Team Details
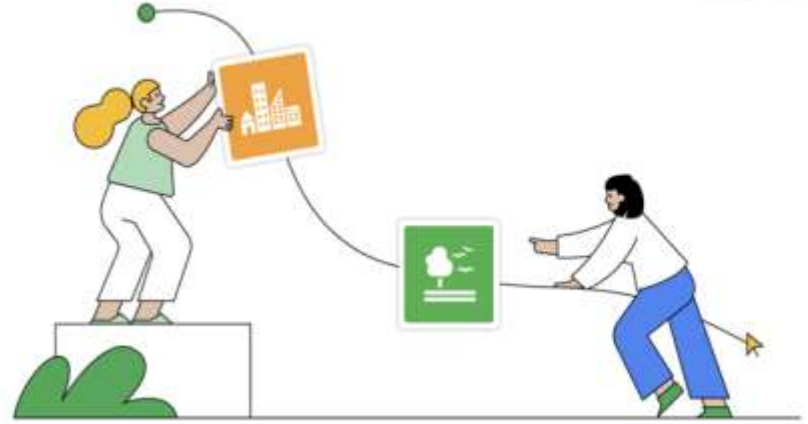
a. **Team name:** **Ascenders**
b. **Team leader name:** **Priyanshu Kumar**
c. **Problem Statement:** "**GenAI-Powered Financial Assistant for Better Investing Decisions**".

<u>Brief about your solution:-</u>

The **GenAI-Powered Financial Assistant** is an intelligent investment advisor that leverages **Google Gemini API** and AI-driven analytics to help users make informed investment decisions. It provides personalized market insights, risk assessment, and portfolio recommendations based on real-time data.

Key Features

✅ **AI-Powered Market Analysis** – Uses Gemini API to analyse stock trends, economic indicators, and financial news.

✅ **Personalized Investment Recommendations** – Suggests stocks, mutual funds, and assets based on user risk profiles.

✅ **Real-Time Alerts & Notifications** – Sends updates on market fluctuations, portfolio performance, and trade signals.

✅ **Portfolio Management** – Tracks investments, calculates returns, and suggests rebalancing strategies.

✅ **Regulatory Compliance Checker** – Ensures investment decisions align with financial regulations (SEBI, RBI, GDPR).

✅ **Conversational AI Chatbot** – Provides financial guidance using natural language queries.

📌 **Opportunities**
- Rising demand for **AI-driven financial advisory** solutions
- **Retail investors lack real-time, personalized insights**
- Need for **risk-aware investing & automated compliance monitoring**
- Increasing complexity in **market analysis & regulatory adherence**

📌 **How It Solves the Problem**

✓ **AI-Powered Market Insights** – Uses **Google Gemini API** for real-time stock analysis & sentiment detection

✓ **Personalized Investment Strategies** – AI dynamically adjusts **risk-based asset allocation**

✓ **Conversational AI Guidance** – Chatbot & voice assistant simplify **complex financial concepts**

✓ **Automated Risk & Compliance Checks** – Ensures **SEBI, RBI, GDPR compliance**

✓ **Real-Time Alerts & Notifications** – Proactive updates on **market fluctuations & portfolio performance**

📌 **What Makes It Different? (USP)**

🚀 **AI-Driven Risk Profiling** – Adapts to changing market trends

🚀 **GenAI Conversational Assistant** – Provides **intuitive investment guidance**

🚀 **Real-Time Investment Insights** – AI-generated **text, charts & audio summaries**

🚀 **Automated Portfolio Optimization** – Smart asset allocation for **maximum returns**

🚀 **Regulatory Compliance Integration** – **Reduces legal risks** with automated checks

List of features offered by the solution:-

1. Stock Price Prediction 📈
- Uses **LSTM (Long Short-Term Memory)** and **XGBoost** models to forecast stock prices.
- Predicts **short-term** and **long-term** price movements.

2. Market Trend Analysis 📊
- Identifies **bullish** and **bearish** trends.
- Uses **technical indicators** like **Moving Averages, RSI, MACD**.

3. Sentiment Analysis 📰
- Analyzes **financial news & social media** (Twitter, Reddit) to detect market sentiment.
- Uses **NLP models (BERT, GPT-3)** to predict stock movement based on news.

4. Risk Assessment & Portfolio Optimization 📉
- Suggests **low-risk & high-return** stock combinations.
- Uses **Modern Portfolio Theory (MPT)** for diversification.

5. Real-time Data Streaming ⚡
- Fetches real-time stock data via **Yahoo Finance API / Alpha Vantage**.
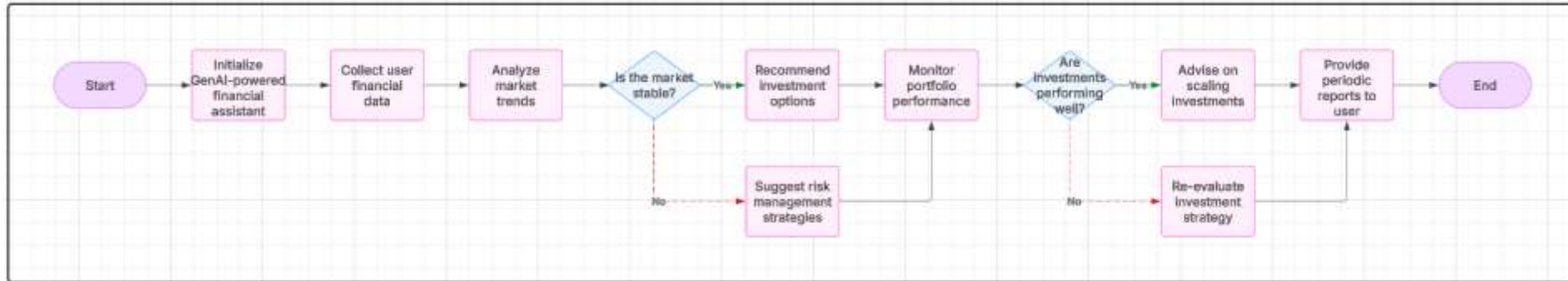- Provides **live stock alerts** for potential trades.

6. AI-Powered Trading Bot 🤖 *(Optional)*
- Recommends or **automates buy/sell decisions** using **Reinforcement Learning**.
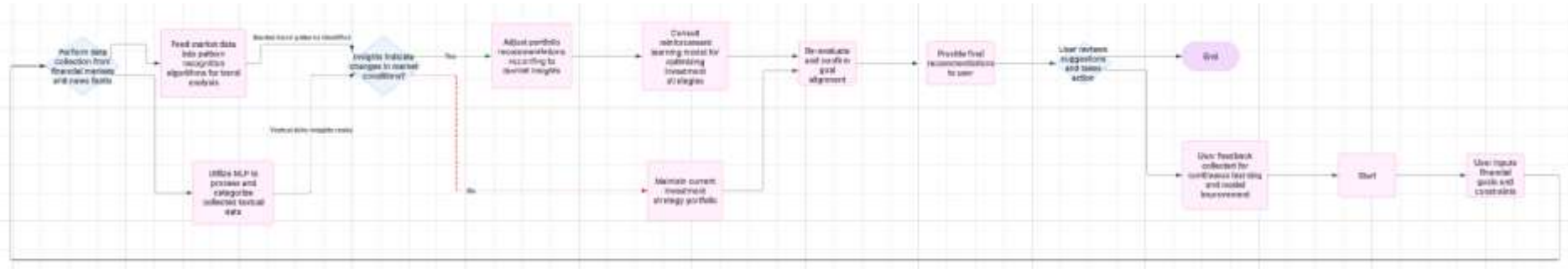- Integrates with brokerage APIs (e.g., **Zerodha Kite API, Alpaca**).

7. Interactive Visualization & Insights 📌
- Uses **Plotly, Matplotlib, Power BI** to display **charts & heatmaps**.
- Shows **historical performance** & predicted trends.

Process flow diagram or Use-case diagram

Architecture diagram of the proposed solution

Technologies to be used in the solution

(Additional points for those who are:
- Building their project on IDX
- Integrating Gemini APIs)

I. Data Collection & Preprocessing

•Yahoo Finance API / Alpha Vantage – Fetch historical stock market data.

•Pandas & NumPy – Data manipulation and numerical computations.

•Scikit-learn – Data preprocessing (scaling, feature selection, etc.)

II. Machine Learning & Deep Learning

•TensorFlow / PyTorch – Building deep learning models.

•LSTM (Long Short-Term Memory) – Time series prediction.

•XGBoost / Random Forest – Alternative ML models for trend prediction.

•Reinforcement Learning – Optimizing trading strategies.

•Stock prediction - **Integrating Gemini APIs.**

III. Cloud & Deployment

•Google Cloud Platform / AWS – Hosting AI models and databases.

IV. AI Chat boat

• . **Dialog flow Api**

V. FRONT END AND BACKEND

• HTML, CSS , JS.

Snapshots of the MVP

Agent

USER SAYS   COPY CURL

hi

🔶 DEFAULT RESPONSE   ▼

Hello! How can I help you?

Agent

USER SAYS   COPY CURL

tell me abot stock market

🔶 DEFAULT RESPONSE   ▼

Would you like to see a list of top-performing
stocks this month?

Agent

USER SAYS   COPY CURL

cgoc

🔶 DEFAULT RESPONSE   ▼

One more time?

Provide links to your:

1. GitHub Public Repository [GitHub link](#)
2. Demo Video Link (3 Minutes) [Video link](#)
3. MVP Link [MVP link](#)

Solution Challenge

Thank you