AngularFrontend

login()
register()
viewPortfolio()
trackStocks()

"Makes API calls through"

GatewayService

routeRequest(endpoint)
authenticateRequest(token)
authorizeRequest(userRole)

"Routes user-related requests"

"Routes stock-related requests"

"Routes portfolio-related requests"

UserService

registerUser(userDetails)
loginUser(credentials)
getUserProfile(userId)
updateUserProfile(userId, updatedDetails)

StockService

getStockData(symbol)
getHistoricalData(symbol)
addStockToWatchlist(userId, symbol)
removeStockFromWatchlist(userId, symbol)

PortfolioService

createPortfolio(userId, portfolioDetails)
addStockToPortfolio(userId, portfolioId, stockDetails)
removeStockFromPortfolio(userId, portfolioId, stockId)
getPortfolioPerformance(userId, portfolioId)
analyzeRisk(userId, portfolioId)

"Fetches stock data from"

ExternalAPI

fetchStockData(symbol)
fetchHistoricalData(symbol)

portfolio_stocks

id	integer
portfolio_id	integer NN
stock_id	integer NN
quantity	integer NN
purchase_price	decimal(10,2) NN
purchase_date	timestamp

users

id	integer
fullname	varchar
username	varchar NN
password	varchar NN
email	varchar NN
created_at	timestamp
phone_No	integer
address	varchar
dob	timestamp

portfolios

id	integer
user_id	integer NN
created_at	timestamp
balance	double
returns	double

stock_data

id	integer
stock_id	integer NN
data_date	date NN
open_price	decimal(10,2)
high_price	decimal(10,2)
low_price	decimal(10,2)
close_price	decimal(10,2)
volume	integer

stocks

id	integer
symbol	varchar NN
name	varchar NN
current_price	decimal(10,2) NN
last_updated	timestamp
returns	double
holdings	double
pp24h	double

dbdiagram.io

BUSINESS REQUIREMENTS DOCUMENT

Project Name: Stock Market Management & Risk Analysis

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1. Executive Summary

The Stock Market Analysis and Risk Management platform aims to provide a comprehensive solution for investors to analyze and manage their investments effectively. The platform will offer real-time market data, advanced analytics, and risk management tools to help users make informed investment decisions. The solution will cater to individual investors, financial advisors, and institutional investors, providing a user-friendly interface and personalized experience.

2. Project Scope

The project will develop a web-based platform for stock market analysis and risk management, featuring:

- Real-time market data and news feeds
- Advanced analytics and charting tools
- Risk management and portfolio optimization capabilities.
- Personalized dashboards and customizable alerts
- Integration with popular financial platforms and tools
- Multilingual support and responsive design for desktop and mobile devices

The project will exclude functionalities such as:

- Trading and execution capabilities
- Advanced machine learning and AI-powered analytics
- Integration with social media platforms

3. Business Objectives

- **Enhance Investment Decision-Making**: Provide users with accurate and timely market data, analytics, and risk management tools to make informed investment decisions.
- **Improve User Experience**: Offer a user-friendly and personalized platform that caters to diverse user needs and preferences.
- **Increase Customer Acquisition and Retention**: Attract and retain users by providing a comprehensive and reliable platform for stock market analysis and risk management.
- **Reduce Operational Costs**: Minimize manual effort and errors by automating data processing, analytics, and risk management.

4. Stakeholders

- **Primary Users**: Individual Investors, Financial Advisors, Institutional Investors
- **Secondary Users**: Portfolio Managers, Risk Managers, Compliance Officers
- **Development Team**: Jahnavi Latha, Arjun Vinod.

5. Use Cases/User Stories

- As an individual investor, I want to access real-time market data and news feeds, so I can stay informed about market trends and make timely investment decisions.
- As a financial advisor, I want to use advanced analytics and risk management tools, so I can provide personalized investment advice to my clients.
- As an institutional investor, I want to optimize my portfolio using the platform's risk management capabilities, so I can minimize potential losses and maximize returns.
- As a user, I want to customize my dashboard and alerts, so I only receive relevant information and notifications.

6. Assumptions and Dependencies

- Users have basic knowledge of financial markets and investment concepts.
- The platform will be compatible with common web browsers and mobile operating systems.
- There may be dependencies on third-party data providers, APIs, or libraries for features like real-time market data and analytics.
- The platform will adhere to relevant financial regulations and standards.

7. Project Constraints

- The project must be completed within a timeframe of 1 month.
- The platform must support a minimum of 1,000 concurrent users.
- Limited availability of development resources may impact timelines.
- The platform must ensure data security and compliance with relevant financial regulations.

FUNCTIONAL REQUIREMENTS DOCUMENT

Project Name: Stock Market Management & Risk Analysis

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1. Introduction

This document outlines the functional and non-functional requirements for the Stock Market Management and Risk Analysis project. The system will provide users with a robust toolset to analyze market trends, identify potential risks, and make informed investment decisions.

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2. Functional Requirements

2.1 Stock Data

Requirement: Users should be able to find trending stocks, stock by id and all available stocks
Details:

- **Trending Stocks**: Users can find the trending Stocks directly in the platform, by providing easy access to the user.
- **Stocks Available**: The platform provides a comprehensive list of all available stocks, allowing users to browse and explore different stock options.
- **Specific Stocks:** The platform allows users to search for specific stocks by their IDs, names, or other relevant criteria, and providing detailed information about each stock, including its current price, trading volume, and other key metrics.

2.2 Portfolio

Requirement: Users should be able to create, view, update, and delete portfolios, as well as manage stocks, assess risks and check portfolio performance within a portfolio.
Details:
- **Create Portfolio**: Users can create a new portfolio by providing a name and other relevant details.
- **View Portfolio**: Users can view a list of all their portfolios, including the portfolio name, creation date, and other relevant information.
- **Update Portfolio**: Users can update an existing portfolio by changing its name, description, or other details.
- **Delete Portfolio**: Users can delete a portfolio, which will remove all associated stocks and transactions.
- **Risk Assessmen**t: Analyzes user portfolios and market data to identify potential risks, such as market volatility, credit risk, and liquidity risk.
- **Portfolio Performance:** Analyzes user portfolio and validates performance of the portfolio.

2.3 User

Requirement: Users should be able to register, log in, and view their profile information.
Details:

- **Register**: Users can create a new account by providing required information such as username, password, email, and other details.
- **Log In**: Users can log in to their account using their username and password.
- **View Profile**: Users can view their profile information, including their username, email, and other relevant details.

2.4 News Section

Requirement: A section for news updates is required.
Details:

- **News Data**: Provide a centralized area for news, updates, and announcements relevant to stocks.

2.5 Video Resources

Requirement: Users should be able to search for stock-related videos to enhance their stock market analysis and risk management experience.

Details:

- **Video Search**: Users can search for videos related to specific stocks, companies, or market trends using keywords, tags, or categories.

3. Non-Functional Requirements

3.1 Usability

Requirement: The stock market analysis and risk management platform must be user-friendly and intuitive for all users.

Details:

- **Intuitive Interface**: Designed for ease of use, ensuring both novice and experienced investors can navigate effortlessly through the platform's features, including video search and analysis tools.
- **Personalized Experience**: Offers customizable dashboards and layouts to cater to individual user preferences and investment strategies.

3.2 Performance

Requirement: The platform must perform efficiently under all conditions, ensuring timely and accurate analysis and risk management.
Details:

- **Real-Time Data Processing**: Handles large volumes of real-time market data, news, and analytics to provide users with up-to-date insights and recommendations.
- **Fast Search and Retrieval**: Enables quick search and retrieval of relevant videos, news, and analysis to support timely investment decisions.
- **Low Latency**: Ensures minimal delay between user input and system response, even during peak usage periods.

3.3 Reliability

Requirement: The platform should ensure maximum uptime and dependability, even in the face of market volatility and high user activity.
Details:

- **High Availability**: Robust infrastructure to minimize downtime, particularly during critical market events and trading hours.
- **Fault Tolerance**: Designed to withstand hardware or software failures, ensuring continuous operation and data integrity.
- **Regular Backups**: Schedules regular backups of user data and analysis to prevent data loss in the event of system failures.

3.4 Scalability

Requirement: The platform must be scalable to accommodate growth in user base, data volume, and analytical complexity.
Details:

- **Horizontal Scaling**: Capable of adding more servers or nodes to handle increased user traffic and data processing demands.
- **Vertical Scaling**: Supports upgrading of existing infrastructure to improve processing power, memory, and storage capacity.
- **Cloud-Based Architecture**: Leverages cloud computing to provide on-demand scalability and flexibility.

3.5 Security

Requirement: The platform must ensure the confidentiality, integrity, and availability of user data and analysis.
Details:

- **Data Encryption**: Encrypts user data, both in transit and at rest, to protect against unauthorized access and data breaches.
- **Access Control**: Implements role-based access control, ensuring that users only have access to features and data relevant to their needs and permissions.
- **Regular Security Audits**: Conducts regular security audits and penetration testing to identify and address vulnerabilities.

3.5 Interoperability

Requirement: The platform must integrate seamlessly with other financial systems, tools, and platforms.
Details:

- **API Integration**: Provides APIs for integration with popular financial platforms, such as trading platforms, portfolio management tools, and financial news services.
- **Data Import/Export**: Supports import and export of data in various formats, including CSV, JSON, and XML, to facilitate integration with other systems.
- **Third-Party Integration**: Allows integration with third-party services, such as news providers, data analytics firms, and risk management platforms.

4. Tech Stack

1. Front End

- HTML
- CSS
- JavaScript
- TypeScript
- Angular

2. Back End

- Java
- Spring Boot

3. Database

- MySQL

LOGO
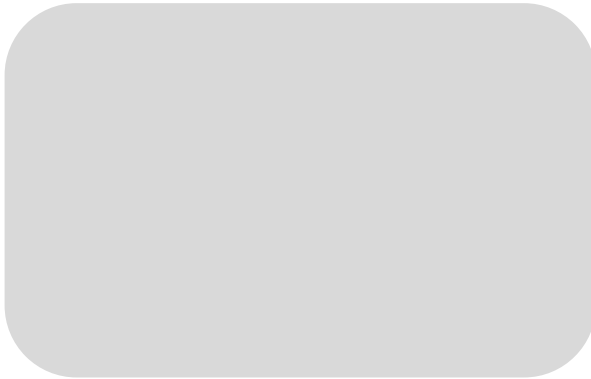
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My Portfolios

Top Cryptocurrency

Trending Stocks
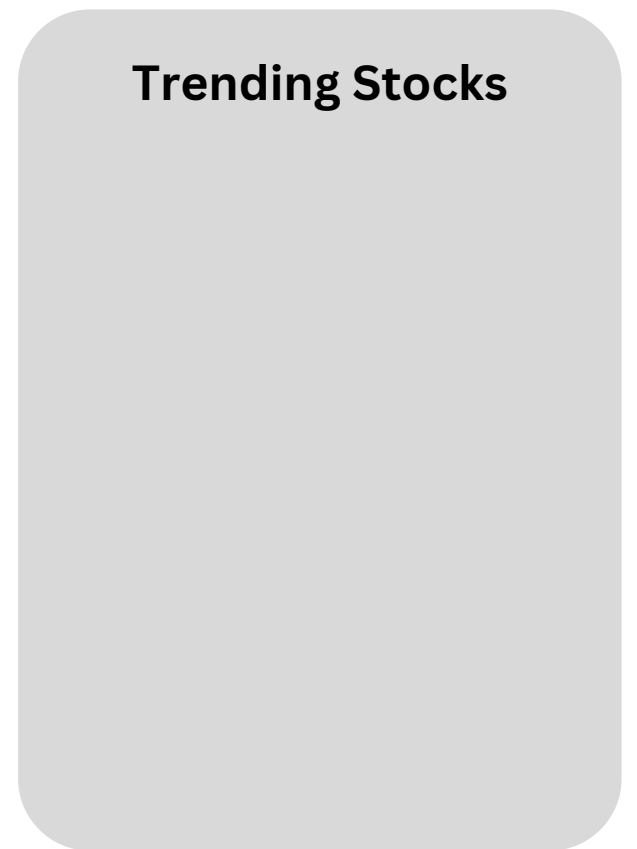
LOGO

Today's Prices By Market Cap
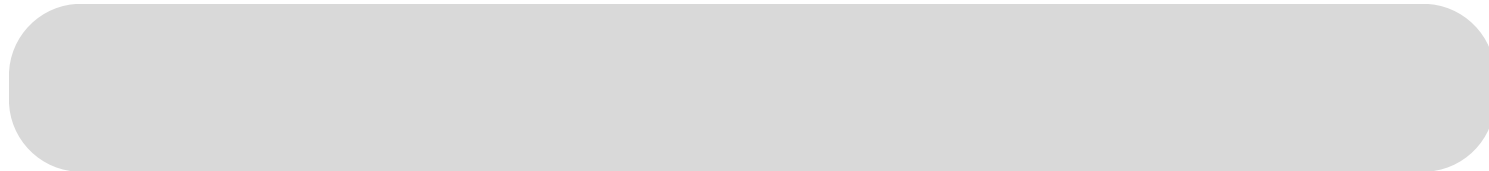
My Portfolios +

Portfolio 1

Portfolio 2

Portfolio 3

LOGO

Latest Cryptocurrency News
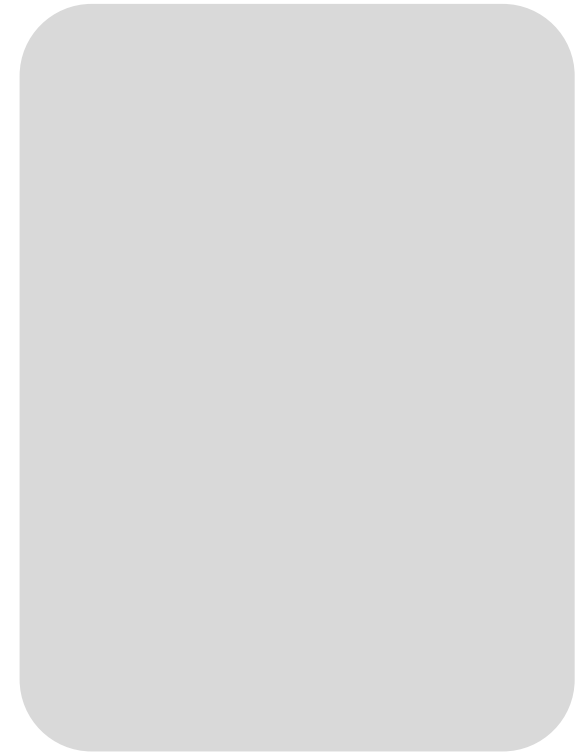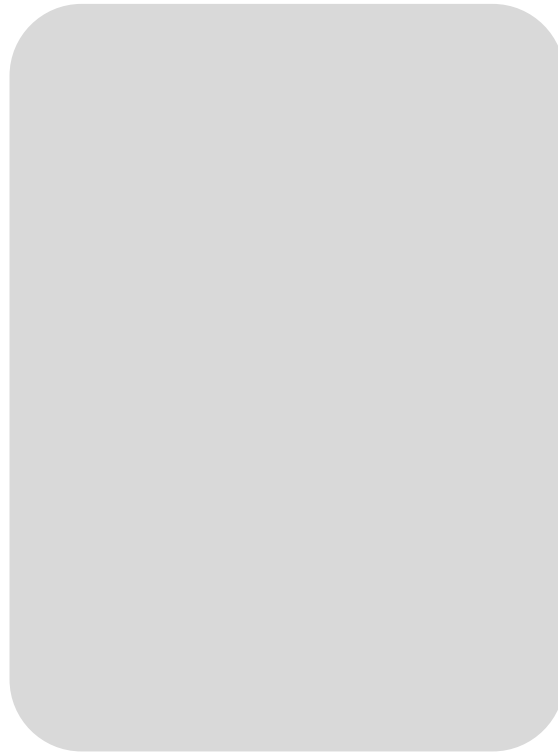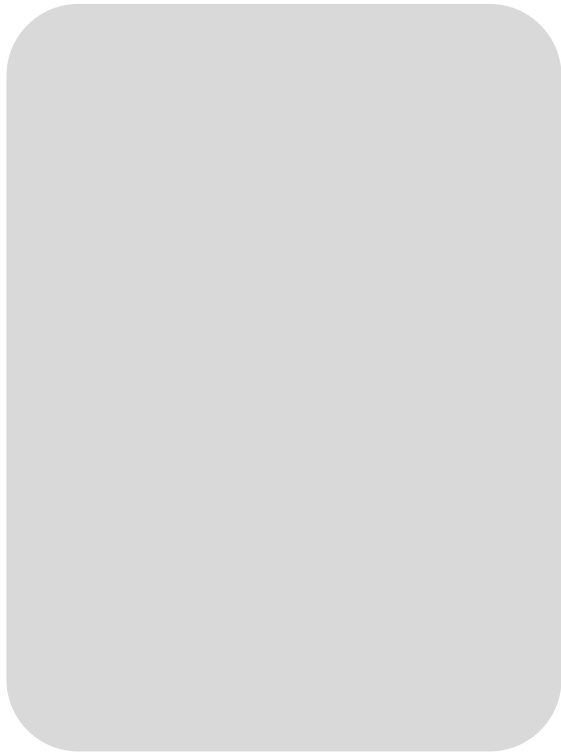
LOGO

Coin Logo

Bitcoin

Price: $65,823.00
Market Cap: 1,300,766,609,137
Total Volume: 29,237,708,773
High 24h: $66,439.00
Low 24h: $64,783.00
Price Change Percentage 24h: 1.6053%

Portfolio 1

Type

Buy Stock

Select Stock

Quantity

Buy Stock

Sell Stock

Select Stock

Quantity

Sell Stock

Date	Type	Quantity	Amount	Total Amount