

Team Nova

COMP_SCI 451R Capstone Project:

ClariFi

Final Presentation



Team Introduction



Abdul Mohammed -
Project Manager/ Full
Stack Developer



Haley Nilsen -
Frontend Developer



Kaleb Flores Lopez -
LLM Developer



Sid Nsude -
Database/Backend
Developer

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Project Overview



This application was developed as part of the Computer Science Capstone course at UMKC, in collaboration with Commerce Bank. ClariFi is designed to help users seamlessly track their expenses and set financial goals, whether for personal budgeting or business management. Its intuitive interface empowers users to gain clearer insights into their spending habits and make informed financial decisions.



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Challenge Accepted.®

Problem

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In 2025, studies showed that only 52% of young adults know how to budget effectively. ClariFi was developed to help address this challenge by making it easy to set financial goals and track daily expenses. Using an AI-powered LLM agent, ClariFi can assist users in quickly updating their expenses, streamlining the process of managing money. By combining goal-setting with smart expense tracking, ClariFi helps users gain better control over their finances and make more informed financial decisions.





Core Features:

- Track daily expenses and set personal or business financial goals.
- Visual dashboards (using Plotly) show spending habits and goal progress.
- AI-powered LLM agent assists with updating and categorizing expenses.

New Improvements:

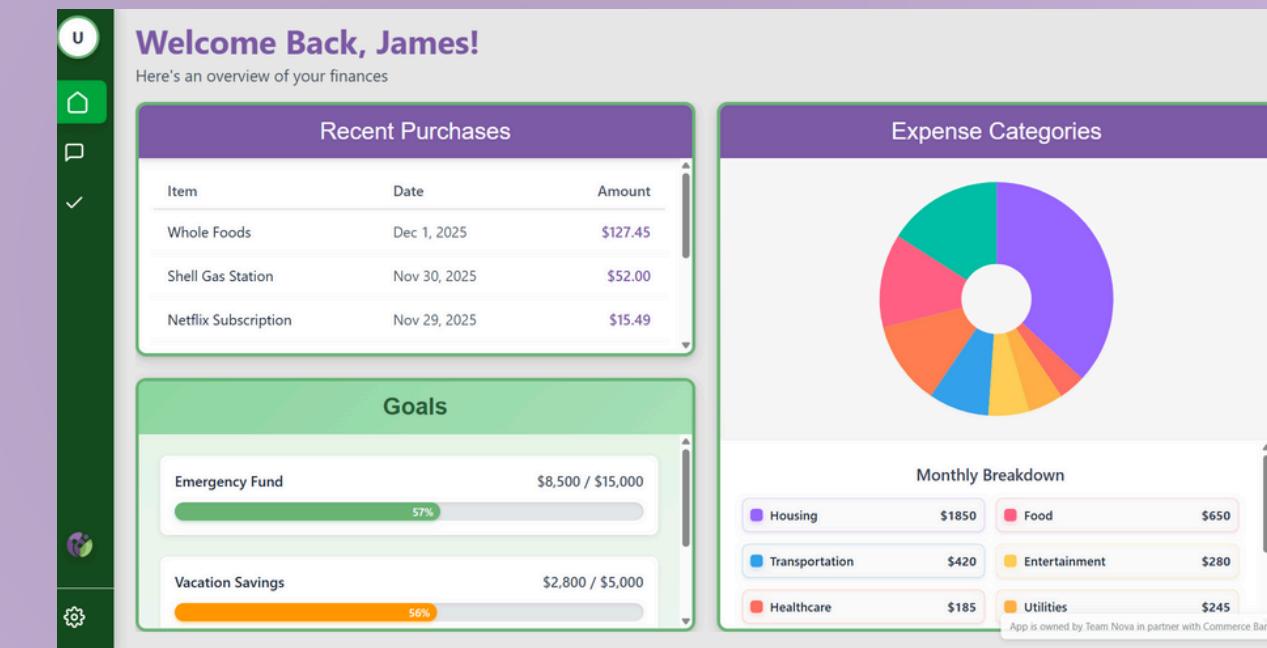
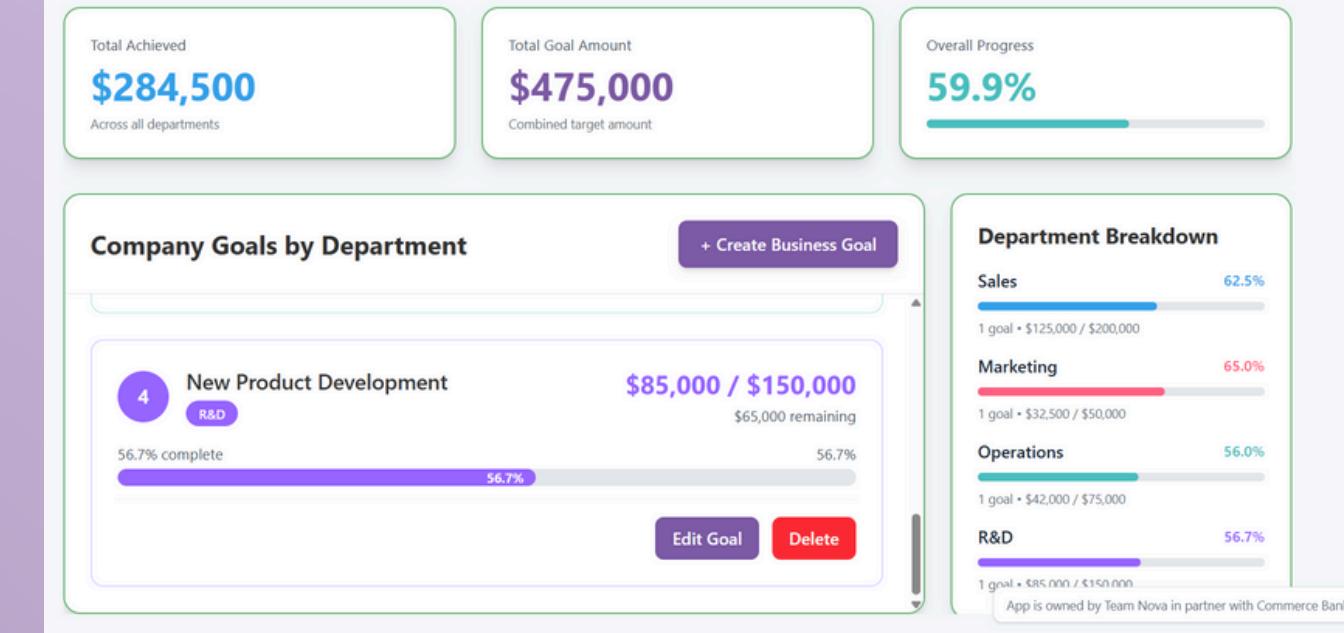
- Goal progress visualization for easy tracking.
- Enhanced spending reports to highlight trends.
- Faster, smarter expense management with AI assistance.

Expected Impact:

- Simplifies budgeting and reduces stress.
- Encourages better financial habits.
- Supports informed decisions for short- and long-term goals.

Business Goals

Track and manage your company's financial objectives



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Solution



Development Process

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Development Life Cycle:

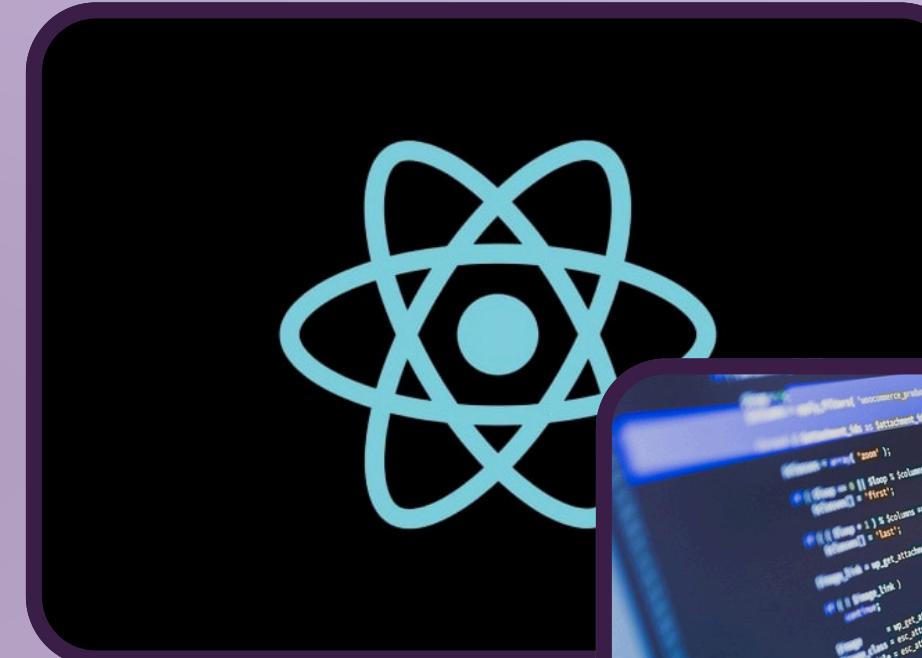
Planning - 3 weeks, Design - 1 week, Coding - 8.5 weeks, Testing - 1 week

Tech Stack: React/Tailwind, Node, FastAPI, llama3Together LLM, PostgreSQL

Communication: Teams, Jira for tasks

Challenges faced: Learning new technologies/coding languages and conflicting schedules

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<https://youtu.be/LuPecE4locY>

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Demonstration



Testing Results:

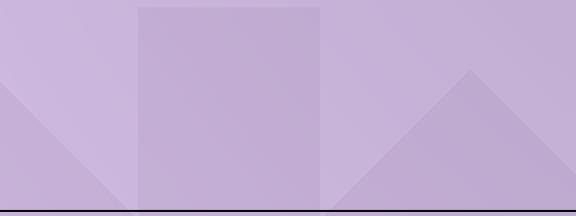
- The application was easy to navigate, especially with the menu bar on the left.
- Some text was hard to read due to it appearing too small
- Good use of negative space
- The background behind the modules seems empty/plain



Impact: The application was able to meet two stretch goals - Data Visualization with Plotly and Self-Hosted Authentication.

In a real-world scenario, this app can not only benefit single users wanting to manage their own finances, but businesses as well that are wanting to manage project finances.

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Testing UI through Jest:

- Testing passed for the most part. They failed originally due to arguments being expected and none were being passed.

Results and Impact



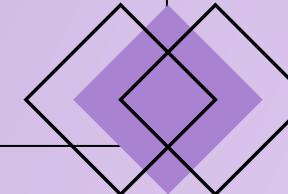
```
snapshots: 0 total  
Time: 2.175 s  
Ran all test suites.  
hmnilsen154@Haleys-MacBook-Pro-6 src % npm test
```

```
> frontend@0.0.0 test  
> jest
```

```
PASS src/pages/Goals.test.jsx  
PASS src/pages/Chatbot.test.jsx  
PASS src/pages/NavBar.test.jsx  
PASS src/pages/Dashboard.test.jsx  
PASS src/pages/Settings.test.jsx
```

● Console

console.error



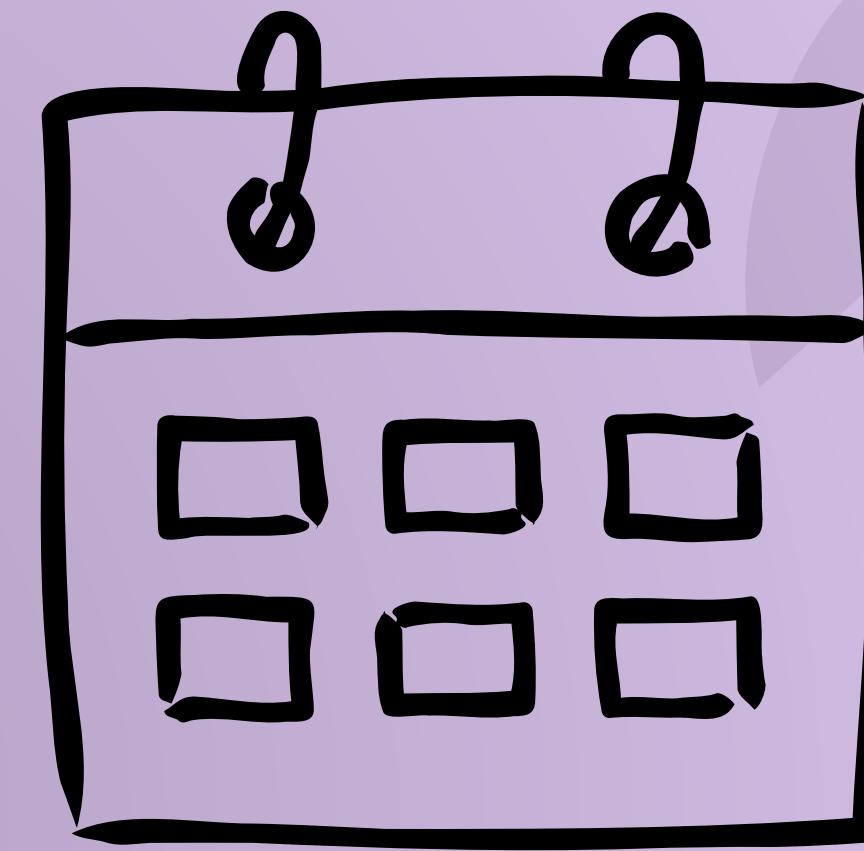
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Conclusion and the Future

ClariFi helps users visualize expenses and set personalized savings goals, leveraging an LLM agent for smart insights.

Future Improvements:

- Enhance chat history readability by allowing multiple topics under a single title
- Build the LLM more to allow banking integration for it to design budgets based on spending



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Thank you! Questions?

Thank you to Professor Shah and
Commerce Bank for the support and
guidance!

