 5** 



9)Results

9.1)Output Screenshots-


Tata Power Stocks Analysis
127.0.0.1:5000
TATA POWER STOCK ANALYSIS
Home
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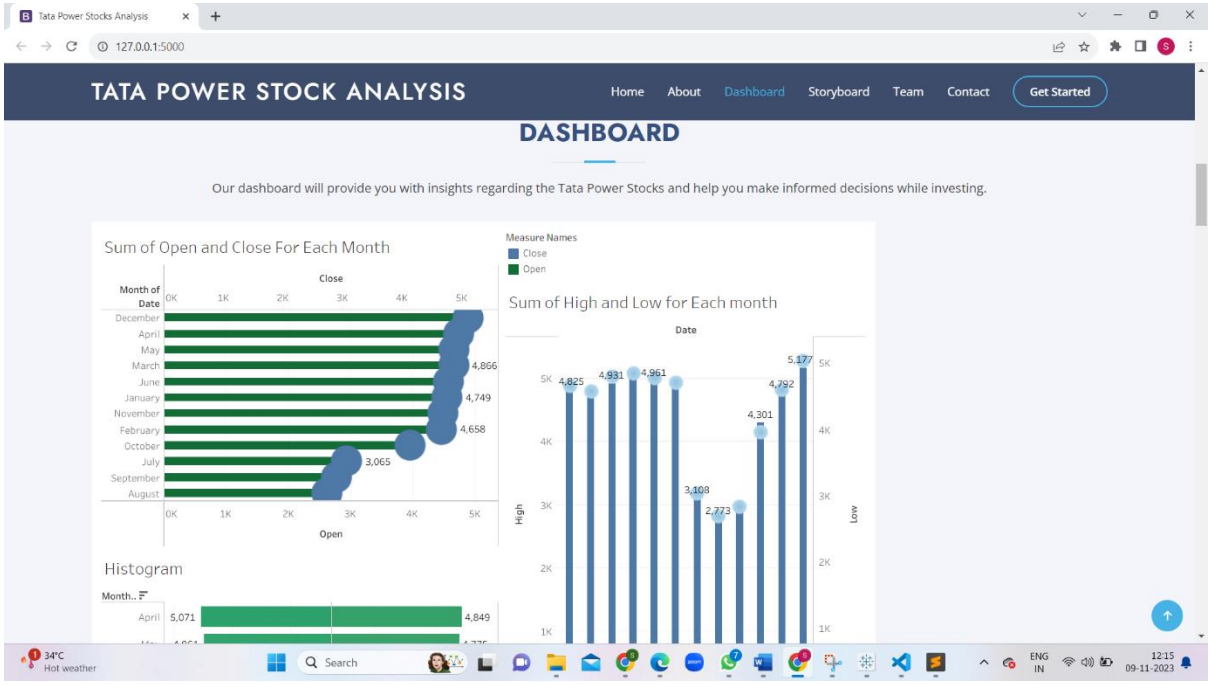
Dashboard
Storyboard
Team
Contact
Get Started
ABOUT US
Our dashboard is a powerful tool that provides you with all the information you need to make informed investment decisions. With Tata Power Stocks Analytics Dashboard, you can:
Track Tata Power stock prices and historical trends in real time
Analyze fundamental and technical indicators
Create and manage custom watchlists
Receive alerts when Tata Power stock reaches certain price targets
Tata Power Stocks Analytics Dashboard is the perfect tool for both experienced and novice investors. It is easy to use and provides you with all the information you need to make sound investment decisions. If you are looking for the best Tata Power stock analysis tool on the market, then look no further than Tata Power Stocks Analytics Dashboard.
Learn More
DASHBOARD
Our dashboard will provide you with insights regarding the Tata Power Stocks and help you make informed decisions while investing.
Measure Names
34°C
Hot weather
Search
ENG
IN
12:15
09-11-2023


Tata Power Stocks Analysis
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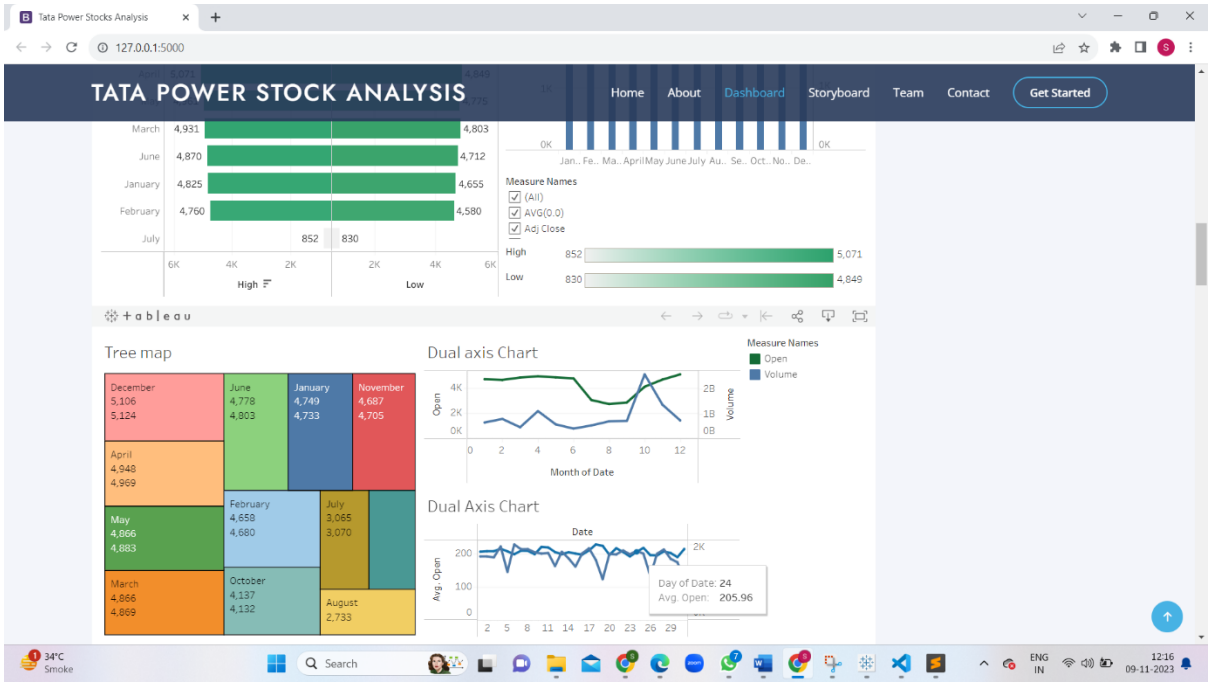
DASHBOARD
Our dashboard will provide you with insights regarding the Tata Power Stocks and help you make informed decisions while investing.
Sum of Open and Close For Each Month
Close
Month of Date
December
April
May
March
June
January
November
February
October
July
September
August
4,866
4,749
4,658
3,065
Open
Measure Names
Close
Open
Sum of High and Low for Each month
Date
4,825
4,931
4,961
3,108
2,773
4,301
4,792
5,177
High
Low
Histogram
Month...
April
5,071
4,849
34°C
Hot weather
Search
ENG
IN
12:15
09-11-2023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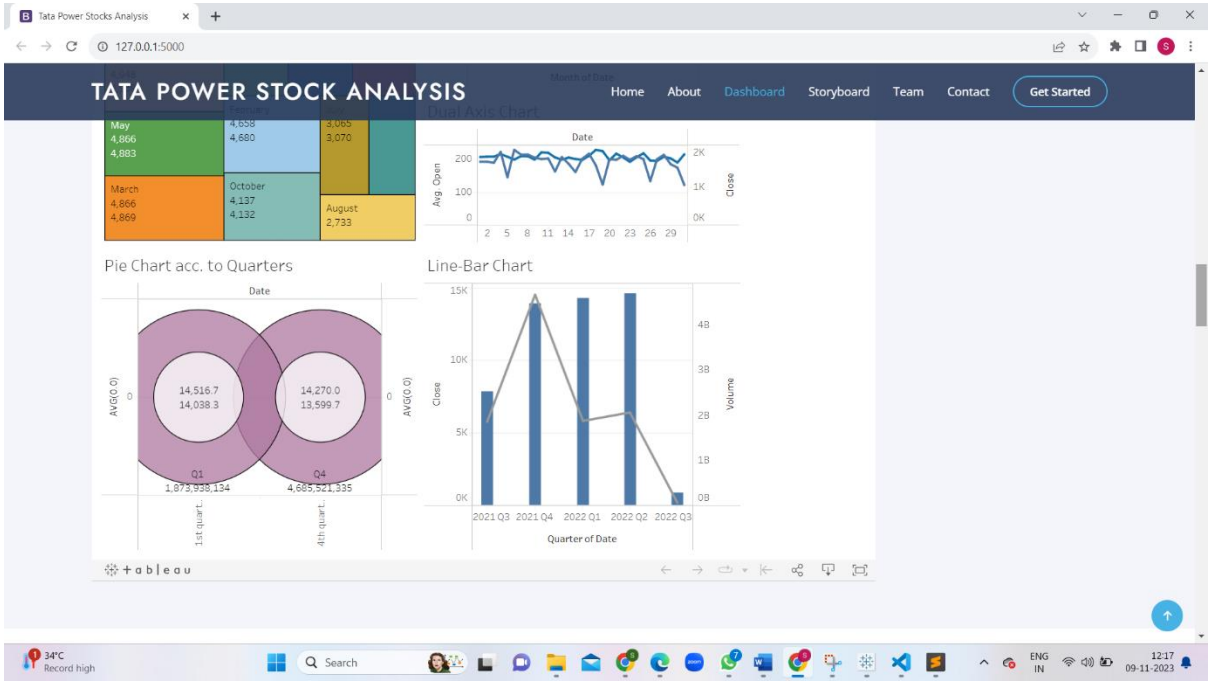
Tree map
Dual axis Chart
Measure Names
Open
Volume
Month of Date
Dual Axis Chart
Date
Day of Date: 24
Avg. Open: 205.96
+ableau
34°C
Smoke
Search
ENG
IN
12:16
09-11-2023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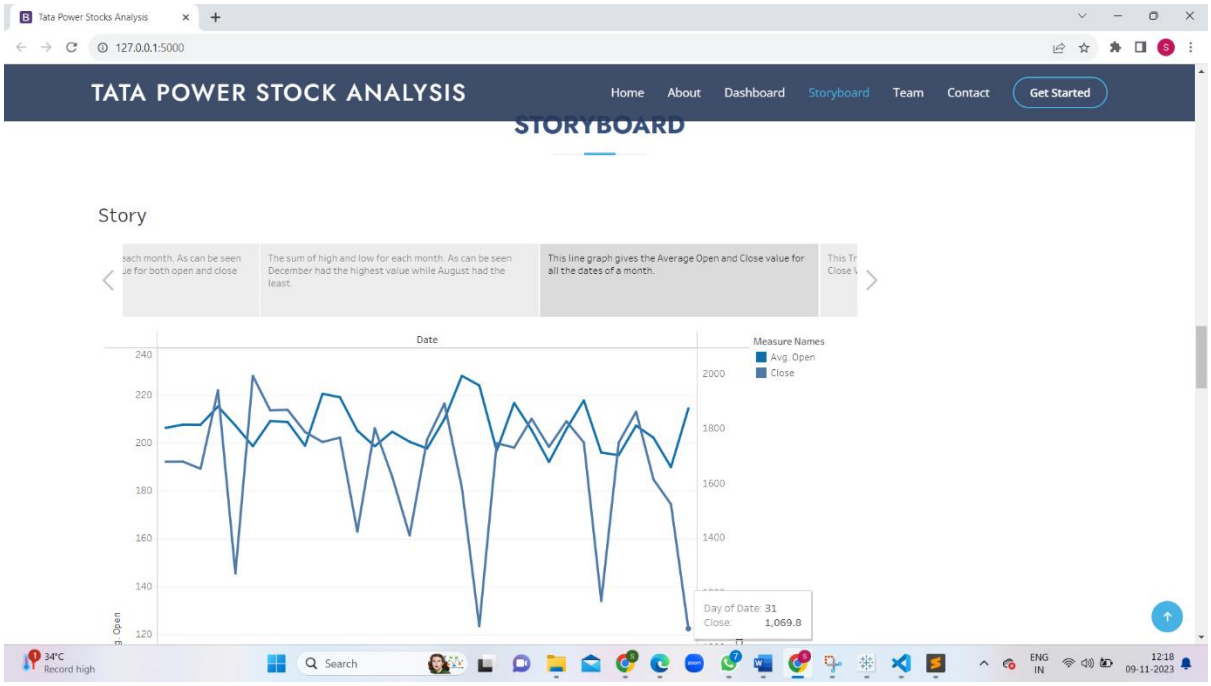
Pie Chart acc. to Quarters
Date
Q1
1,873,938,134
Q4
4,685,521,335
Line-Bar Chart
Quarter of Date
+ableau
34°C
Record high
Search
ENG
IN
12:17
09-11-2023

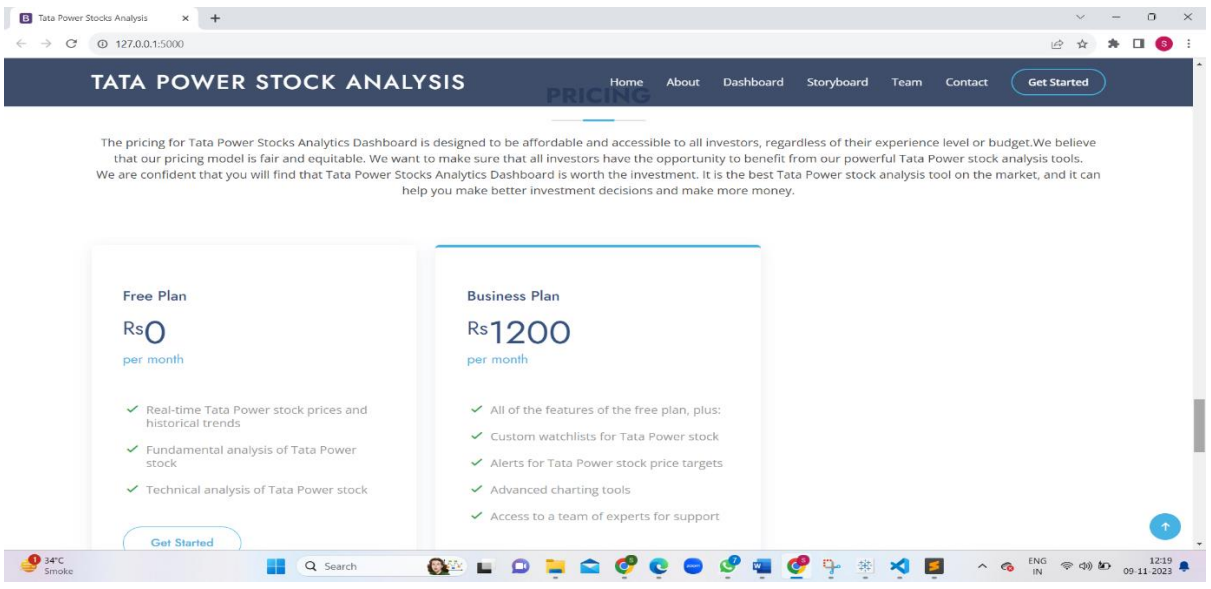


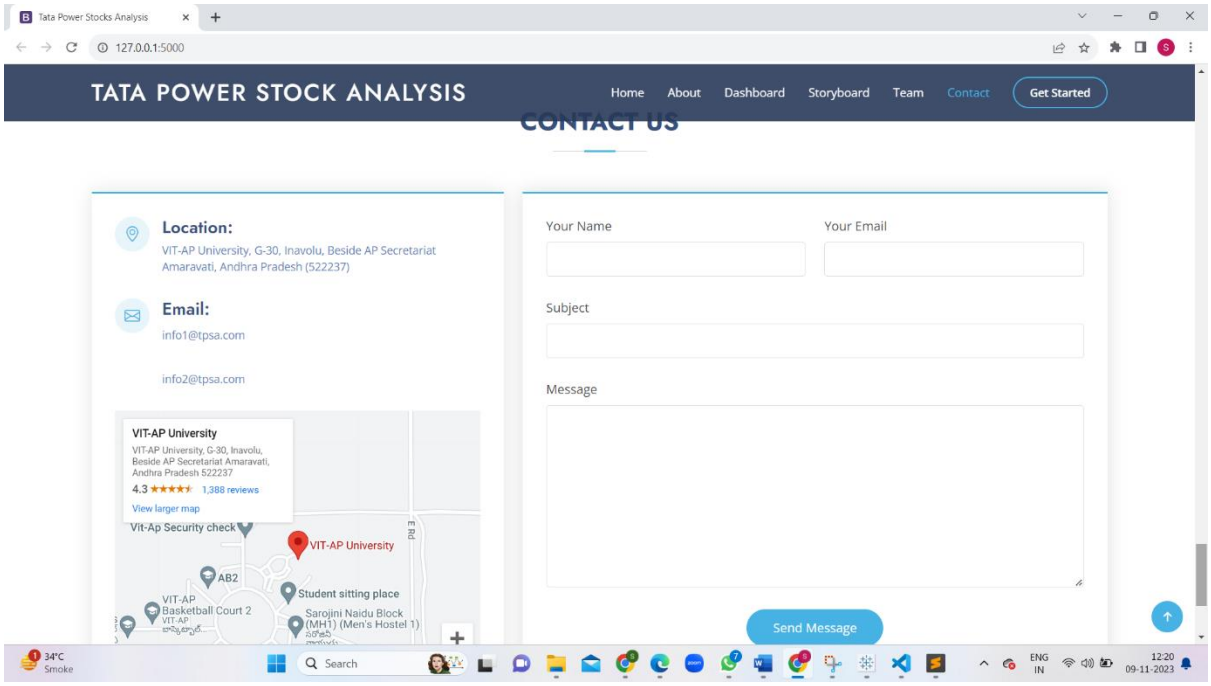
TEAM

The Tata Power Stocks Analytics Dashboard team has a deep understanding of the Tata Power stock market and the factors that drive Tata Power stock prices. We use this knowledge to develop innovative and cutting-edge analytics solutions that help investors identify trading opportunities and make informed investment decisions.

Our Team Members:

- Soumajit Pal
- Aryan Rustagi
- Ridhi Jaisingh
- Praveen Bastia





10)Advantages and Disadvantages-

Advantages-

The advantages of the Tata Power Stock Analysis Dashboard are-

a) Comprehensive Insights- The dashboard provides a comprehensive overview of Tata Power's financial performance. This information helps investors make informed decisions about their investments.

b)Up-to-date Data- The dashboard is updated regularly with the latest data, ensuring that investors have access to the most accurate information available. This is crucial for making timely investment decisions.

c)User-friendly Interface- The dashboard is designed with ease of use in mind, making it easy for investors to navigate and find the information they need. This saves time and effort, allowing investors to focus on analysis and decision-making.

d)Actionable Insights- The dashboard goes beyond simply presenting data; it provides actionable insights that investors can use to make informed decisions

about their Tata Power investments. This includes identifying trends, patterns, and anomalies that may impact the company's performance.

e)Customization Options- The dashboard allows users to customize their experience by filtering, sorting, and drilling down into the data. This enables investors to focus on the specific information that is most relevant to their investment goals.

Disadvantages-

The disadvantages of the Tata Power Stock Analysis Dashboard are-

a)Data Reliance- The dashboard's accuracy and usefulness depend on the quality and completeness of the data it receives. If the data is inaccurate or incomplete, the dashboard may provide misleading insights.

b)Limited Forecasting Capabilities- The dashboard primarily focuses on historical data and current performance. It may not provide comprehensive forecasting capabilities, which could be important for investors with long-term investment horizons.

c)Potential for Misinterpretation- Data visualization and analysis can be complex, and there is always a risk of misinterpreting the information presented. Investors should exercise caution and consider consulting with financial advisors before making investment decisions based on the dashboard's insights.

11)Conclusion

The Tata Power Stock Analytics Dashboard empowers investors with comprehensive insights into the company's financial performance, enabling them to make informed investment decisions. Its user-friendly interface, up-to-date data, and actionable insights make it an invaluable tool for navigating the complexities of the stock market. By effectively visualizing key metrics and providing tailored analysis, the dashboard helps investors identify trends, patterns, and anomalies that may impact Tata Power's future performance. While data reliance and limited forecasting capabilities pose potential drawbacks, the dashboard's overall benefits outweigh these limitations, making it an essential resource for Tata Power investors.

12)Future Scope

The Tata Power Stock Analytics Dashboard has the potential to evolve into a sophisticated financial intelligence platform, providing investors with an even more comprehensive and actionable understanding of Tata Power's performance and the broader market landscape. By integrating advanced machine learning algorithms, the dashboard could deliver predictive insights into future stock price movements, identify potential risks and opportunities, and generate personalized investment recommendations. Additionally, incorporating real-time data feeds and market news could enable the dashboard to provide investors with up-to-the-minute insights, allowing them to react swiftly to changing market conditions. The dashboard could also expand its scope to include analysis of Tata Power's competitors, providing investors with a more holistic view of the industry and enabling them to make informed decisions about sector allocation. As artificial intelligence and data analytics continue to advance, the Tata Power Stock Analytics Dashboard has the potential to become an indispensable tool for Tata Power investors, empowering them to make informed decisions and achieve their investment goals

13)Appendix

13.1)Source Code-

HTML/CSS Code-

```
<!DOCTYPE html>

<html lang="en">

<head>

 <meta charset="utf-8">

 <meta content="width=device-width, initial-scale=1.0" name="viewport">



 <title>Tata Power Stocks Analysis</title>

 <meta content="" name="description">

 <meta content="" name="keywords">
```

```
  <!-- Favicons -->

  <link href="static/assets/img/favicon.png" rel="icon">

  <link href="static/assets/img/apple-touch-icon.png" rel="apple-touch-icon">



  <!-- Google Fonts -->

  <link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Jost:300,300i
,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i"
rel="stylesheet">



  <!-- Vendor CSS Files -->

  <link href="static/assets/vendor/aos/aos.css" rel="stylesheet">

  <link href="static/assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">

  <link href="static/assets/vendor/bootstrap-icons/bootstrap-icons.css" rel="stylesheet">

  <link href="static/assets/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">

  <link href="static/assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">

  <link href="static/assets/vendor/remixicon/remixicon.css" rel="stylesheet">

  <link href="static/assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">



  <!-- Template Main CSS File -->

  <link href="static/assets/css/style.css" rel="stylesheet">



  <!-- =======================================================

  * Template Name: Tata Power Stock Analysis

  * Updated: Sep 18 2023 with Bootstrap v5.3.2

  * Template URL: https://bootstrapmade.com/arsha-free-bootstrap-html-template-corporate/

  * Author: BootstrapMade.com
```

```
  * License: https://bootstrapmade.com/license/

  ======================================================== -->

</head>

<body>

  <!-- ======= Header ======= -->

  <header id="header" class="fixed-top ">

    <div class="container d-flex align-items-center">

      <h1 class="logo me-auto"><a href="index.html">Tata Power Stock Analysis</a></h1>

      <!-- Uncomment below if you prefer to use an image logo -->

      <!-- <a href="index.html" class="logo me-auto"><img src="static/assets/img/logo.png" alt="" class="img-fluid"></a>-->

      <nav id="navbar" class="navbar">

        <ul>

          <li><a class="nav-link scrollto active" href="#hero">Home</a></li>

          <li><a class="nav-link scrollto" href="#about">About</a></li>

          <li><a class="nav-link scrollto" href="#services">Dashboard</a></li>

          <li><a class="nav-link   scrollto" href="#portfolio">Storyboard</a></li>

          <li><a class="nav-link scrollto" href="#team">Team</a></li>

          <li><a class="nav-link scrollto" href="#contact">Contact</a></li>

          <li><a class="getstarted scrollto" href="#about">Get Started</a></li>

        </ul>

        <i class="bi bi-list mobile-nav-toggle"></i>

      </nav><!-- .navbar -->
```

```
  </div>

 </header><!-- End Header -->


 <!-- ======= Hero Section ======= -->

 <section id="hero" class="d-flex align-items-center">


   <div class="container">

    <div class="row">

      <div class="col-lg-6 d-flex flex-column justify-content-center pt-4 pt-lg-0 order-2 order-lg-1" data-aos="fade-up" data-aos-delay="200">

        <h1>Empowering investors with the power of data</h1>

        <div class="d-flex justify-content-center justify-content-lg-start">

          <a href="#about" class="btn-get-started scrollto">Get Started</a>

        </div>

      </div>

      <div class="col-lg-6 order-1 order-lg-2 hero-img" data-aos="zoom-in" data-aos-delay="200">

        <img src="static/assets/img/hero-img.png" class="img-fluid animated" alt="">

      </div>

    </div>

  </div>


 </section><!-- End Hero -->


 <main id="main">
```

```
<!-- ======= About Us Section ======= -->

<section id="about" class="about">

  <div class="container" data-aos="fade-up">



    <div class="section-title">

      <h2>About Us</h2>

    </div>



    <div class="row content">

      <div class="col-lg-6">

        <p> Our dashboard is a powerful tool that provides you with all the information you need to make informed investment decisions. With Tata Power Stocks Analytics Dashboard, you can:

        </p>

        <ul>

          <li><i class="ri-check-double-line"></i> Track Tata Power stock prices and historical trends in real time</li>

          <li><i class="ri-check-double-line"></i> Analyze fundamental and technical indicators</li>

          <li><i class="ri-check-double-line"></i> Create and manage custom watchlists</li>

          <li><i class="ri-check-double-line"></i>Receive alerts when Tata Power stock reaches certain price targets</li>

        </ul>

      </div>

      <div class="col-lg-6 pt-4 pt-lg-0">

        <p>

          Tata Power Stocks Analytics Dashboard is the perfect tool for both experienced and novice investors. It is easy to use and provides you with all the information you need to make sound investment decisions. If you are looking for the best Tata Power stock analysis tool on the market, then look no further than Tata Power Stocks Analytics Dashboard.

        </p>

        <a href="#" class="btn-learn-more">Learn More</a>
```

```
      </div>

     </div>


    </div>

   </section><!-- End About Us Section -->


   <!-- ======= Dashboard Section ======= -->

   <section id="services" class="services section-bg">

    <div class="container" data-aos="fade-up">


     <div class="section-title">

      <h2>Dashboard</h2>

      <p>Our dashboard will provide you with insights regarding the Tata Power Stocks and help you make informed decisions while investing.</p>

     </div>


     <div class='tableauPlaceholder' id='viz1699436183164' style='position: relative'><noscript><a href='#'><img alt='Dashboard 1 ' src='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;DA&#47;DA_Project1_-_Copy_21&#47;Dashboard1&#47;1_rss.png' style='border: none' /></a></noscript><object class='tableauViz' style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='site_root' value='' /><param name='name' value='DA_Project1_-_Copy_21&#47;Dashboard1' /><param name='tabs' value='no' /><param name='toolbar' value='yes' /><param name='static_image' value='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;DA&#47;DA_Project1_-_Copy_21&#47;Dashboard1&#47;1.png' /> <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-US' /></object></div>                <script type='text/javascript'>                    var divElement = document.getElementById('viz1699436183164');                    var vizElement = divElement.getElementsByTagName('object')[0];                    if ( divElement.offsetWidth > 800 ) { vizElement.style.width='1000px';vizElement.style.height='827px';} else if ( divElement.offsetWidth > 500 ) { vizElement.style.width='1000px';vizElement.style.height='827px';} else { vizElement.style.width='100%';vizElement.style.height='1177px';}                    var scriptElement = document.createElement('script');                    scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';                vizElement.parentNode.insertBefore(scriptElement, vizElement);                </script>
```

<noscript></noscript><object class='tableauViz' style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='site_root' value='' /><param name='name' value='DA_Project1_-_Copy1/Dashboard2' /><param name='tabs' value='no' /><param name='toolbar' value='yes' /><param name='static_image' value='https://public.tableau.com/static/images/DA/DA_Project1_-_Copy1/Dashboard2/1.png' /> <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-US' /></object> <script type='text/javascript'> var divElement = document.getElementById('viz1699436201041'); var vizElement = divElement.getElementsByTagName('object')[0]; if (divElement.offsetWidth > 800) { vizElement.style.width='1000px';vizElement.style.height='827px';} else if (divElement.offsetWidth > 500) { vizElement.style.width='1000px';vizElement.style.height='827px';} else { vizElement.style.width='100%';vizElement.style.height='1377px';} var scriptElement = document.createElement('script'); scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js'; vizElement.parentNode.insertBefore(scriptElement, vizElement); </script>

</section><!-- End Dashboard Section -->

<!-- ======= Storyboard Section ======= -->

<section id="portfolio" class="portfolio">

<h2>Storyboard</h2>

<noscript></noscript><object class='tableauViz' style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='path' value='views/DA_Project11/Story?:language=en-US&:embed=true&publish=yes' /> <param name='toolbar' value='yes' /><param name='static_image' value='https://public.tableau.com/static/images/DA/DA_Project11/Story&

#47;1.png' /> <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-US' /><param name='filter' value='publish=yes' /></object> <script type='text/javascript'> var divElement = document.getElementById('viz1699419279616'); var vizElement = divElement.getElementsByTagName('object')[0]; vizElement.style.width='1016px';vizElement.style.height='991px'; var scriptElement = document.createElement('script'); scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js'; vizElement.parentNode.insertBefore(scriptElement, vizElement); </script>

</section><!-- End Storyboard Section -->

<!-- ======= Team Section ======= -->

<section id="team" class="team section-bg">

<h2>Team</h2>

The Tata Power Stocks Analytics Dashboard team has a deep understanding of the Tata Power stock market and the factors that drive Tata Power stock prices. We use this knowledge to develop innovative and cutting-edge analytics solutions that help investors identify trading opportunities and make informed investment decisions.

 Our Team Members:

Soumajit Pal

Aryan Rustagi

Ridhi Jaisingh

Praveen Bastia

```
      </ul>

     </div>

    </div>

  </section><!-- End Team Section -->



  <!-- ======= Pricing Section ======= -->

  <section id="pricing" class="pricing">

    <div class="container" data-aos="fade-up">



      <div class="section-title">

        <h2>Pricing</h2>

        <p>The pricing for Tata Power Stocks Analytics Dashboard is designed to be affordable and accessible to all investors, regardless of their experience level or budget.We believe that our pricing model is fair and equitable. We want to make sure that all investors have the opportunity to benefit from our powerful Tata Power stock analysis tools.</p>

        <p>We are confident that you will find that Tata Power Stocks Analytics Dashboard is worth the investment. It is the best Tata Power stock analysis tool on the market, and it can help you make better investment decisions and make more money.</p>

      </div>

      <div class="row">

        <div class="col-lg-4" data-aos="fade-up" data-aos-delay="100">

          <div class="box">

            <h3>Free Plan</h3>

            <h4><sup>Rs</sup>0<span>per month</span></h4>

            <ul>

              <li><i class="bx bx-check"></i> Real-time Tata Power stock prices and historical trends</li>

              <li><i class="bx bx-check"></i> Fundamental analysis of Tata Power stock</li>

              <li><i class="bx bx-check"></i> Technical analysis of Tata Power stock</li>

            </ul>
```

```
        <a href="#" class="buy-btn">Get Started</a>
       </div>
      </div>

      <div class="col-lg-4 mt-4 mt-lg-0" data-aos="fade-up" data-aos-delay="200">
       <div class="box featured">
        <h3>Business Plan</h3>
        <h4><sup>Rs</sup>1200<span>per month</span></h4>
        <ul>
         <li><i class="bx bx-check"></i> All of the features of the free plan, plus:</li>
         <li><i class="bx bx-check"></i> Custom watchlists for Tata Power stock</li>
         <li><i class="bx bx-check"></i> Alerts for Tata Power stock price targets</li>
         <li><i class="bx bx-check"></i> Advanced charting tools</li>
         <li><i class="bx bx-check"></i> Access to a team of experts for support</li>
        </ul>
        <a href="#" class="buy-btn">Get Started</a>
       </div>
      </div>
     </div>
    </div>
  </section><!-- End Pricing Section -->

  <!-- ======= Contact Section ======= -->
  <section id="contact" class="contact">
   <div class="container" data-aos="fade-up">

    <div class="section-title">
```

```
 <h2>Contact Us</h2>

</div>


<div class="row">


 <div class="col-lg-5 d-flex align-items-stretch">

  <div class="info">

   <div class="address">

    <i class="bi bi-geo-alt"></i>

    <h4>Location:</h4>

    <p>VIT-AP University, G-30, Inavolu, Beside AP Secretariat Amaravati, Andhra Pradesh (522237)</p>

   </div>


   <div class="email">

    <i class="bi bi-envelope"></i>

    <h4>Email:</h4>

    <p>info1@tpsa.com</p>

    <p>info2@tpsa.com</p>

   </div>

   <div style="max-width:100%;list-style:none; transition:
none;overflow:hidden;width:500px;height:500px;"><div id="my-map-display" style="height:100%;
width:100%;max-width:100%;"><iframe style="height:75%;width:100%;border:0;" frameborder="0"
src="https://www.google.com/maps/embed/v1/place?q=VIT+AP+CAMPUS,+Amaravati,+Andhra+Pradesh,+Ind
ia&key=AIzaSyBFw0Qbyq9zTFTd-tUY6dZWTgaQzuU17R8"></iframe></div><a class="our-googlemap-code"
href="https://www.bootstrapskins.com/themes" id="authmaps-data">premium bootstrap
themes</a><style>#my-map-display img{max-height:none;max-
width:none!important;background:none!important;}</style></div>

  </div>


</div>
```

```
<div class="col-lg-7 mt-5 mt-lg-0 d-flex align-items-stretch">
  <form action="forms/contact.php" method="post" role="form" class="php-email-form">
    <div class="row">
      <div class="form-group col-md-6">
        <label for="name">Your Name</label>
        <input type="text" name="name" class="form-control" id="name" required>
      </div>
      <div class="form-group col-md-6">
        <label for="name">Your Email</label>
        <input type="email" class="form-control" name="email" id="email" required>
      </div>
    </div>
    <div class="form-group">
      <label for="name">Subject</label>
      <input type="text" class="form-control" name="subject" id="subject" required>
    </div>
    <div class="form-group">
      <label for="name">Message</label>
      <textarea class="form-control" name="message" rows="10" required></textarea>
    </div>
    <div class="my-3">
      <div class="loading">Loading</div>
      <div class="error-message"></div>
      <div class="sent-message">Your message has been sent. Thank you!</div>
    </div>
    <div class="text-center"><button type="submit">Send Message</button></div>
  </form>
```

```
        </div>

       </div>

     </div>

   </section><!-- End Contact Section -->


  </main><!-- End #main -->


  <div id="preloader"></div>

  <a href="#" class="back-to-top d-flex align-items-center justify-content-center"><i class="bi bi-arrow-up-short"></i></a>


  <!-- Vendor JS Files -->

  <script src="static/assets/vendor/aos/aos.js"></script>

  <script src="static/assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>

  <script src="static/assets/vendor/glightbox/js/glightbox.min.js"></script>

  <script src="static/assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>

  <script src="static/assets/vendor/swiper/swiper-bundle.min.js"></script>

  <script src="static/assets/vendor/waypoints/noframework.waypoints.js"></script>

  <script src="static/assets/vendor/php-email-form/validate.js"></script>


  <!-- Template Main JS File -->

  <script src="static/assets/js/main.js"></script>


</body>


</html>
```

Python Code-

```
from flask import Flask,render_template,request

app=Flask(__name__)

@app.route('/')
def helloworld():
    return render_template("index.html")

if __name__=='__main__':
    app.run(debug=False)
```

13.2)GitHub and Project Demo Link-

https://github.com/smartinternz02/SI-GuidedProject-587792-1696999597