MICHIGAN STATE
UNIVERSITY

Project Plan Presentation
AI-Powered Financial Wellness Coach

The Capstone Experience

Team MSUFCU

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From Students…
…to Professionals

Project Sponsor Overview

- Founded in 1937 by eight MSU faculty and staff, working out of a single desk drawer to provide financial services to the campus community

- Grew into the world's largest university-based credit union, serving MSU and beyond internationally

- Has over 367,000 members and reached $8.26 billion in assets

- MSUFCU has a Desk Drawer foundation that funnels donations into five philanthropic pillars of impact: Entrepreneurship, Financial Education, Stable Housing, The Arts, and Youth Empowerment.

Project Functional Specifications

- For members like students, young professionals, and financially vulnerable individuals struggle with budgeting, tracking spending, and saving money.

- AI-powered financial wellness coach that analyzes transactions and financial statements to provide real time insights and guide members through financial goals.
  - "How did I spend my money this month?"
  - "You spent $300 on dining, which is 25% over your average monthly dining…"

- Improves financial confidence and understanding for members to avoid overspending and save more effectively.
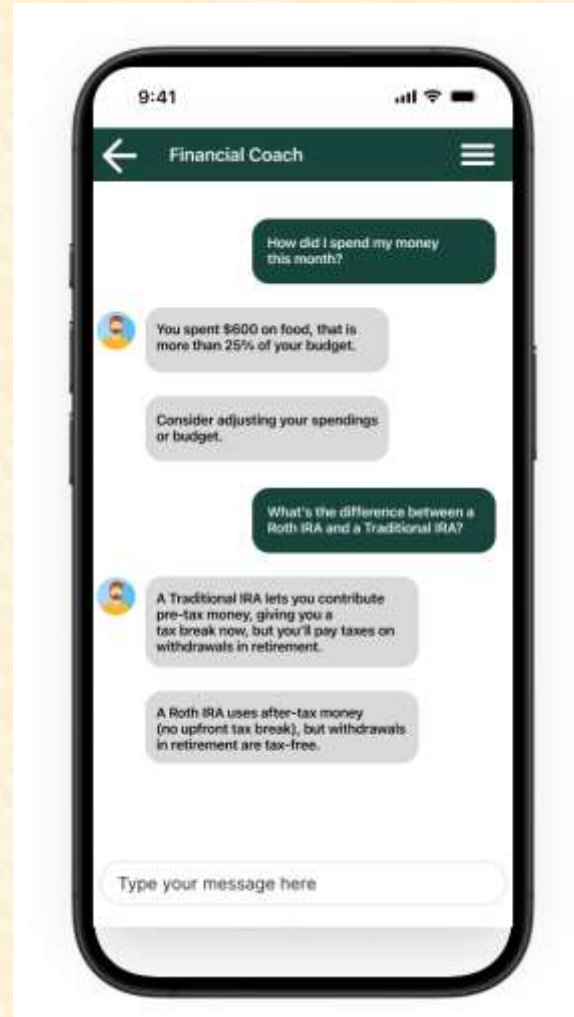
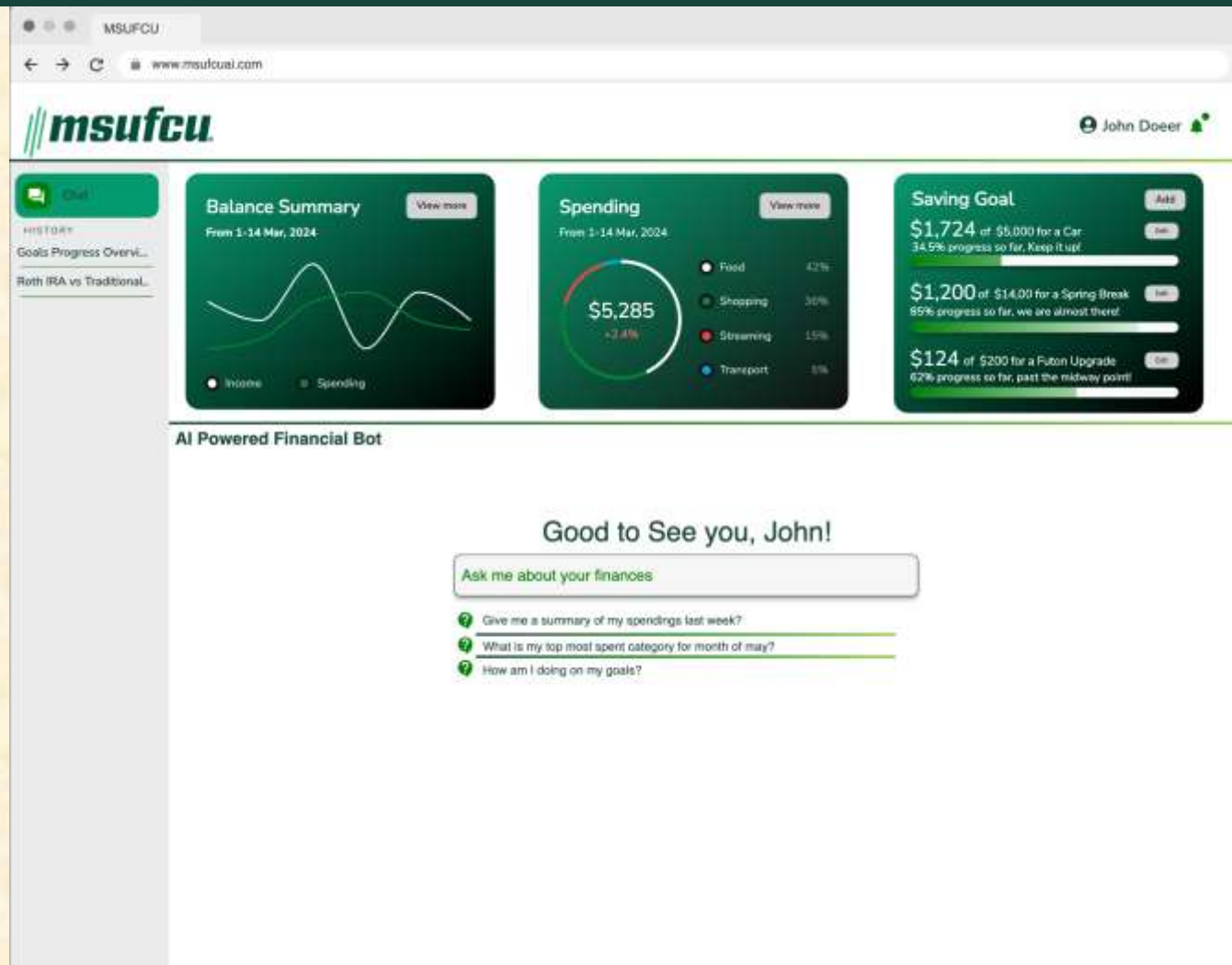# Project Design Specifications

- Front-facing user application to interface with the AI-Powered Financial Coach and view relevant data

- Connection to LLM agent to facilitate secure and useful interaction

- Model Context Protocol server endpoints to transmit data between the LLM agent and the database
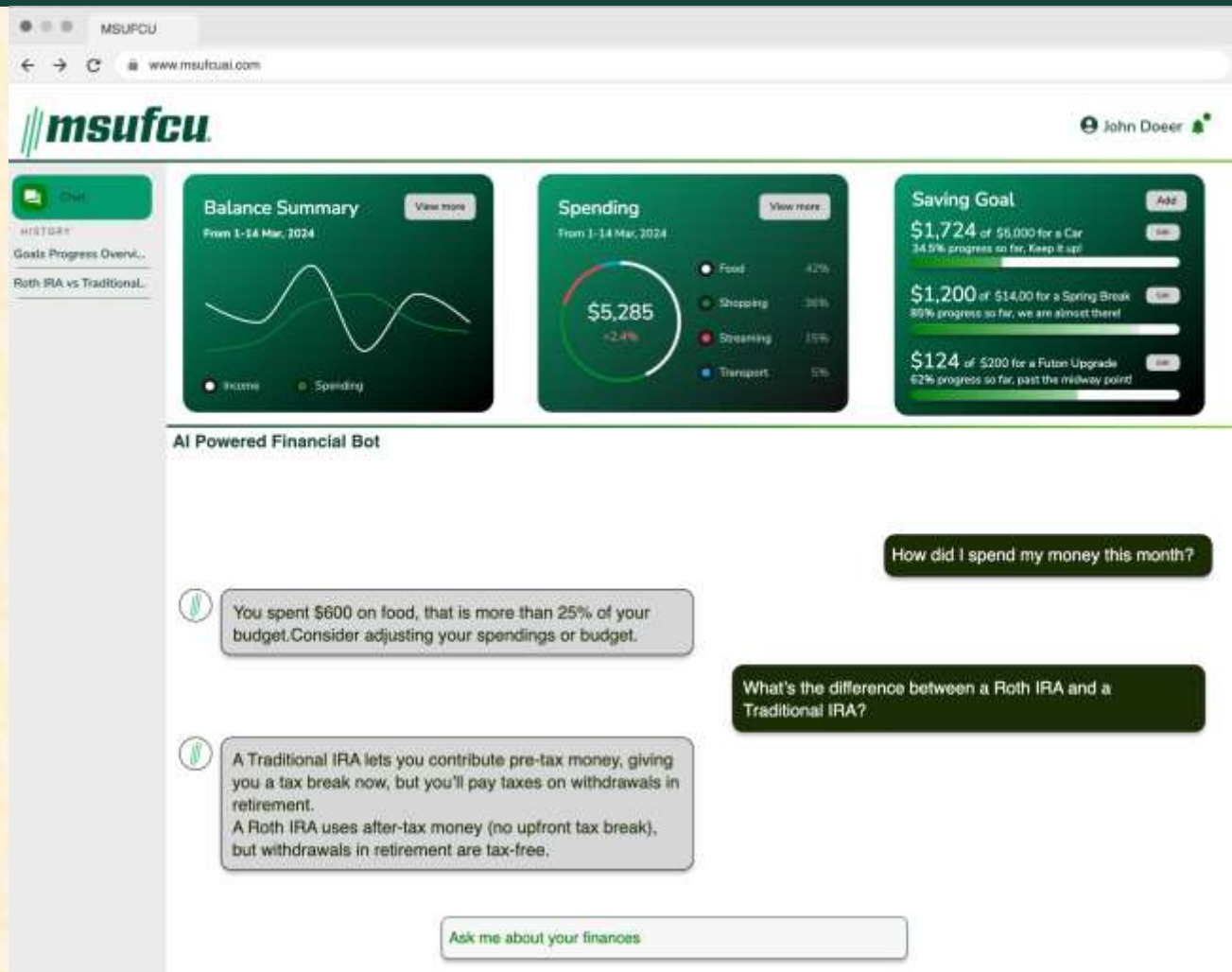
- Database to store and retrieve mock data

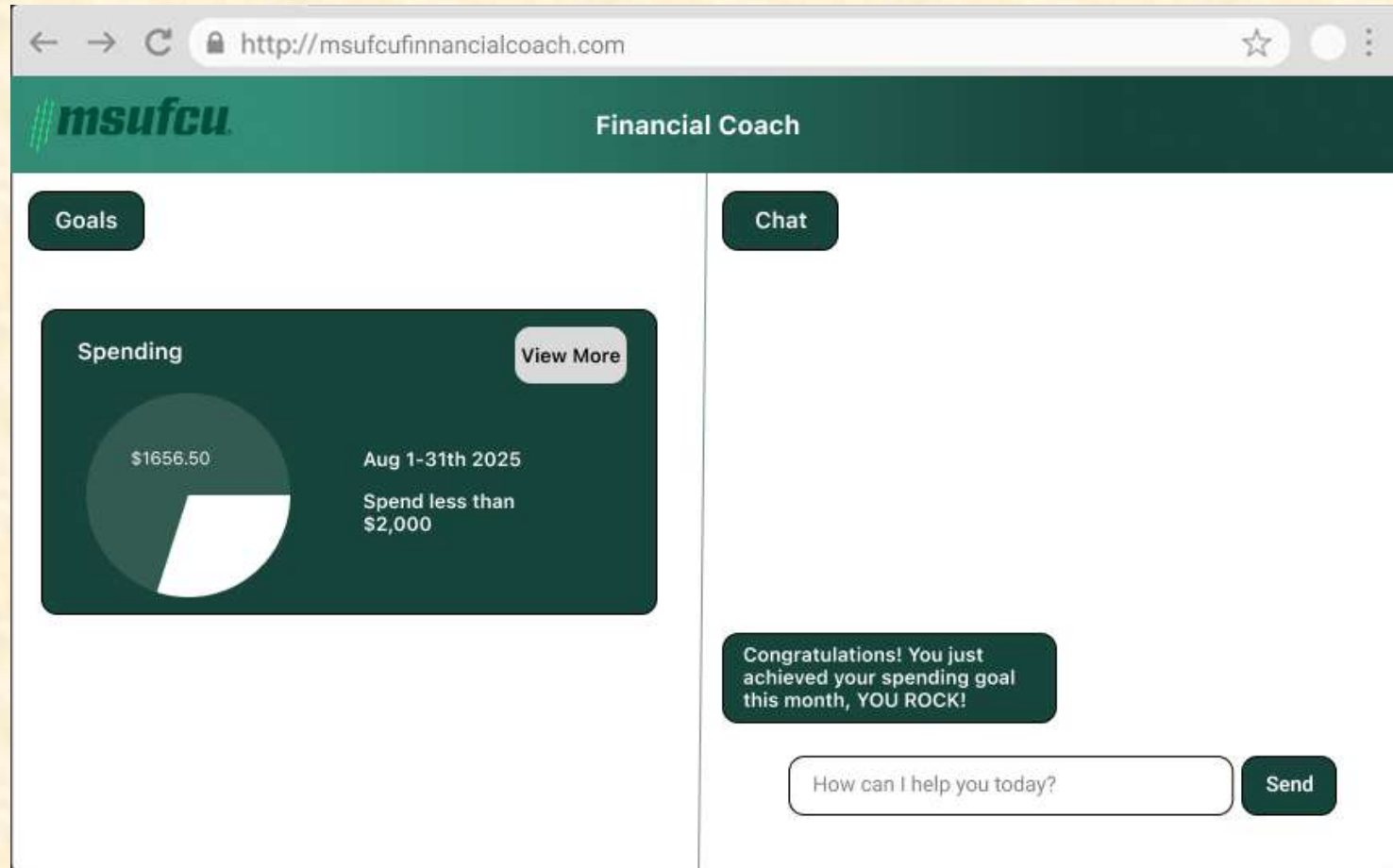# Chat Screen with Financial Coach (Mobile)

Chat/Dashboard Screen

Chat Screen: User Prompt
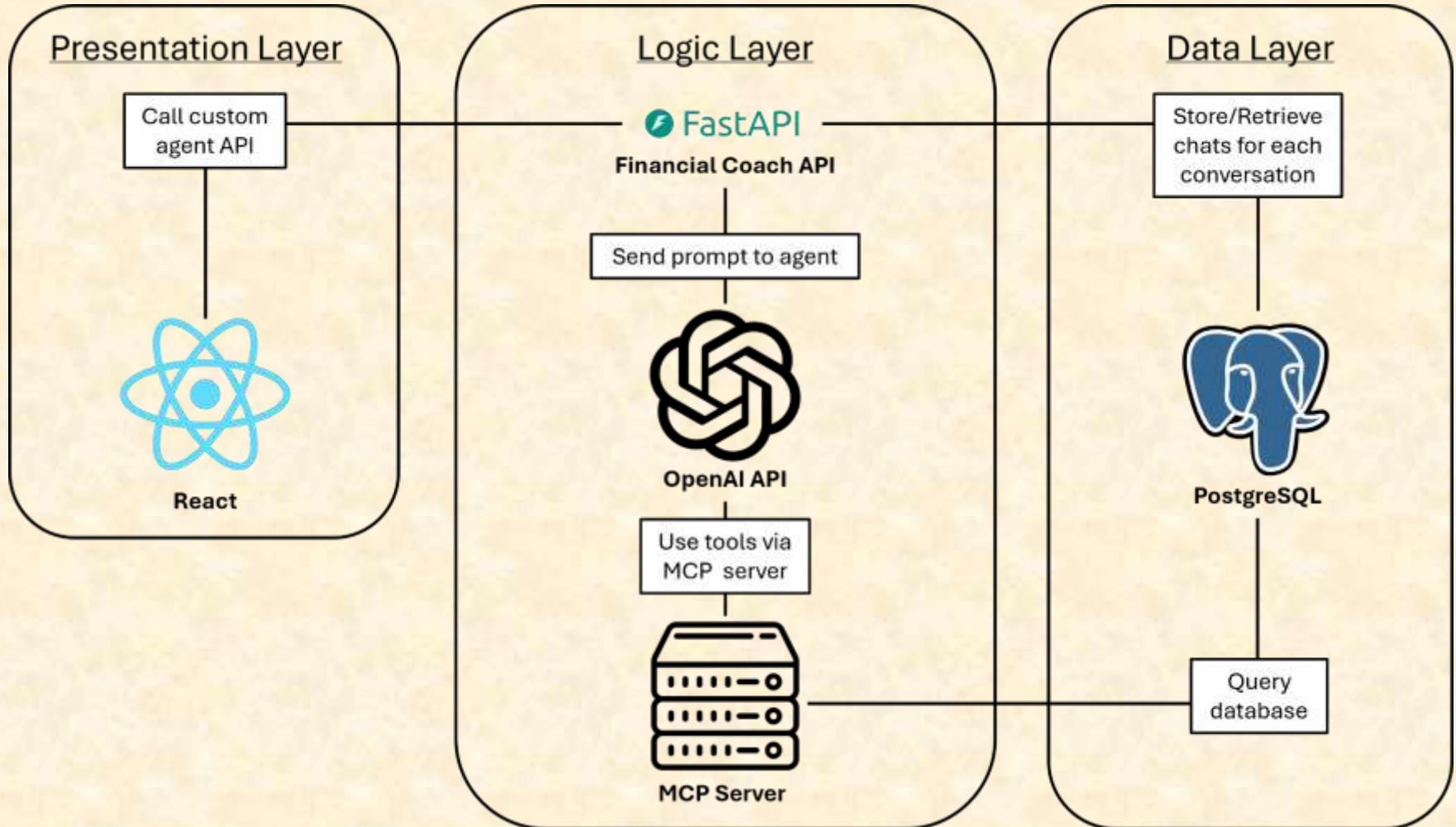
Spending Goals Observer

Project Technical Specifications

- React + Next.js Web App
  - Desktop view
  - Mobile view
- Financial Coach API
- Financial Coach Agent
- PostgreSQL Database
- MCP Server

Project System Architecture

Project System Components

- Hardware Platforms
  - N/A
- Software Platforms / Technologies
  - React + Next.js
  - Neon for PostgreSQL
  - FastAPI
  - FastMCP
  - OpenAI API

Project Risks

- **Establishing an MCP Server Connection**
  - Developing a secure MCP server to connect LLM to database and tools.
  - Incrementally expand MCP tools to access database and connect it with OpenAI API.
- **Mobile-Compatible Front-End**
  - Establishing a compatible UI that keeps functionality across web and mobile.
  - Working closely with MSUFCU's UI/UX specialists and collect peer feedback to ensure the agent interface aligns with project goals.
- **Developing the AI Agent**
  - Make the AI Agent generate accurate context-aware financial responses.
  - Use OpenAI's API documentation to iteratively to test agent response accuracy.
- **Populating the Database**
  - Creating and populating a valuable database schema without MSUFCU data.
  - Build database incrementally, using YAGNI principle, to account for all data.

Questions?

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