

Simplifying Complexity: Innovative Data Visualization Projects with Cutting-Edge Tools

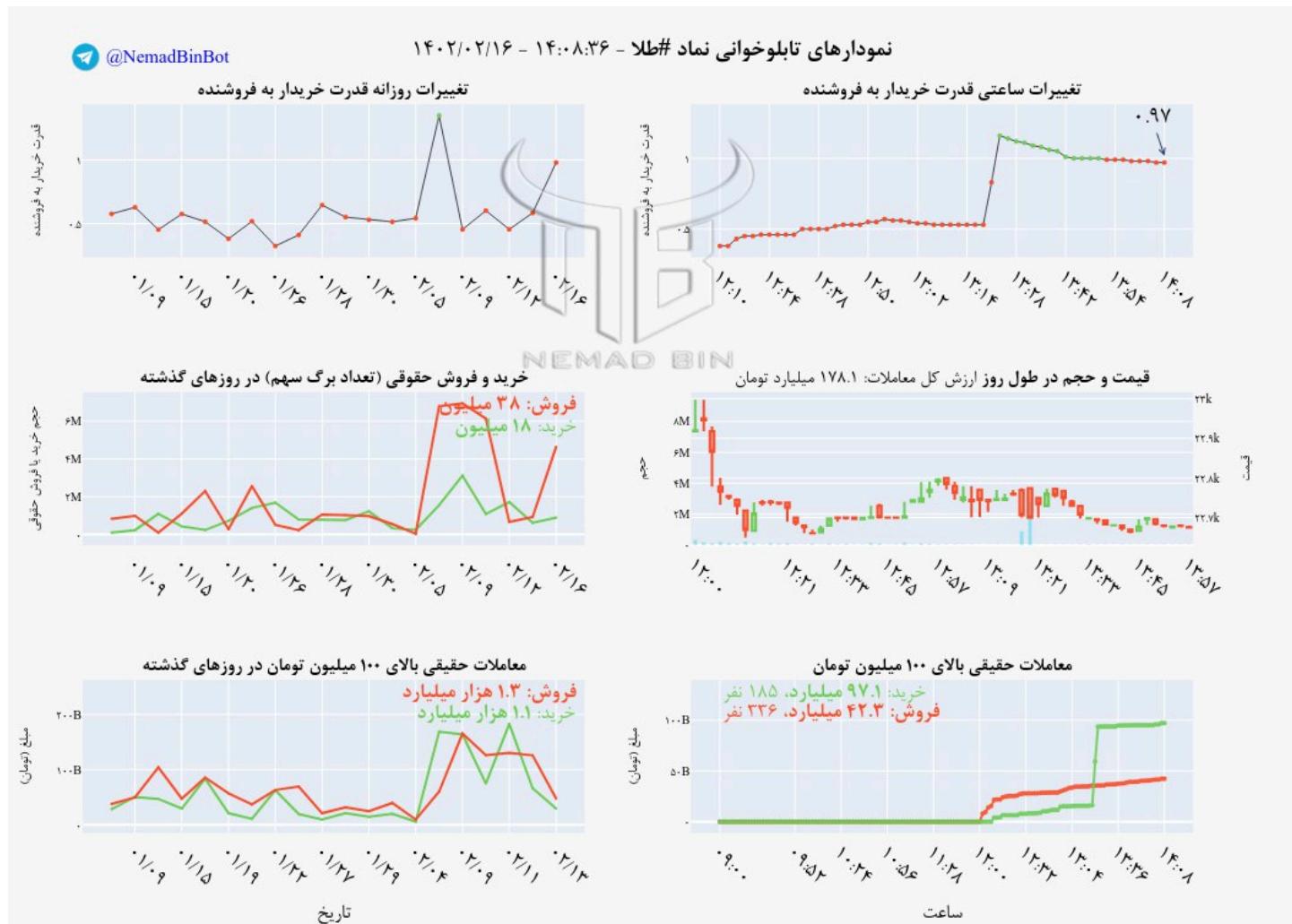
By: Hamid Mahmoodabadi

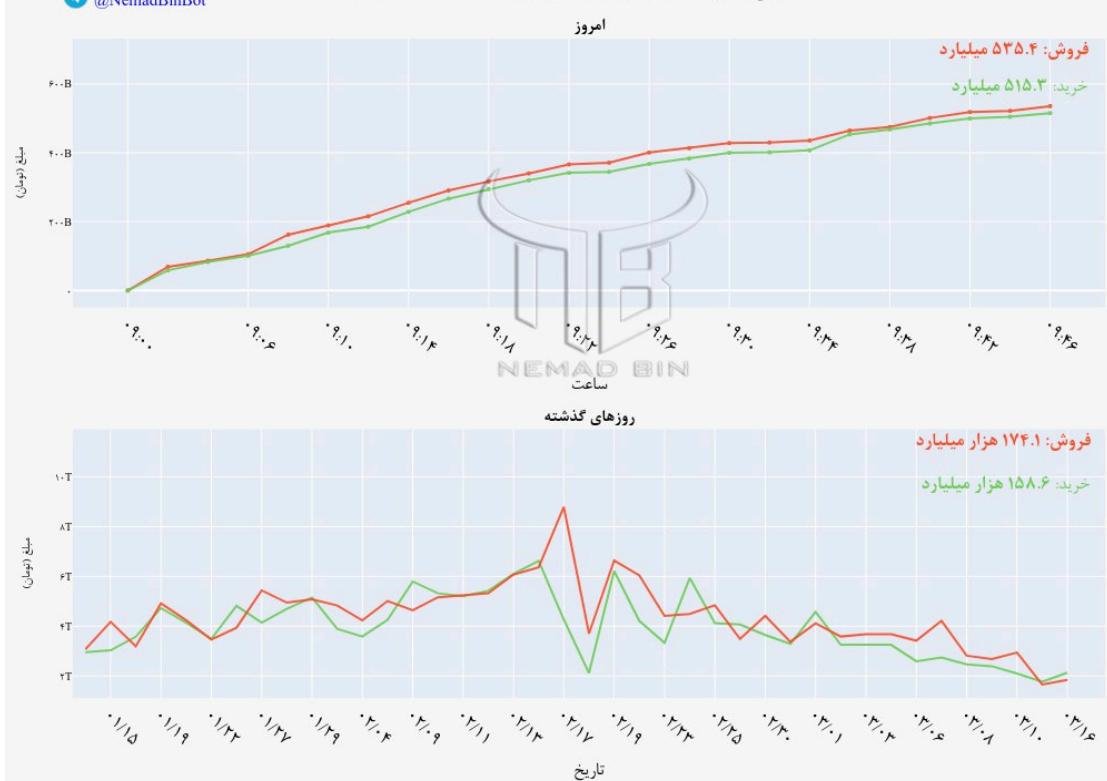
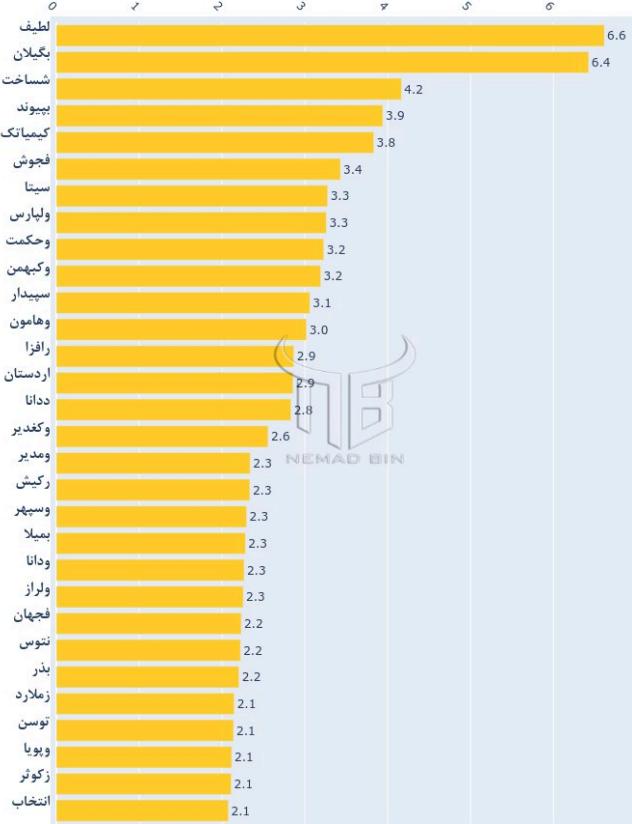
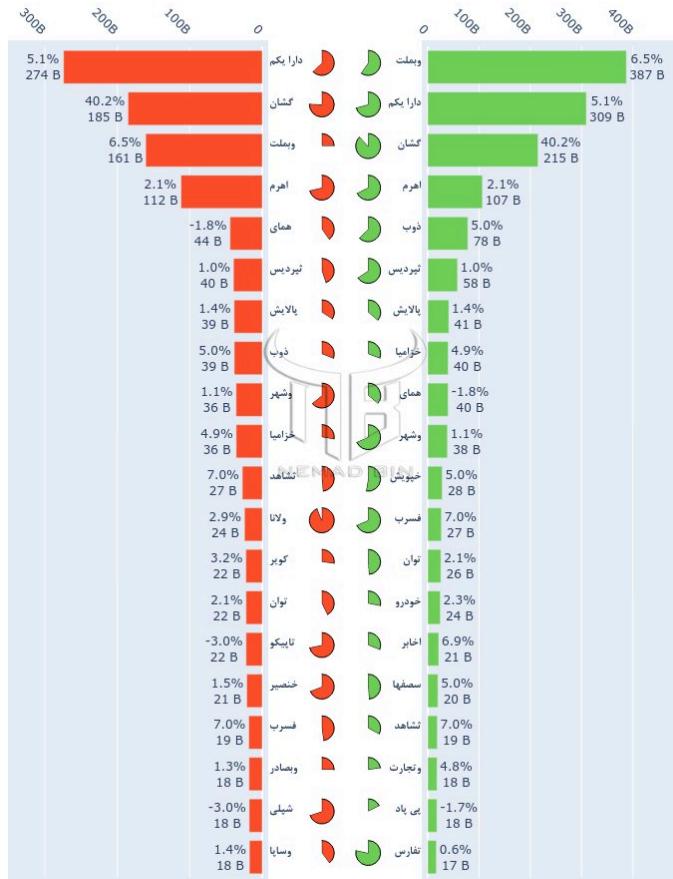
Project 1: NemadBin Bot

In this project, I developed a bot where users can access share analysis by simply searching the name of the share. What sets this project apart is its integration of natural language processing, enabling users to input queries in a conversational manner. The system then generates visual analysis based on the user's request. In fact, we used **Text to Query** techniques to extract meaningful information from user requests. This required the development of customized analytical tools, grounded in my expertise in data science and machine learning.

A multitude of visualization techniques were employed to provide users with a comprehensive understanding of the data, ranging from time series plots to distribution charts. Also, we utilized tools to handle **high velocity data** to overcome fast data issues. Please find screenshots attached that highlight some of the key visual elements utilized in this project. These plots are crucial in delivering actionable insights to users through intuitive and interactive representations.

Screenshots from visualizations that generated by the bot





Project 2: Real-Time Stock Market Monitoring Dashboard

Initially designed for the Securities and Exchange Organization of Iran (SEO of Iran), this dashboard was later adapted for public use due to its success in providing real-time, accessible insights into stock market movements. I leveraged Python's Dash package to create an interactive web application that not only conveys real-time data but also encourages user engagement through its intuitive design.

The dashboard incorporates a variety of visualization methods, including bar charts, line graphs, sunburst charts, and number cards. Each type of visualization serves a specific purpose, ensuring that users, whether they are professionals or laypeople, can glean valuable insights at a glance. Screenshots attached illustrate the dynamic interface and diverse visual elements of this dashboard.



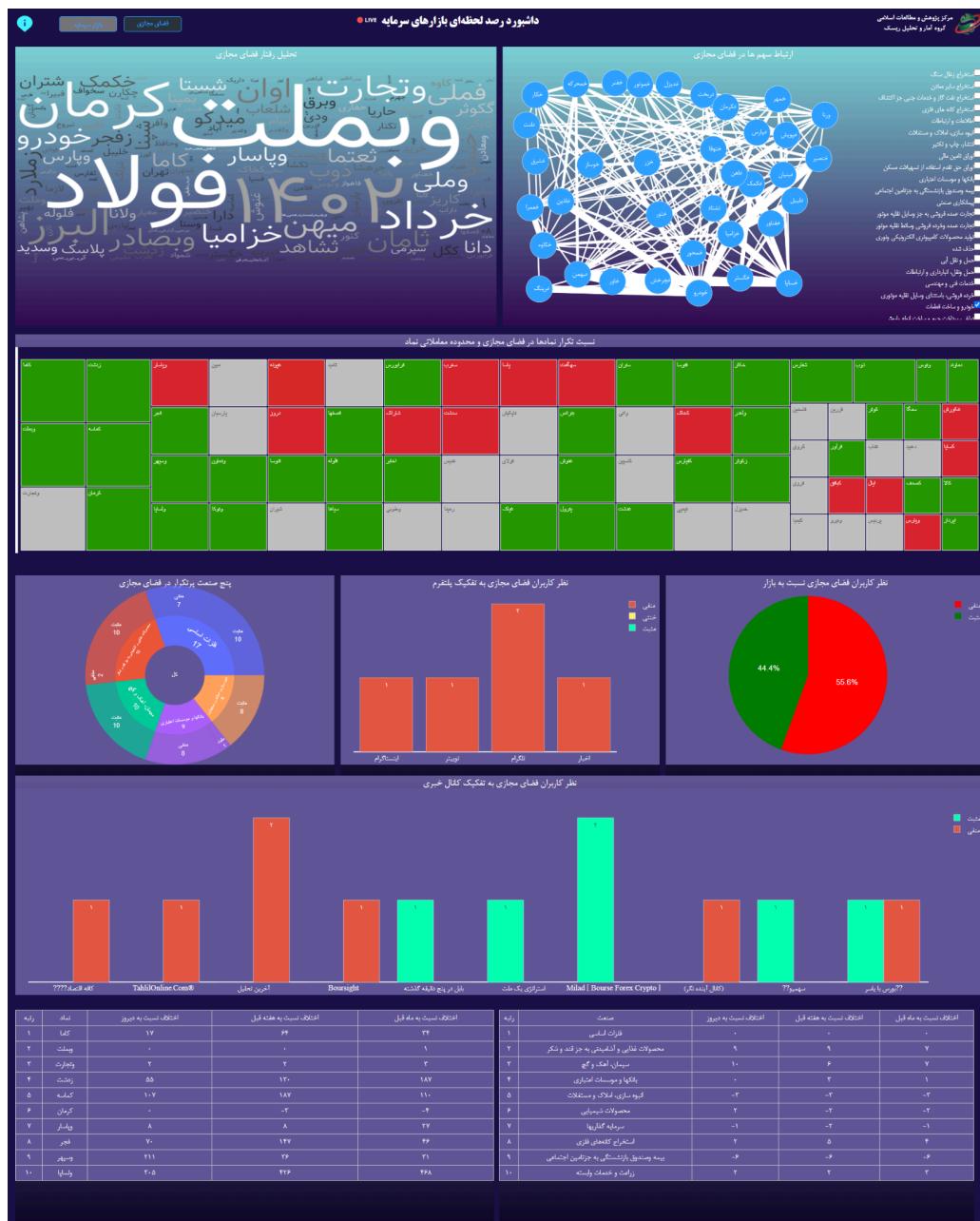


Project 3: Social Media Monitoring Dashboard

This project was designed for the SEO of Iran board members to offer real-time insights into social media trends relevant to the Iranian stock market. The dashboard pulls data from platforms such as Telegram, Instagram, and X (formerly Twitter) using an API service. Due to the **massive volume** of unstructured data, I implemented various models to analyze and extract meaningful insights from this complex dataset.

One of the core challenges was managing and interpreting the vast and often noisy data to ensure relevant content was presented to the board. I also developed a module to extract and categorize trending topics, which is an ongoing improvement to the dashboard. Version 1 and Version 2 of the dashboard, both of which include distinct sets of visualizations, have been attached as screenshots for your reference.

A screenshot of old version of Social Media Monitoring Dashboard Screenshot



Screenshot from new version of Social Media Monitoring Dashboard:

SocialMedia Analytics Dashboard
Platforms: telegram & twitter & instagram & sahamyab

دانلود نتایج بورسی بر اساس معیار انتخاب شده

دانلش مقدار نرمال شده

دانلش مقدار نرمال شده

دانلش نمادهای معاملاتی امروز

هشتگها و هیلات پوشاک

صفحات با بیشترین بازخورد کاربران

نام کاتال	تعداد اعضا	بازخورد کاربران	محتوای ایجاد شده
کال	۲۰,۹۴۱	۷۰,۹۴۲	۱۷۳
بن سهم	۱۲۴,۴۶۱	۵۰,۷۹۷	۳۸
خبرهای غردی مهم	۱,۱۶۹,۴۶۶	۳۰,۹۹۹	۷
بنزس سهام اندک خوش	۱۱۰,۹۱۶	۳۰,۳۲۲	۶۲
خبرهای غردی مهم	۱,۱۶۸,۱۲۲	۲۲,۴۲۰	۳
نور نوز	۱۹,۰۳۴	۵۲۲	۱
مهدهی کردی	۸,۶۶۲	۲۸۴	۲
Robati Mahdi	۱۴,۴۵	۳۹	۲
دلار طلا سکه خودرو	۲۲۱,۸۱۱	۴,۳۷۸	۱
ا؟ خوب خوب	۱,۱۶۸,۵۲۷	۲,۸۹۴	۱
ارومیه تکب	۱۱,۳۶۴	بورس تعامل	۱

میزان فعالیت کاربران در ساعات مختلف روز جاری

بازخورد کاربران

محتوای ایجاد شده

بازخورد کاربران

میزان فعالیت کاربران در ۲۰ روز گذشته

حجم محتوای ایجاد شده و میزان بازخورد کاربران

پیس جهبور | پیس سارحان بورس | سارحان بورس | سیگان | خرد | بورس | حجم معاملات | ایاروس

میشنترین بازخورد کاربران

نام کاتال	تعداد اعضا	بازخورد کاربران
bidarbourse	۱۸	۱۶۴
NBSchannel	۲۴	۲۴۴
parsistahil	۲۵	۲۴۷
PayeshBazaar	۳۹	۳۷۷
karoacademy365	۴۱	۳۹۵
bourse_planner	۶۳	۶۳۴
karoacademy365	۷۴	۷۲۹
fadakbourse	۹۷	۹۶۹
fadakbourse	۱۰۴	۱,۰۳۷

Project 4: An interactive web-based visualization to show relation of different topics in the field of Islamic finance

This project took the visualization of Islamic finance topics further by focusing on relationships between topics through the use of SigmaJS as the primary visualization tool. Each topic was represented as a node, and if a parent-child relationship existed between two nodes, a directed edge connected them. To make the visualization more interactive, I embedded several user-friendly features:

- A search box to allow users to search for specific topics.
- A guide box to explain how the visualization works.
- Special tags on each node, enabling users to find related topics through a selection box.
- A filter box, which allowed users to filter the graph based on clusters of related topics.

Python was used extensively to preprocess the Excel data and convert it into JSON format for SigmaJS to read and render.

Screenshots of this project are attached for your reference, showcasing its complex yet highly intuitive structure.

