AI POWERED SCHEDULE COMPANION: DESIGN CHECK-IN

SDDEC24-08:

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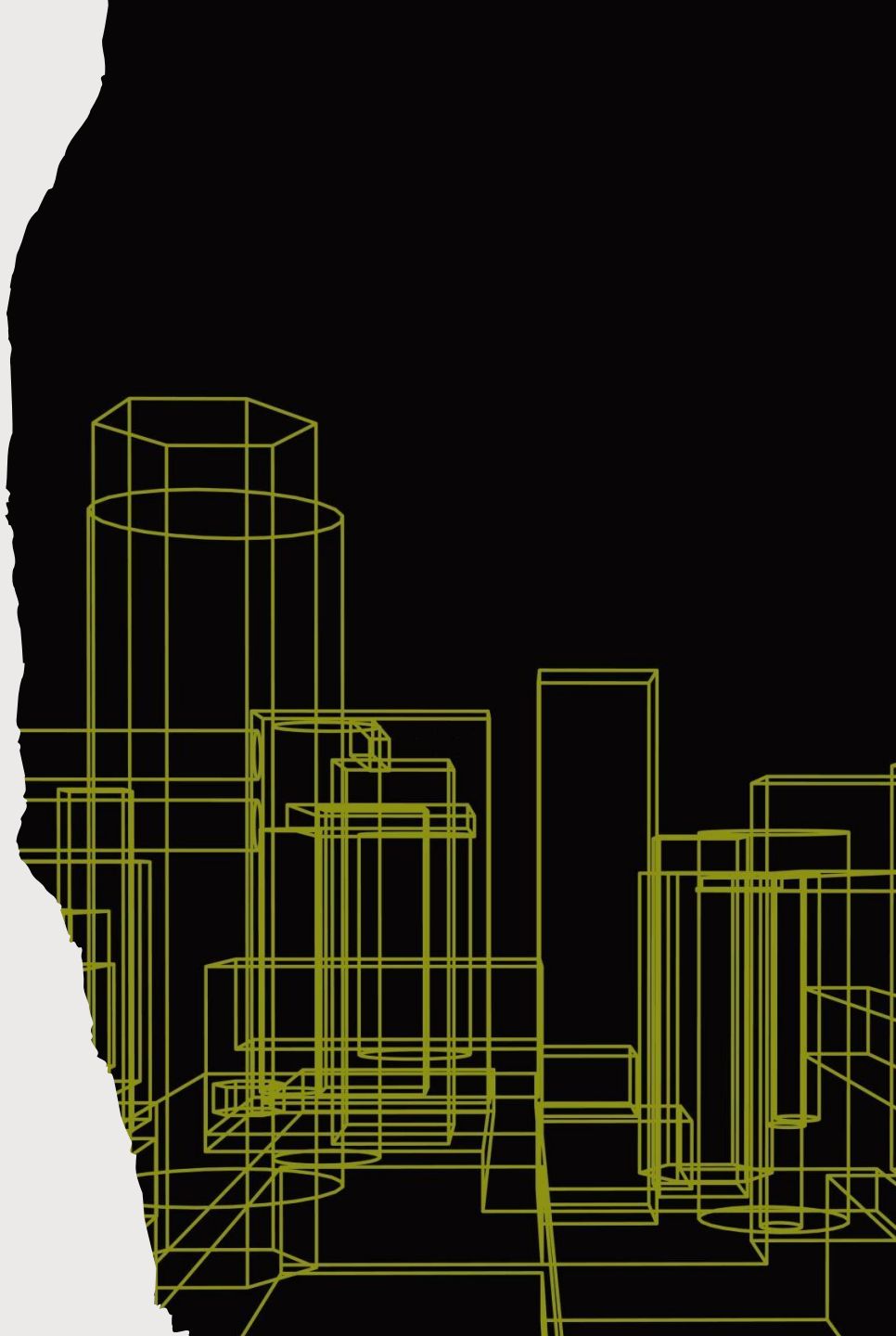
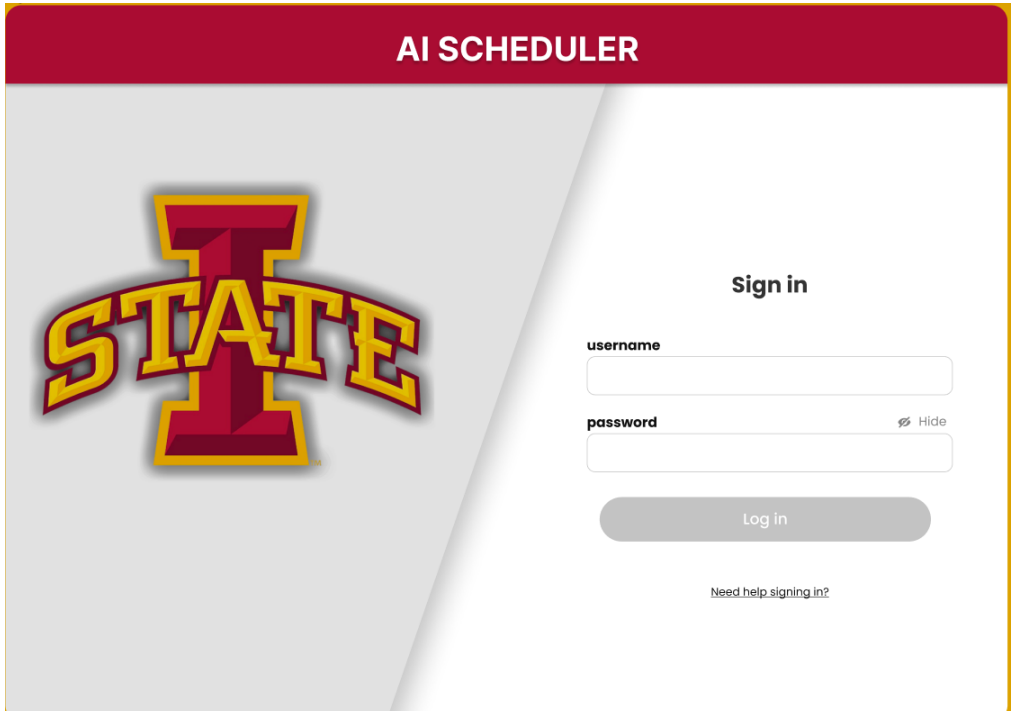
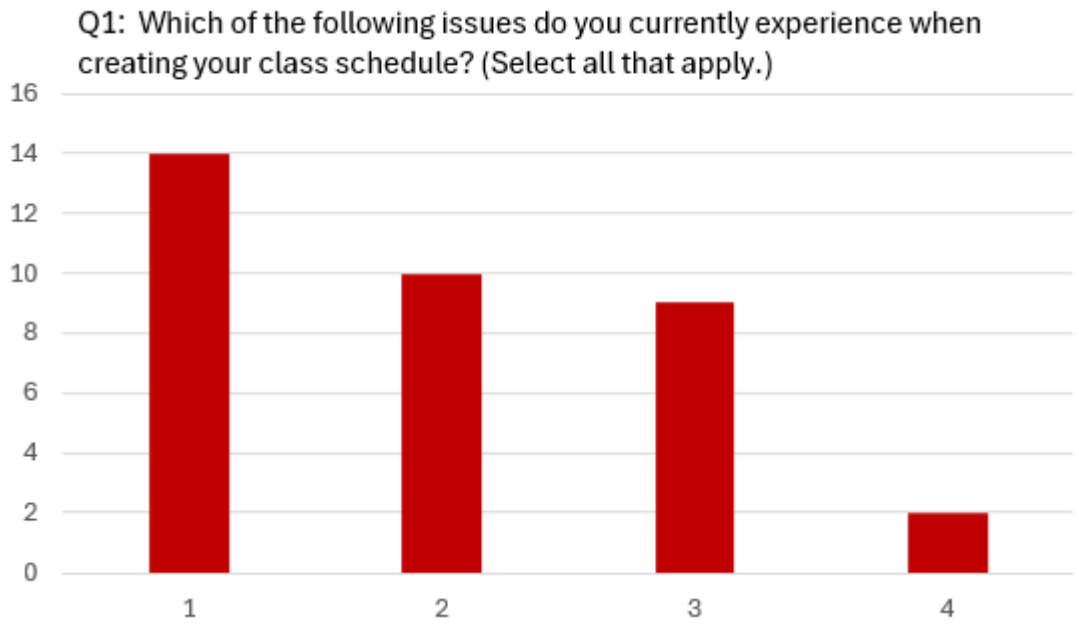


PROJECT OVERVIEW

- Website/Application to aid in creating a semester schedule
- Enhanced by ChatGPT-based AI
- User prompts and built-in tools allow AI to help students



PROJECT OVERVIEW – USER NEEDS ASSESSMENT

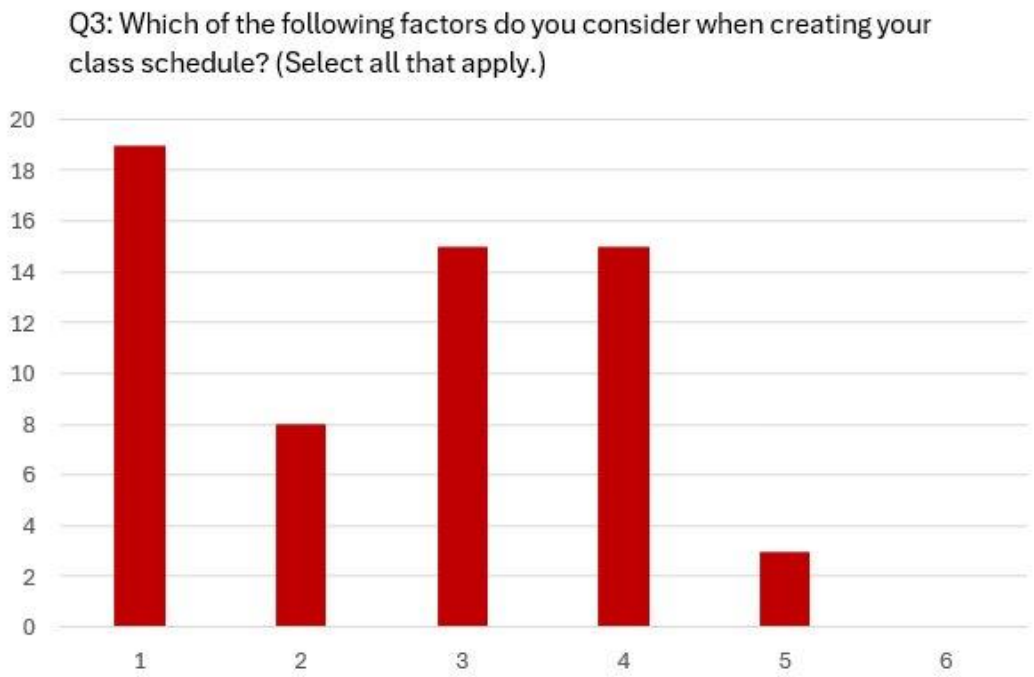


A graph indicating the number of people that selected options 1, 2, 3, and 4.

- **1** – Uncertainty regarding course prerequisites
- **2** – Issues narrowing down possible schedule choices (trouble deciding between generated options)
- **3** – Unsure if your schedule matches your 4-year plan
- **4** – None of the above.

- **Key takeaways:** Majority of surveyed students struggle with various schedule issues.

PROJECT OVERVIEW – USER NEEDS ASSESSMENT

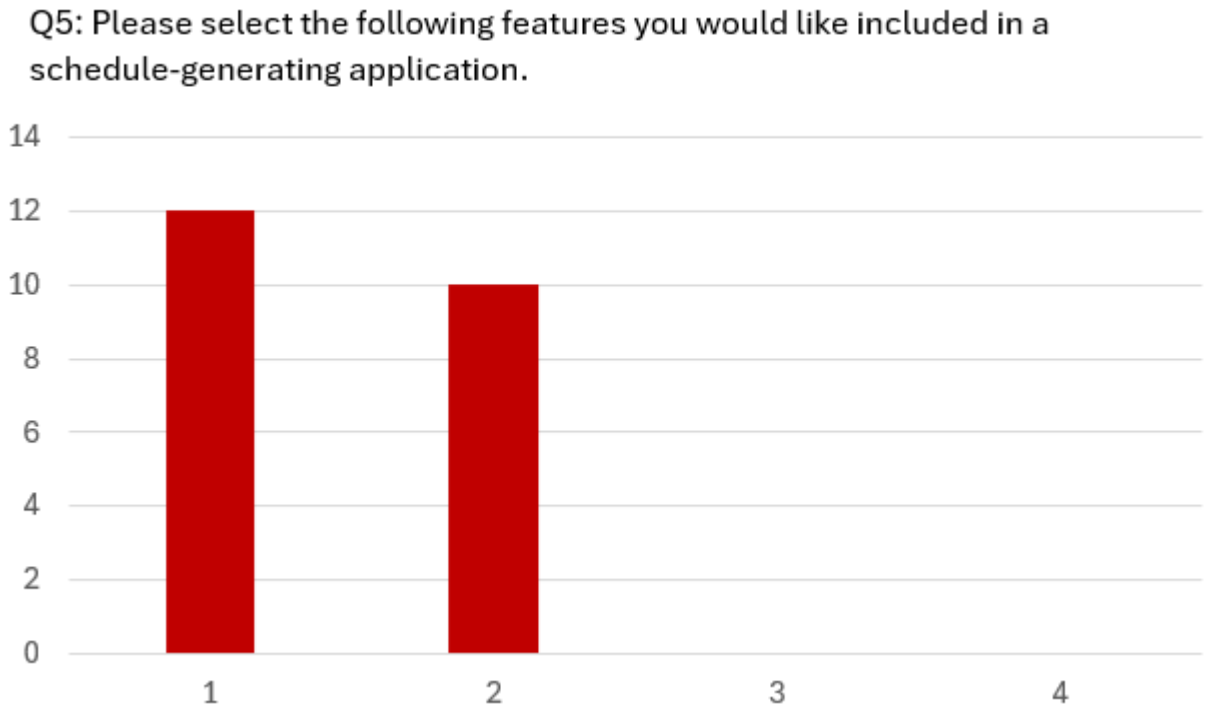


A graph indicating the number of people that selected options 1, 2, 3, 4, 5, and 6.

- **1** – Time of day
- **2** – Location (where on campus)
- **3** – Frequency of class meetings
- **4** – Asynchronous vs. Online
- **5** – Distance from specific locations (home, work, and other classes)
- **6** – None of the above.

- **Key takeaways:** Students would benefit from specific user preferences being included in schedule generation.

PROJECT OVERVIEW – USER NEEDS ASSESSMENT

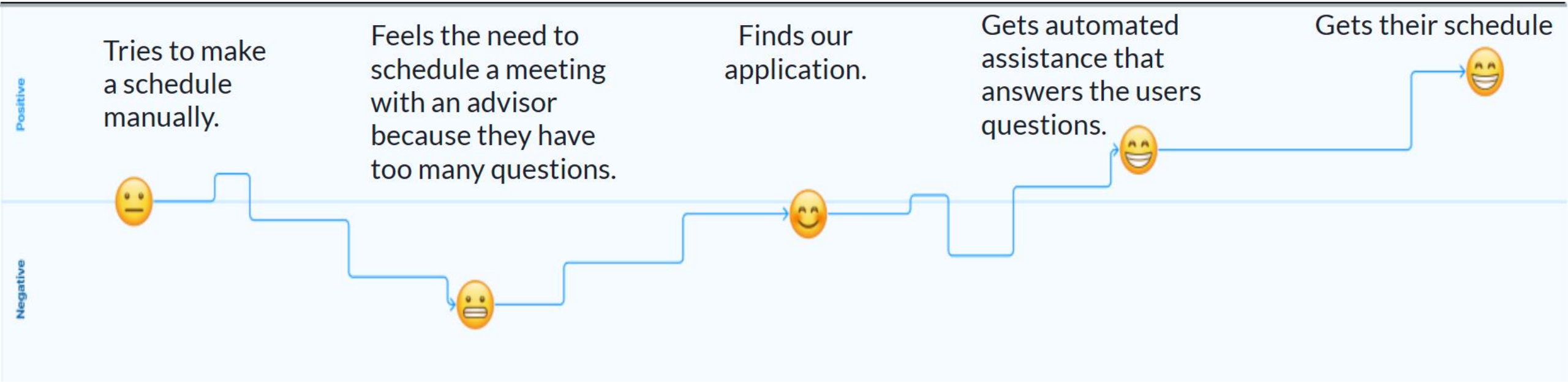


A graph indicating the number of people that selected options 1, 2, 3, and 4.

- **1** – GPA Calculator
- **2** – Shortest path generator (determines fastest route to a designated class location)
- **3** – Account for set plans (work hours, start/end times for given day)
- **4** – None of the above.

- **Key takeaways:** We should consider adding a GPA calculator and shortest path calculation.

ARTIFACT: JOURNEY MAP



JOURNEY MAP'S SUITABILITY

- Our Journey Map will evolve greatly due to Workday
- Conducting surveys on pain-points that existed with the old system
- Conducting surveys to find new pain-points that exist in Workday

MARKET RESEARCH

- Pros:
  - Users can directly access ISU class information
  - Can accurately generate schedules based on selected courses added by the user

- Cons:
  - Will be discontinued by Fall 2024
  - Students must manually weed through generated schedules to meet their preferences
  - Users must manually input specific courses to take

OUR SOLUTION'S SUITABILITY

Pros

We offer tools that streamline the process of creating your schedule.

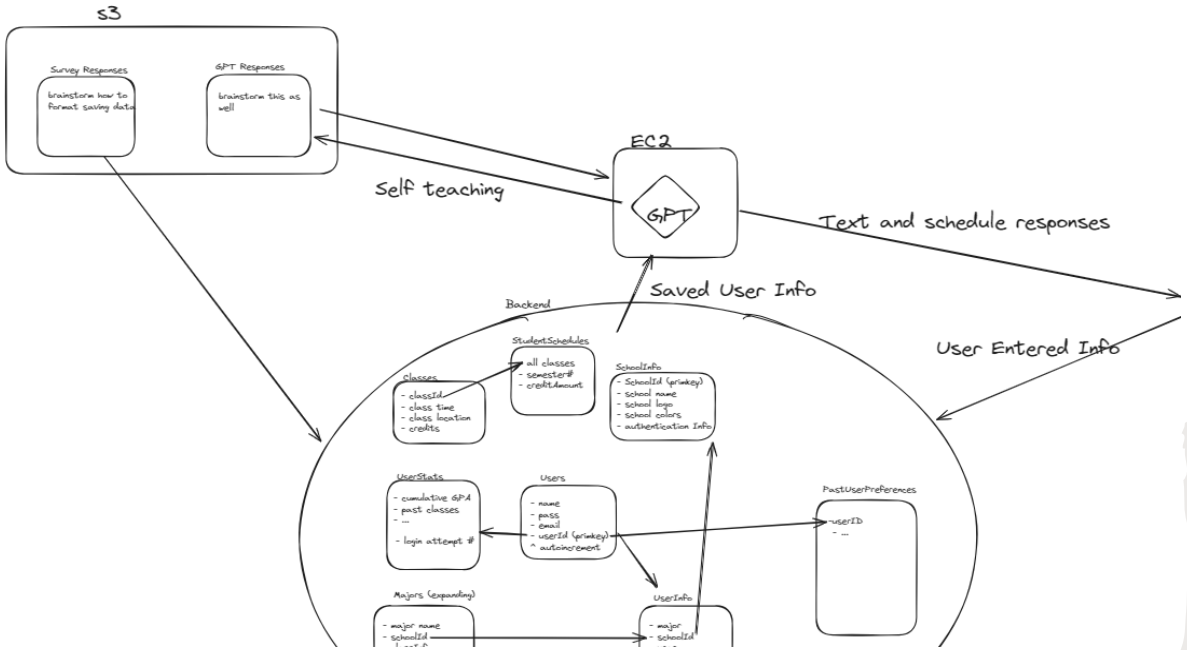
Our AI chatbot will be trained on all of Iowa State's publicly available online resources.

Cons

Our solution may be more costly than what exists presently.

We do not see this as a deterrent however, as the possibilities we gain from using this technology is well worth it from a user experience.

TECHNICAL COMPLEXITY ANALYSIS: BACKEND



Technical Considerations:

- **Terraform for PostgreSQL Management:** Managing alterations to the database schema can be complex. It requiring careful planning and execution to ensure compatibility with existing data and applications.(e.g) Adding a "phone_number" column to ensure consistency across environments might lead to data loss during updates.
- **EC2 Instance Configuration:** Setting up redundancy across multiple availability zones means ensuring that your system remains operational even if one zone fails. This requires creating duplicates of our resources, like servers, in different zones.
- **S3 for Storage:** Establishing access controls for S3 data requires navigating complex configuring policies and identity management which need heavy planning to prevent unauthorized access. (e.g) Implementing lifecycle policies and bucket policies to manage data retention and access permissions.

TECHNICAL COMPLEXITY ANALYSIS: FRONTEND

Technical Considerations using Next.js 14.1:

- Managing dependencies and compatibility with Next.js 14.1

(e.g.) use of **getInitiaProps** in 13.1 to **getServerSideProps** in 14.1

Technical Considerations using Material-UI (MUI):

- Customizing MUI components can be time-consuming and require advanced CSS skills sometimes

(e.g.) MUI Button component with custom shape or ripple effect.

Economic Considerations:

- Learning curve associated with Next.js and MUI may impact significant time and effort, potentially extending project timelines.

(e.g.) Initial time 4 weeks extended to 6 weeks.

TECHNICAL COMPLEXITY ANALYSIS

- Economic considerations with using OpenAI
  - Cost requires requests to be well optimized
  - Training data is not only challenging but costly due to how much training data is required
- Technical considerations with using OpenAI
  - Ensuring accuracy and consistency in responses
- Human considerations with using OpenAI
  - OpenAI as an LLM

THANK YOU ALL FOR LISTENING!
ANY QUESTIONS?