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

Date	24 October 2023
Team ID	Team-591245
Project Name	Project On Tata Power Stock Analysis
Team members	Yalamuri Sandhya (Team_Leader) Kollu Hasrutha Harsha Vardhan Janardhanapuram M U DARSHAN

Technical Architecture:

The technical architecture for the Tata Power Stock Analysis project consists of several components:

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.	Data Ingestion Service	Fetch historical stock data from external sources and store it in a data storage system.	Python scripts, REST APIs, Data Storage
2.	Data Processing and Analysis Module	Handle data preprocessing, cleaning, and analysis using libraries like Pandas, Matplotlib, and NumPy.	Python, Pandas, Matplotlib, NumPy
3.	Machine Learning Module	Train machine learning models for stock price prediction and analysis.	Python, Scikit-Learn, TensorFlow/PyTorch
4.	User Interface (Optional)	A user-friendly web interface that allows users to interact with the system, visualize data, and receive stock analysis reports.	HTML, CSS, JavaScript, React/Angular, Backend (Node.js, Django, Flask
5.	Relational Database	Data storage for structured data related to the project.	PostgreSQL/MySQL
6.	Time-Series Database	Data storage for time-series data, such as historical stock prices.	InfluxDB
7.	External Data APIs	External data sources for fetching real-time or historical stock data from sources like Alpha Vantage or Yahoo Finance.	REST APIs, Python libraries for API integration
8.	Version Control System	Manages code versioning, collaboration, and tracks changes in the project	Git (Version Control)
9.	Cloud Infrastructure	Deploy and scale the application on cloud platforms like AWS, Azure, or Google Cloud.	AWS, Azure, Google Cloud, Docker, Kubernetes
10.	Security Measures	Implementation of security practices to protect user data and financial information, including HTTPS and authentication/authorization mechanisms	HTTPS, Authentication/Authorization

Table-2: Application Characteristics:

S.No	Nature	User Interaction	Data Storage	Data Sources	Machine Learning	Deployment	Security Measures
1	Data-driven	Web Interface	Relational databases for structured data and time-series databases	External data APIs, e.g., Alpha Vantage or Yahoo Finance, for real-time and historical stock data	Python-based libraries for ML	Cloud Infrastructure (AWS, Azure, Google Cloud)	HTTPS, Authentication/Authorization Mechanisms
2	Stock Analysis	Data Visualization			(Scikit-Learn, TensorFlow/PyTorch)		
3	Financial Insights						

This tabular representation provides a clear and structured overview of the components, technologies, and application characteristics for the "Project On Tata Power Stock Analysis." You can use this format for documentation or presentation purposes.

By

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