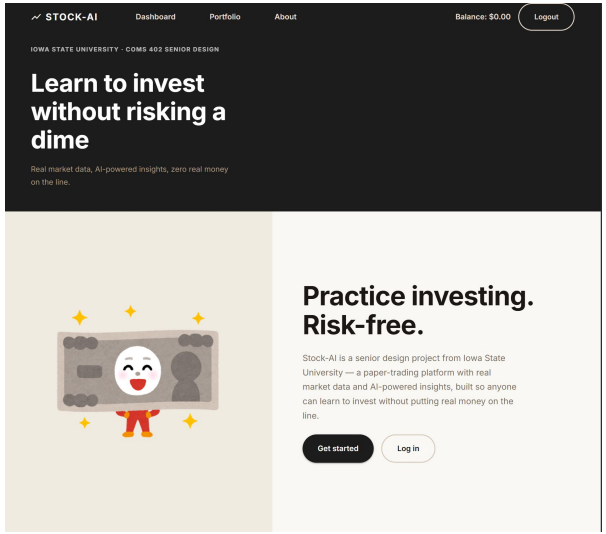
Stock-AI Demo #2

Team UG_HF_03
Andrew Butler, Matthew He, Ethan Roe, Aaron Trelstad

What is Stock-AI?

- Learning stock trading is difficult
- Trading & trading platforms are expensive
- Create Free learning platform
  - Mock trades, so no risk
  - AI assistance (ask questions, provide recommendations)



Technologies in use

Backend

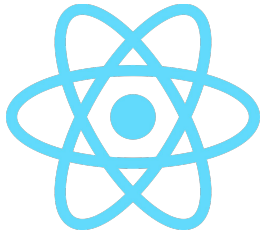
- MariaDB
- FastAPI Python framework
- Podman for containerized deployment





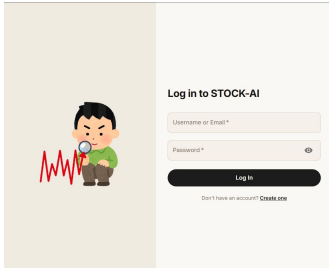
Frontend

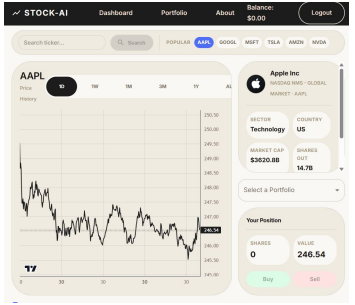
- React.js web framework
- Material UI component library

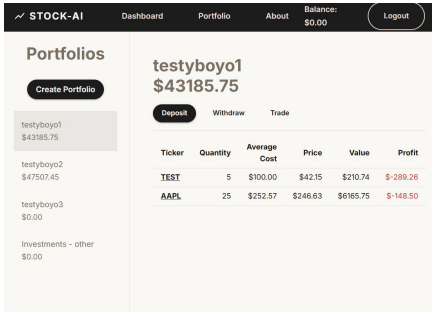


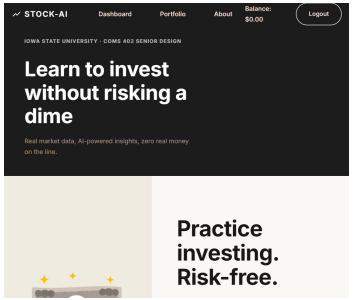
Stock-AI Functionality

- Typical website design
  - Login, register page
  - Dashboard page
  - Portfolios page
  - Leagues page
  - About page



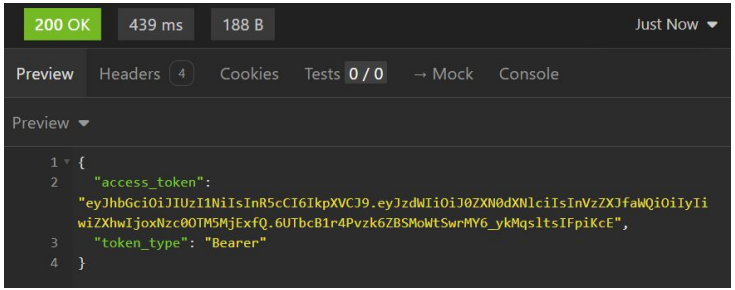






Implementation - Login & Security

- Password hashing
- Login generates Json Web Token (JWT)
  - Gives token
  - Contains user ID, username
  - Validates future action
  - Expires after 60 minutes
- Protected routes
  - Anything that is user specific requires valid JWT
  - Endpoints check JWT validity
  - Endpoints check user ownership of resource (portfolio, conversation, etc)
- Suboptimal: Implemented manually



Implementation - Trading

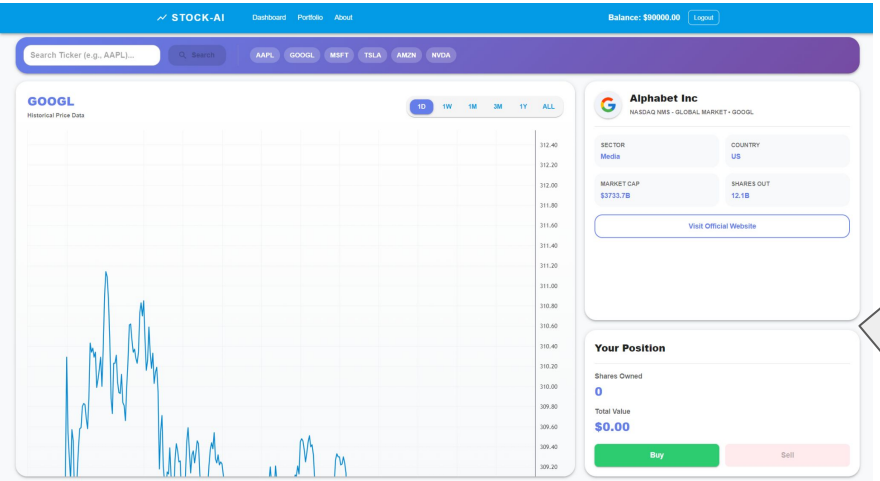
- Users can have multiple portfolios
- User & Portfolio cash balances are handled separately
  - User can transfer money in & out of a given portfolio
- What data we store:
  - User & portfolio cash balance
  - Held positions
  - Trade history (eventually viewable)
  - Average cost basis for position
  - Ticker symbol (e.g., AAPL)

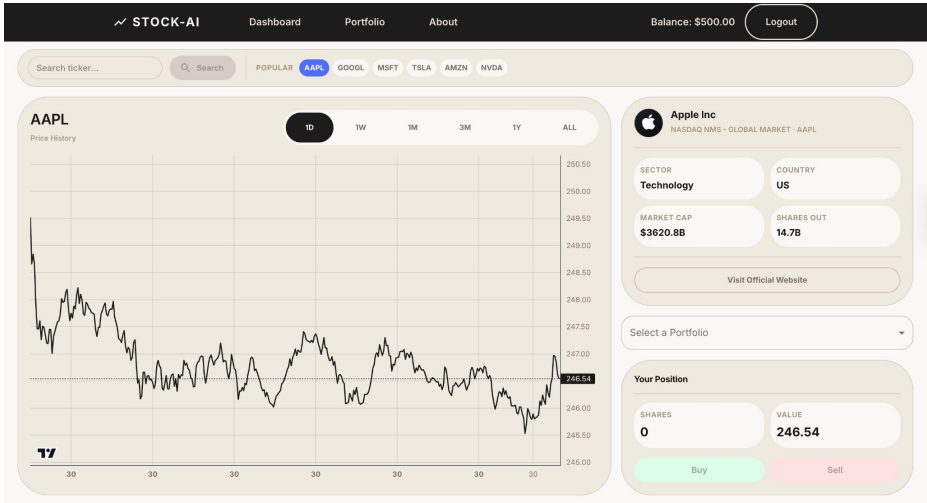
id	symbol	name
1	TEST	TestCo
3	AAPL	Apple Inc
4	GOOGL	GOOGL
5	MSFT	Microsoft Corp
9	NVDA	NVIDIA Corp
10	TSLA	Tesla Inc
11	AMZN	Amazon.com Inc
NULL	NULL	NULL

id	portfolio_id	ticker_id	quantity	avg_cost_basis
6	1	1	5.000000	100.0000
7	1	3	25.000000	252.5700
8	5	4	2.000000	0.0000
12	6	4	1.000000	274.2300
13	2	9	15.000000	166.1700
14	4	4	10.000000	274.1700
15	4	10	20.000000	357.1700
16	4	9	10.000000	166.2500
17	17	3	1.000000	246.5400
19	29	3	5.000000	246.5400
20	30	5	2.000000	358.7600
21	29	4	2.000000	273.5100
22	27	3	5.000000	246.5400
23	27	4	3.000000	273.5100
24	27	9	5.000000	165.0600
25	6	11	3.000000	200.9000
26	32	3	4.000000	246.5400
NULL	NULL	NULL	NULL	NULL

id	portfolio_id	ticker_id	trade_type	quantity	price	realized_pnl	executed_at
1	4	1	BUY	10.500000	250.0000	NULL	2026-02-24 21:13:02
2	4	1	BUY	5.000000	250.0000	NULL	2026-02-24 21:24:03
3	4	1	BUY	5.000000	150.0000	NULL	2026-02-24 21:24:14
4	4	1	BUY	0.500000	0.0000	NULL	2026-02-24 21:24:39
5	4	1	BUY	4.000000	-10.0000	NULL	2026-02-24 21:24:54
6	4	1	BUY	5.000000	-10.0000	NULL	2026-02-24 21:27:11
7	4	1	BUY	5.000000	0.0000	NULL	2026-02-24 21:34:27
8	4	1	BUY	0.000000	0.0000	NULL	2026-02-24 21:34:33
9	4	1	BUY	0.000000	0.0000	NULL	2026-02-24 21:34:36
10	4	1	BUY	0.000000	0.0000	NULL	2026-02-24 21:34:44
11	4	1	BUY	100.000000	250.0000	NULL	2026-02-24 21:35:21
12	4	1	BUY	75.000000	250.0000	NULL	2026-02-24 21:36:29

Dashboard: UI Updates Aaron





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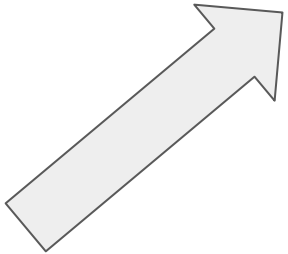

AAPL News

1	Yahoo · Just now	Western Digital, Photronics, Nova, FormFactor, and Amkor Stocks Trade Down, What You Need To Know
2	Yahoo · Just now	Amtech, Magnachip, Monolithic Power Systems, Allegro MicroSystems, and Kulicke and Soffa Shares Are Falling, What You Need To Know
3	Yahoo · Just now	Himax, Teradyne, Entegris, IPG Photonics, and Universal Display Shares Plummet, What You Need To Know
4	Yahoo · Just now	Seagate, Applied Materials, KLA Corporation, Lam Research, and MACOM Stocks Trade Down, What You Need To Know
5	Yahoo · 1h ago	1 Brilliant Growth Stock to Buy Before It Joins Nvidia, Apple, and Alphabet in the $3 Trillion Club

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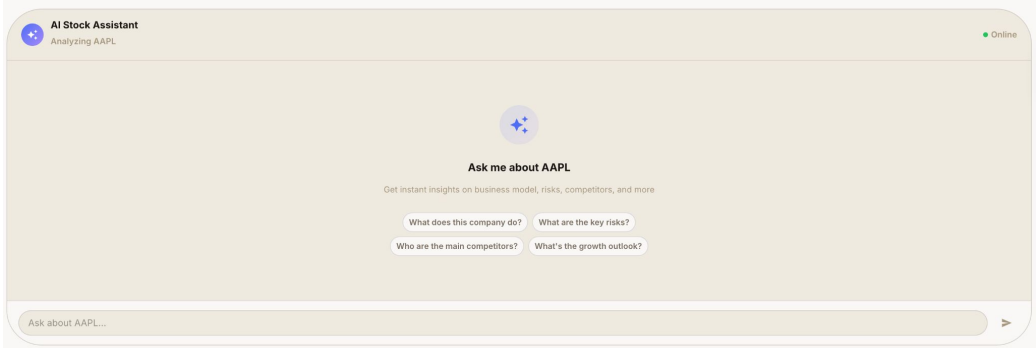
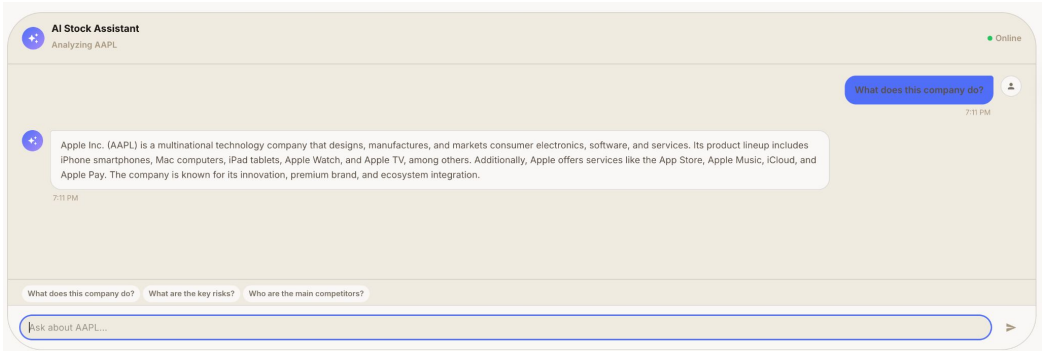
Yahoo · 2h ago	Timely Tips And Tools On How To Invest In Stocks In This Market	This week's how to invest newsletter highlights a simple three-step routine, a tool of the week and a timely tip from…
Yahoo · 3h ago	These 3 Stocks Appear to Be Set Up For a Massive 2026	It's been quite the run in the stock market, for investors of all ages and risk profiles. However, it's been true that investo…
Yahoo · 3h ago	Apple To Hold Product Event On March 4. Cheaper iPhone Seen But No AI Siri	The March 4 product event could unveil a budget Apple iPhone as well as new MacBooks and iPads. But An AI-…

AI Chatbot Aaron

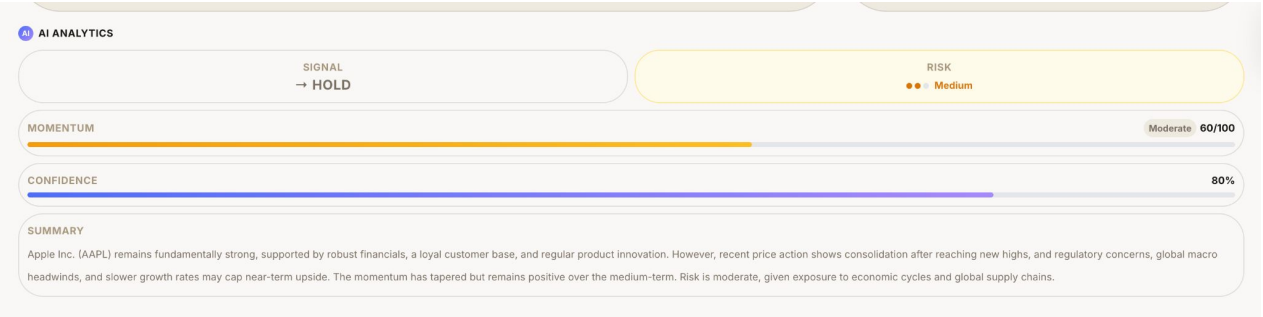
TODO



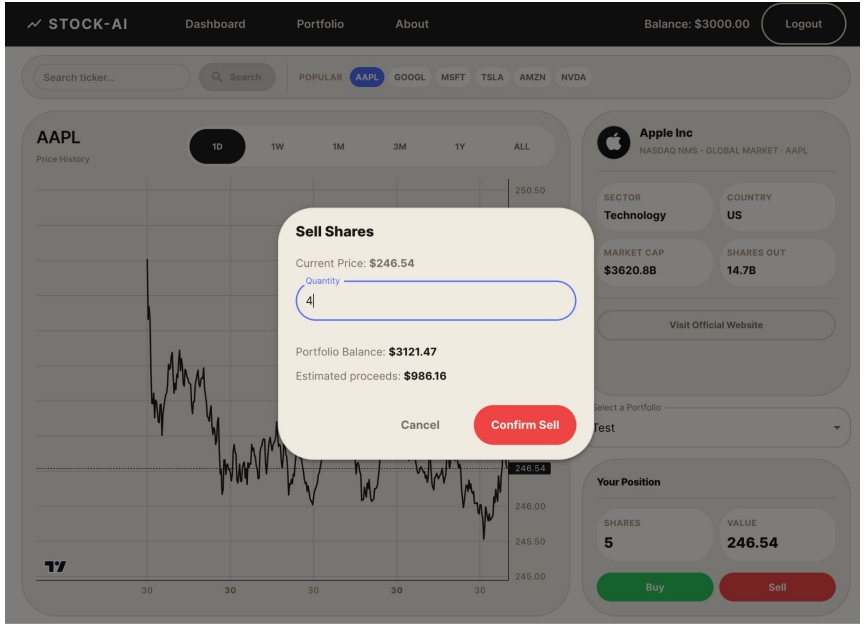


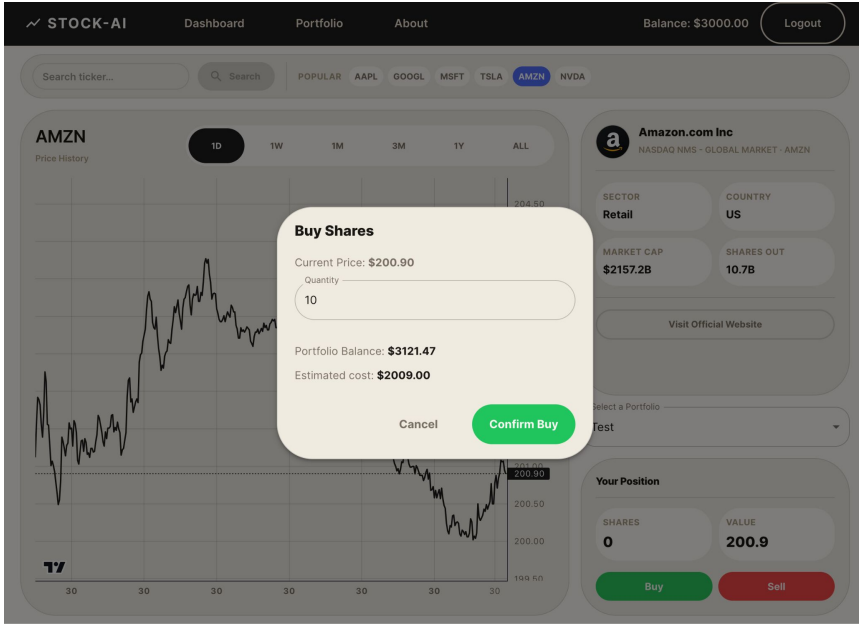
AI Analytics Aaron

TODO



Mock Trading - Ethan





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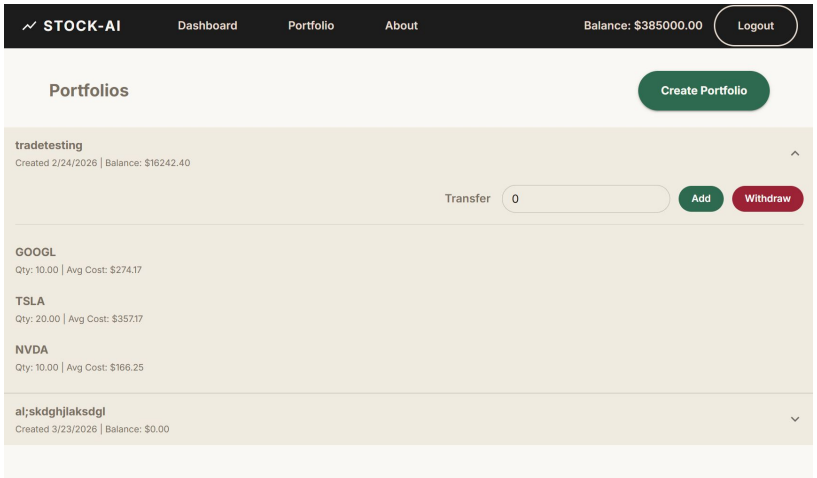
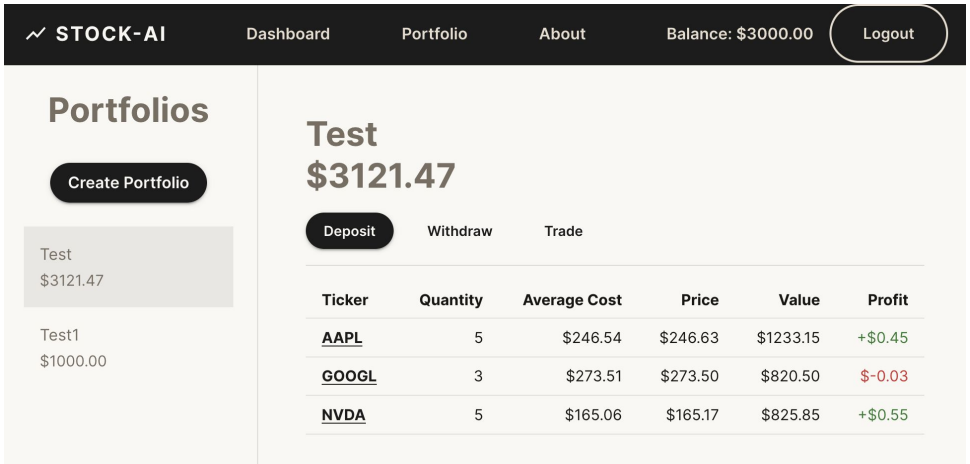
Portfolio UI/UX Improvements - Ethan

Before:

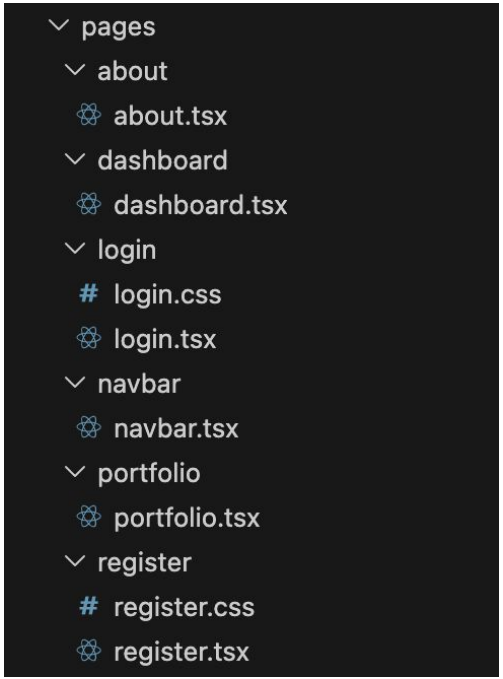


After:



Frontend Code Refactor - Ethan

Before:



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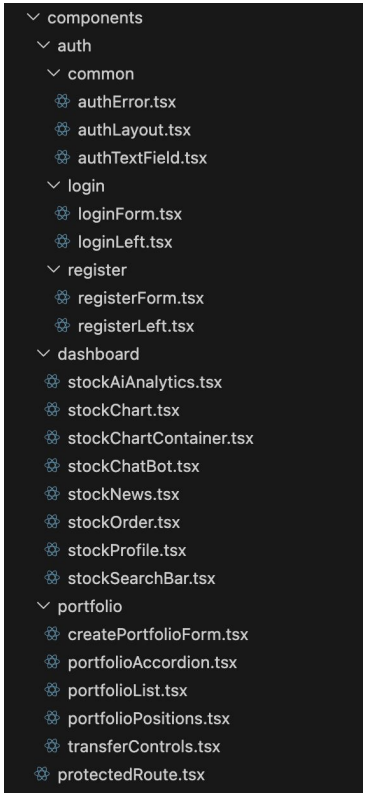
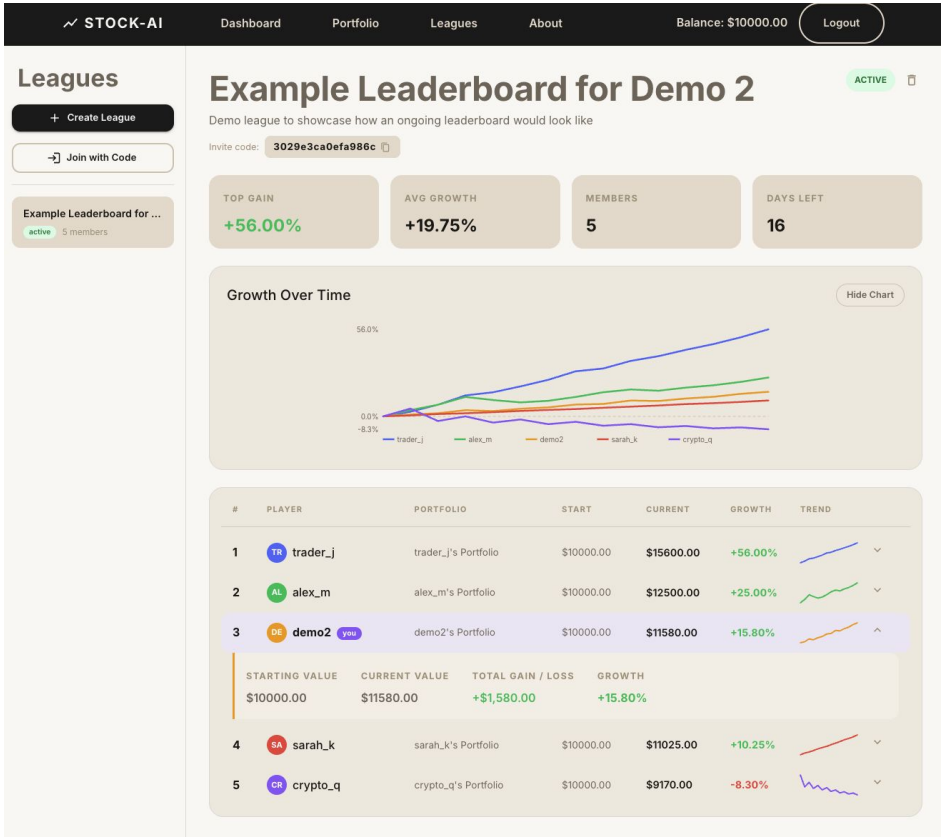
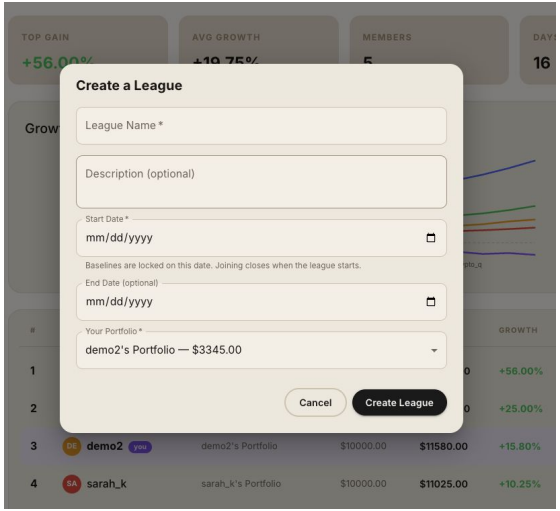


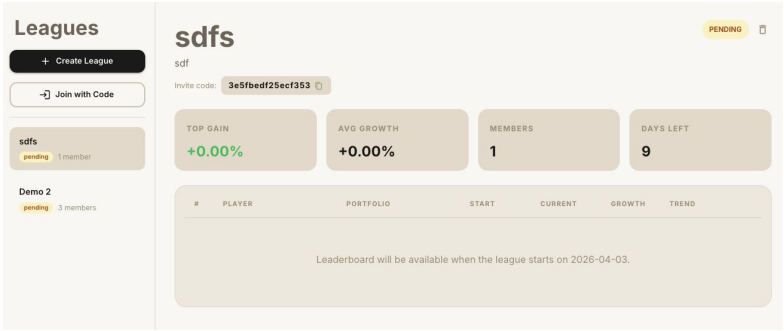
Competitive Leaderboards - Matthew

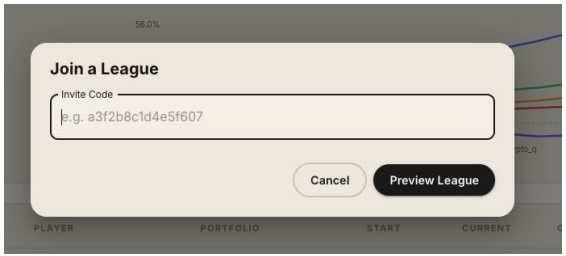
- Engaging Stats
- Growth Chart
- Fantasy Sports Inspired Table
  - Sparklines
  - Expandable Rows
- Status Tags

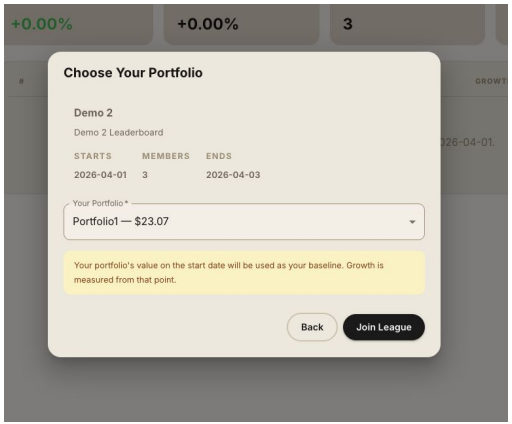


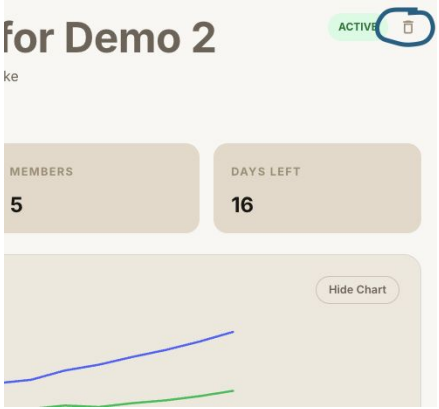
Creating/Joining/Deleting Leaderboards









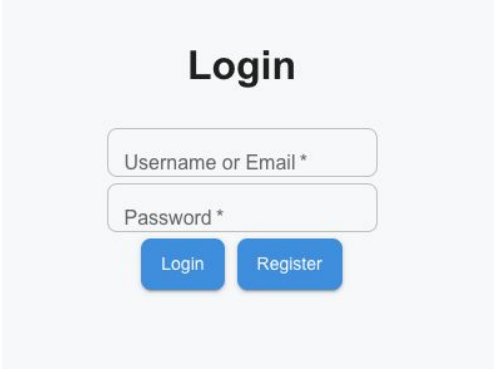


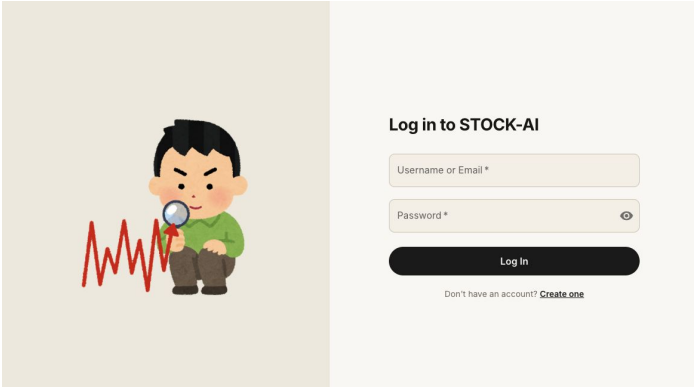
Competitive Leaderboard Architecture

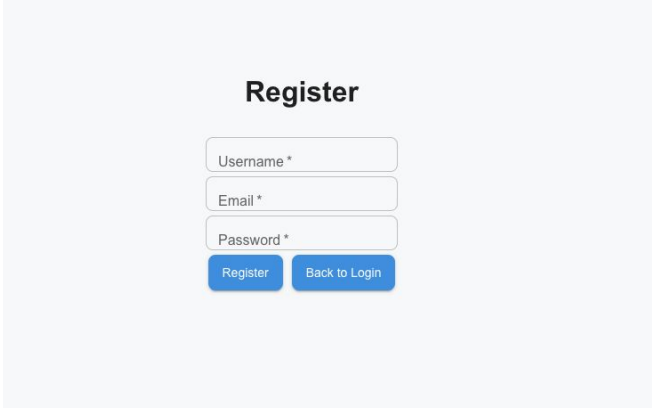
- New Tables
  - League
  - League Member
  - Portfolio Snapshot
- Routes

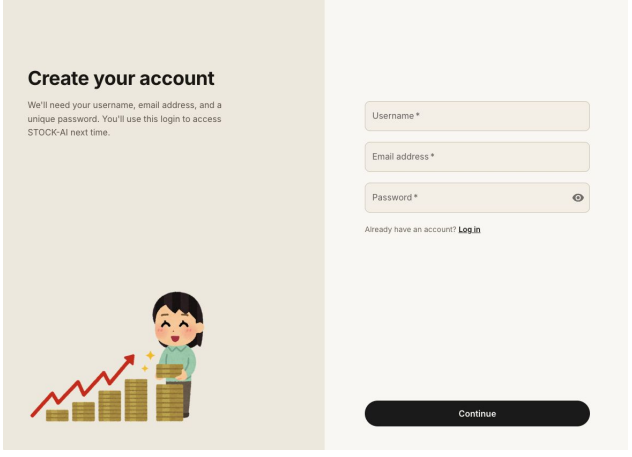


UI redesign - Login/Register - Matthew

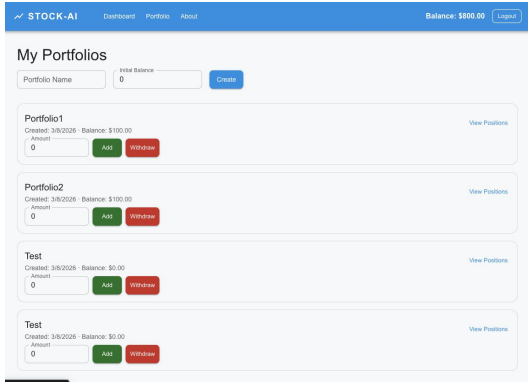


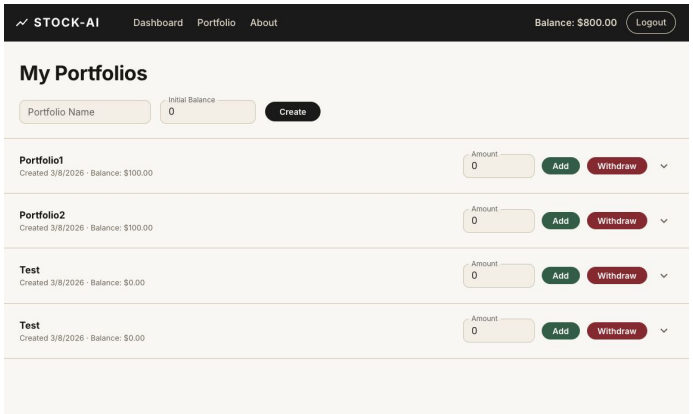


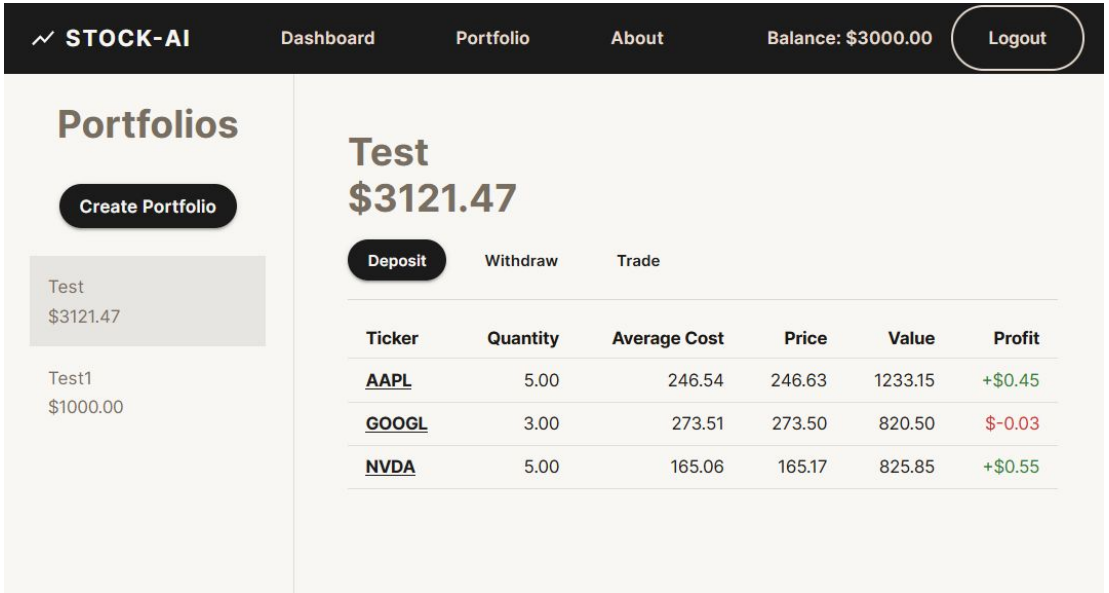




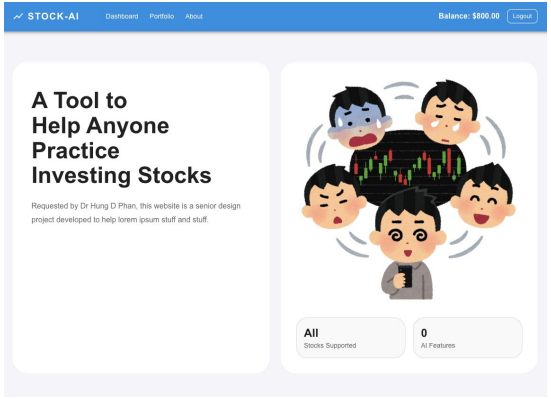
UI redesign - Portfolios - Matthew

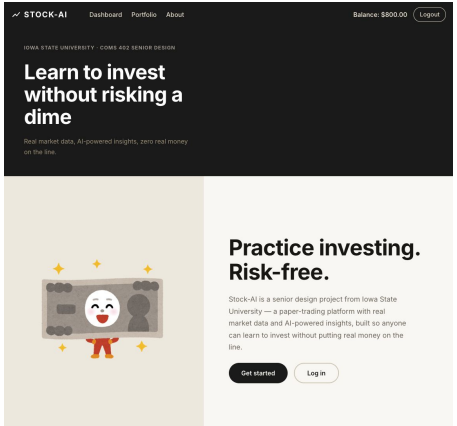


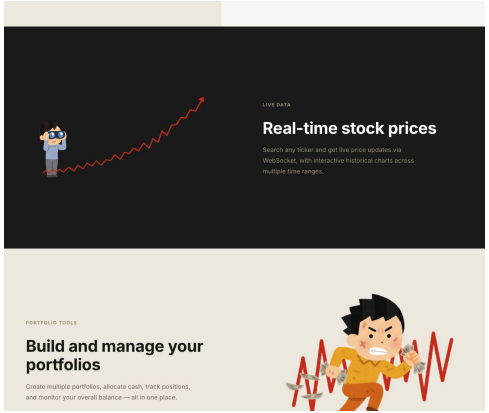


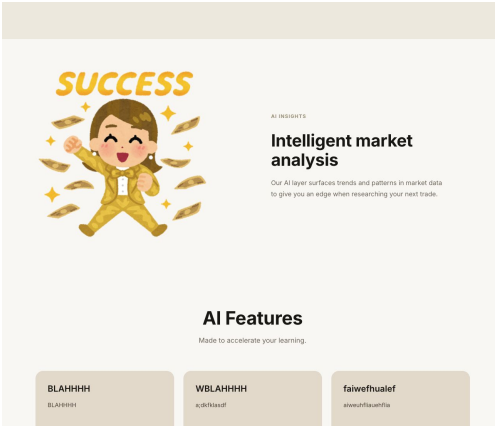


UI redesign - About Page - Matthew

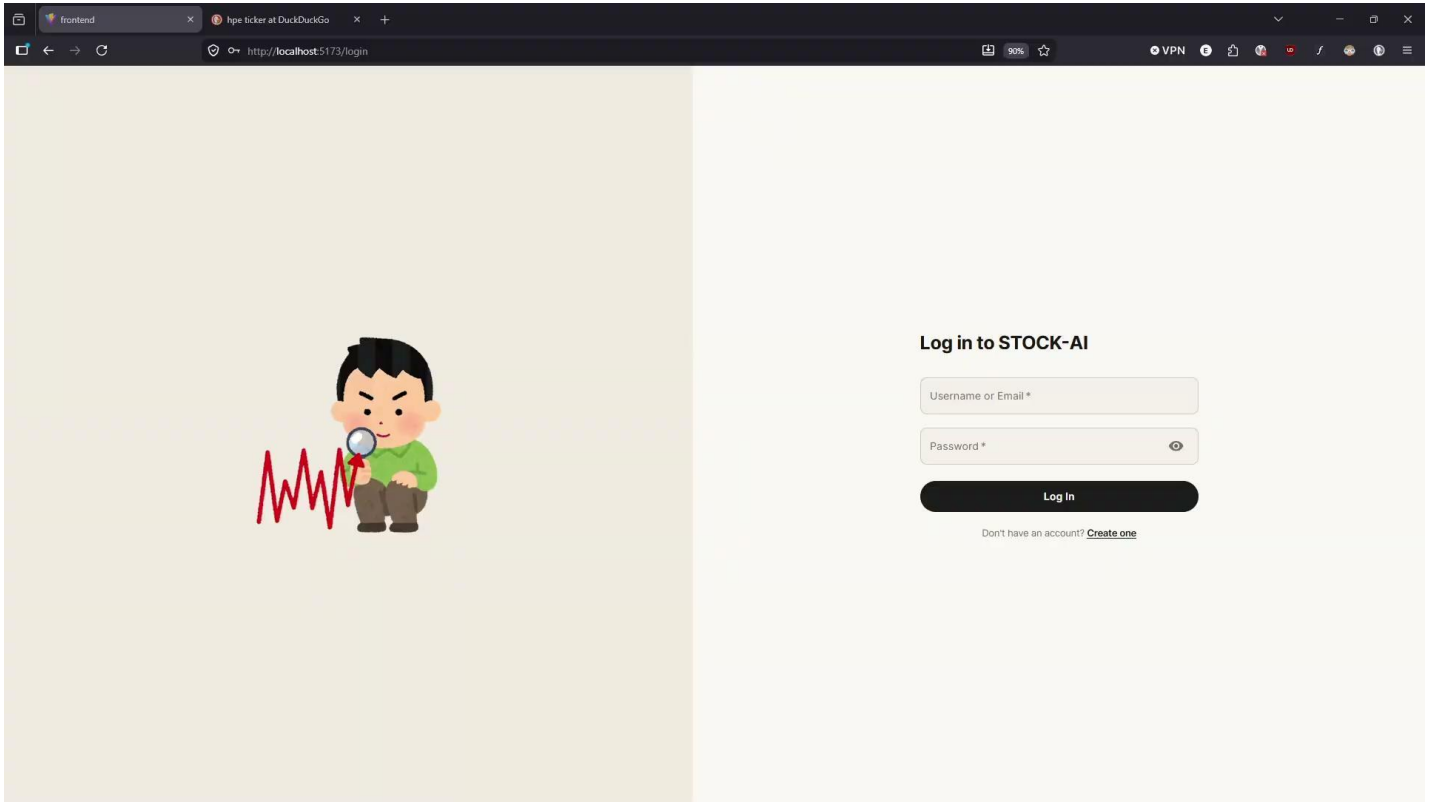








Demo



[Youtube upload if embed doesn't work]

Our goals moving forward

- Security refactor: FastAPI Users library
  - ‘Forgot Password’ pathway
  - Encrypt portfolio, trade data?
- Custom Watchlists
- Trade & chat history viewing
  - Endpoints already exist; just need UI
- AI model selection / graduate group model
- Further improvements to portfolio
  - Transfering trades between portfolios
  - Ability to delete or rename portfolios

Questions?