Sumedh Anuganti
Prudhvi Kodali
Pratyush Saxena
Winston Wang

# StockBot
## AI–Based Form 4 Filing Interpretations for Improved Stock Market Information Availability to Public
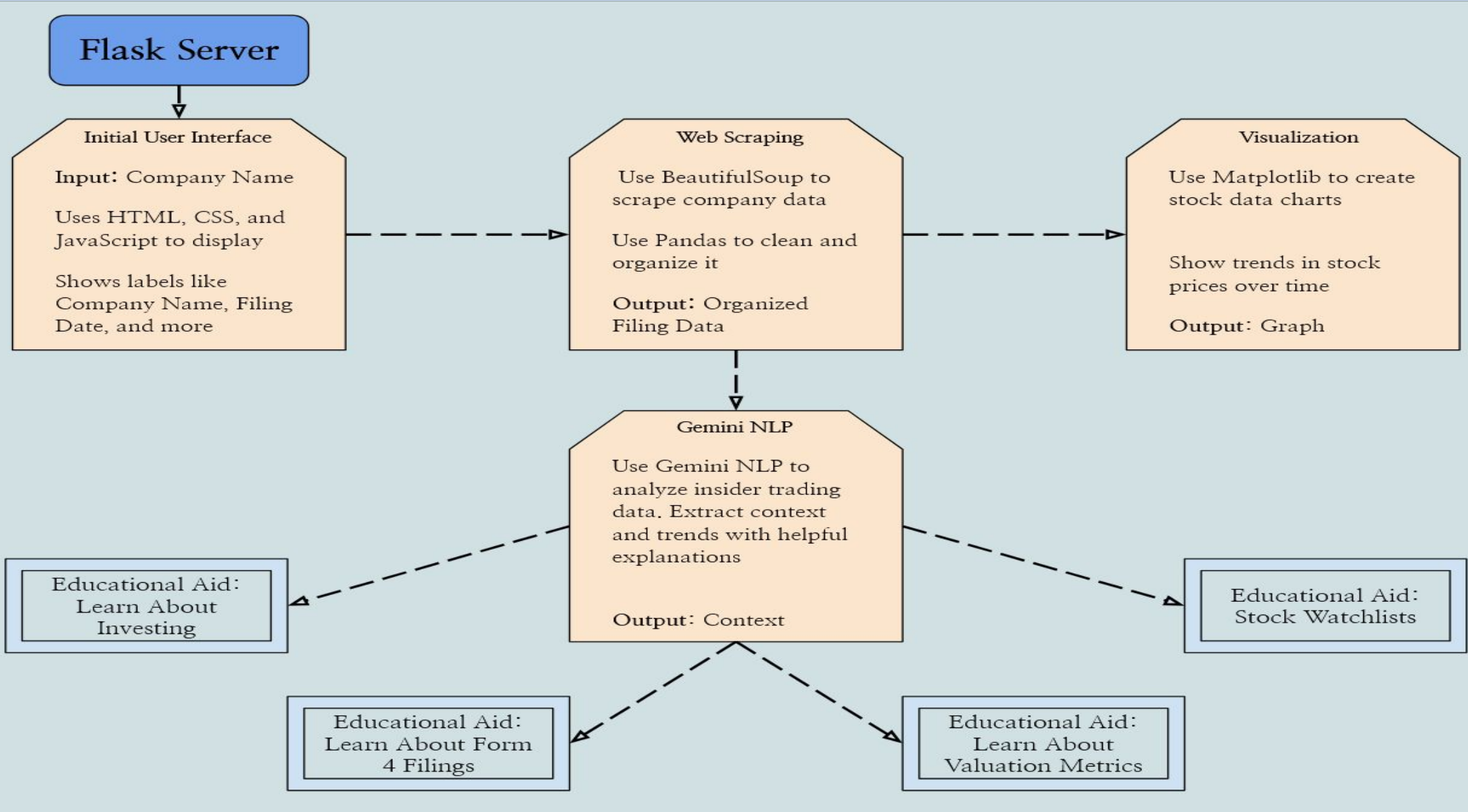
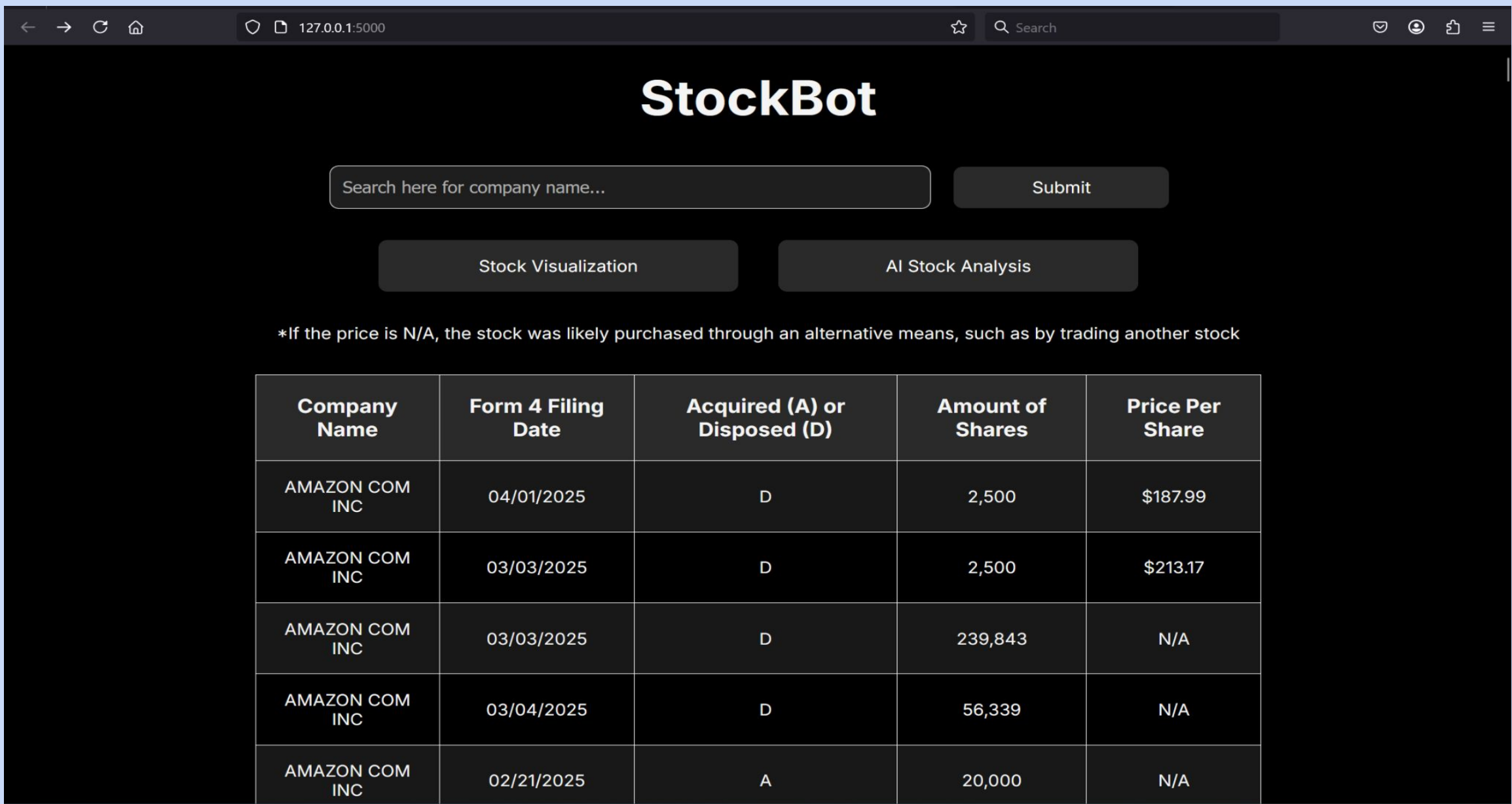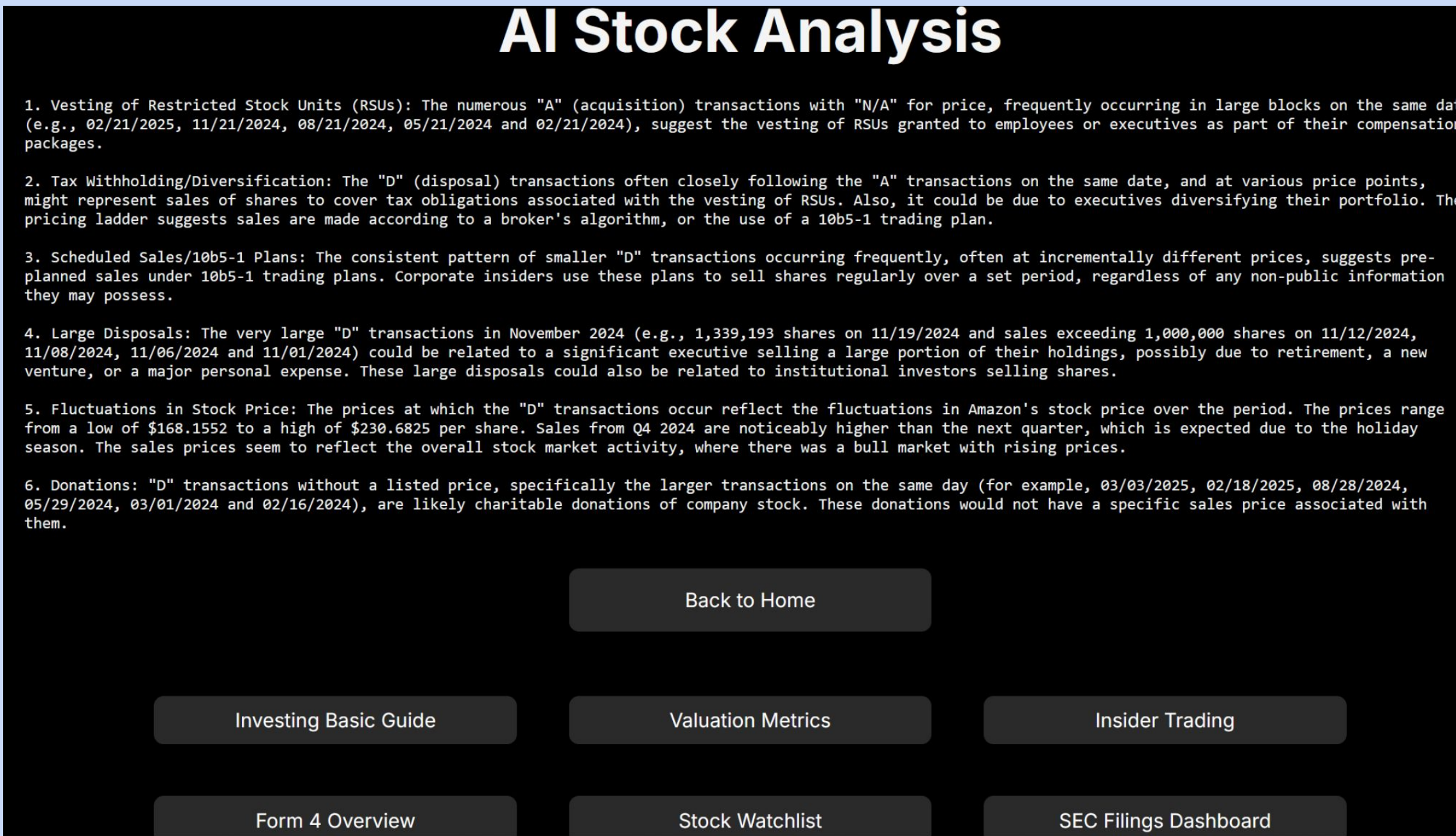Fig. 1: Systems Architecture



Fig. 2: User Interface



Fig. 3: Context Analysis

## Introduction

Interpreting insider trading data (changes in equity made by company insiders such as CFO's or CEO's) from SEC Form 4 filings is difficult for beginners due to the complexity of the filings and the lack of educational tools on major trading platforms. Our project addresses this gap by creating a beginner-friendly platform that simplifies insider trading information and explains its market impact.

## Novelty

Our platform stands out by using a narrative-driven approach to insider trading data, allowing users to go beyond raw numbers and understand the story behind insider trades. Unlike most stock platforms that overlook insider data or present it in overly technical terms, our system focuses on Form 4 filings and offers clear, beginner-friendly interpretations of insider equity changes.

## Methods

Our system is designed to analyze and present SEC Form 4 insider trading data in an intuitive and educational format. The Flask interface (Fig. 2) allows users to input a company name and view key filing details, including transaction dates, insider names, and trade volumes. Data is scraped from SEC EDGAR using BeautifulSoup, cleaned with Pandas, and structured for analysis. Matplotlib visualizations display stock price trends alongside insider activity, helping users spot correlations. To enhance knowledge, Gemini NLP (Fig. 3) generates plain-language insights, explaining the significance of trades (e.g., clusters of buys/sells) and flagging unusual patterns. The architecture (Fig. 1) integrates these components of scraping, processing, visualization, and NLP into a cohesive pipeline, ensuring both accuracy and accessibility. We turn raw SEC filings into actionable insights with contextual explanations, the system empowers novice investors to make informed decisions while learning fundamental trading concepts.

## Results

We successfully built a functional scraper to extract insider trading data and developed a web-based platform that visualizes stock filings and sentiment trends over time. The interface (Fig. 2) displays key information such as CEO trades, filing dates, and market cap. Additionally, the platform provides contextual insights (Fig. 3) and educational aids to help users better understand insider trading activity.

## Impact & Future Work

Our platform enables beginners to make smarter trading decisions by clearly explaining insider activity. By translating complex SEC filings into actionable insights, we help users spot meaningful patterns in executive trading behavior. Looking ahead, we plan to expand to other SEC forms like Form 3 and Form 5, improve personalization features, and launch a subscription service for real-time alerts and updates.