SickleSmart

“Your partner in Sickle Cell care: Empowering lives, one cell at a time.”

TEAM

Team Members: Ayomide Kayode (more to be added if available).

Roles:
[Ayomide Kayode] (Frontend Developer, Backend Developer, UX/UI Designer, Project Manager): As the sole member of the team, I will be responsible for all aspects of the project, including frontend and backend development, UX/UI design, and project management. By taking on multiple roles, I can ensure a cohesive and integrated approach to the development process, streamline communication, and maintain full control over the project's direction and execution.

Reasoning:
As the only member of the team, I have the flexibility and versatility to handle all aspects of the project. By serving as both the frontend and backend developer, I can ensure seamless integration between the client and server-side components of the application. My expertise in UX/UI design allows me to create intuitive and visually appealing interfaces that enhance the user experience. Additionally, taking on the role of project manager enables me to effectively plan, organize, and execute tasks, ensuring timely delivery and successful completion of the project.

TECHNOLOGIES

Libraries/Languages/Frameworks:
HTML: For structuring the content of web pages.
CSS: For styling the appearance of web pages.
JavaScript: For adding interactivity and dynamic behavior to web pages.
And hopefully;
Python: For backend development and server-side scripting.
SQL: For database management and querying.
Flask: A lightweight web framework for building backend applications in Python.

Trade-offs:
Option 1: Using HTML/CSS/JS vs. Frontend Frameworks (e.g., React, Vue)

Trade-offs: Using HTML/CSS/JS allows for more direct control over the code and can be easier to learn for beginners. However, it may result in more verbose code and require manual handling of state management and DOM manipulation compared to using frontend frameworks, which provide more advanced features out of the box.
Option 2: Using Flask vs. Full-fledged Backend Frameworks (e.g., Django)
Trade-offs: Using Flask offers simplicity, flexibility, and minimalism, making it well-suited for small to medium-sized projects. However, it may require more manual configuration and lack some built-in features and conventions provided by full-fledged backend frameworks like Django.

***Decision*:**
I have chosen to primarily use HTML, CSS, and JavaScript for frontend development due to their simplicity and my familiarity with these technologies. While frontend frameworks like React and Vue offer advantages in terms of code organization and reusability, I've decided not to use them at this stage to avoid complexity and focus on mastering the fundamentals first.
For the backend, I've opted for Flask due to its lightweight nature and ease of use. Flask allows me to quickly set up a backend server, define routes, and handle requests without overwhelming complexity. Additionally, Python's simplicity and readability make it an ideal choice for backend development, and SQL provides a robust solution for database management.

CHALLENGE

***Problem Statement*:**
The project aims to address the challenges faced by individuals living with sickle cell anemia by providing a comprehensive digital platform to track their health status, receive reminders for hydration and medication, access educational resources on managing the condition, and receive personalized recommendations for diet and lifestyle modifications.

***Limitations*:**
The project will not provide medical diagnosis or treatment recommendations. It is intended to complement, not replace, medical advice and professional healthcare services.
While the platform aims to provide general wellness tips and educational resources, it will not offer personalized medical advice tailored to individual health conditions. Users should consult healthcare professionals for personalized medical guidance.
The project may not cover all aspects of sickle cell anemia management, and users should continue to engage with their healthcare providers for comprehensive care.

***Target Audience*:**

The target audience includes individuals diagnosed with sickle cell anemia, as well as their caregivers and loved ones. Additionally, healthcare professionals and organizations specializing in sickle cell disease management may also benefit from the resources and tools provided by the platform.

***Locale*:**

The project is relevant to a global audience affected by sickle cell anemia. While the platform's content and resources may be accessible worldwide, efforts will be made to ensure cultural sensitivity and relevance to diverse communities impacted by the condition.

RISKS

***Technical Risks*:**

Potential Technical Risks:

- ***Integration Challenges*:** Integrating different components of the platform (e.g., frontend, backend, database) may pose challenges, leading to compatibility issues or unexpected behavior.
- ***Scalability Concerns*:** As the user base grows, scalability may become a concern, affecting the performance and responsiveness of the platform.
- ***Security Vulnerabilities*:** Security breaches, such as unauthorized access to user data or malicious attacks, could compromise the integrity and confidentiality of the platform.

Solutions:

- ***Thorough Testing*:** Implement comprehensive testing strategies, including unit tests, integration tests, and end-to-end tests, to identify and address integration issues early in the development process.
- ***Scalability Planning*:** Design the platform with scalability in mind, utilizing scalable architecture patterns and cloud-based solutions to accommodate increasing user loads.
- ***Security Measures*:** Implement robust security measures, such as encryption, authentication, and access control, to protect user data and mitigate security risks.

***Non-Technical Risks*:**

Potential Non-Technical Risks:

- ***Regulatory Compliance*:** Failure to comply with relevant regulations and legal requirements (e.g., data privacy laws) could result in legal liabilities and reputational damage.

- ➢ ***User Adoption:*** Low user adoption rates or lack of engagement may impede the success and sustainability of the platform.
- ➢ ***Funding Constraints:*** Insufficient funding or financial resources may limit the project's ability to meet its objectives and milestones.

Prevention Strategies:

- ➢ ***Compliance Review:*** Conduct regular reviews to ensure compliance with applicable regulations and standards, seeking legal guidance if necessary.
- ➢ ***User Feedback and Iteration:*** Solicit feedback from users throughout the development process and iterate based on their input to enhance usability and address user needs.
- ➢ ***Diversification of Funding Sources:*** Explore diverse funding sources, such as grants, partnerships, or crowdfunding, to mitigate reliance on a single funding stream and ensure financial sustainability.

INFRASTRUCTURE

Branching/Merging

- ➢ *Branching and Merging Process*: I will utilize the GitHub flow branching model, where development work is done on feature branches and merged into the main branch (typically master or main) via pull requests. Each feature or bug fix will have its own branch, allowing for parallel development and code review.

Deployment Strategy

- ➢ *Deployment Strategy*: I plan to use Netlify for continuous deployment of the website. Netlify's integration with GitHub allows for automatic deployment upon pushing changes to the main branch. This ensures a streamlined deployment process with minimal manual intervention.

Data Population

- ➢ *Data Population Strategy*: I would be exploring options for populating the app with data, such as manually inputting sample data during development or using placeholder content. Additionally, I would consider integrating with external APIs or databases to fetch real-time or pre-existing data relevant to sickle cell anemia, such as health statistics, educational resources, or community forums.

Testing

- ➢ *Testing Tools and Process:*
    - ○ Implement a combination of manual and automated testing techniques to ensure the reliability and quality of the application.

- For automated testing, consider using testing frameworks like Jest for JavaScript unit testing and PyTest for Python unit testing.
- Conduct manual testing to verify user interfaces, functionality, and compatibility across different devices and browsers.
- Utilize continuous integration (CI) tools such as GitHub Actions or Netlify CI to automate the testing process and ensure that tests are run automatically upon code changes.

EXISTING SOLUTIONS

***Similar Products*:**

Sickle Cell Foundation Nigeria
Sickle Cell Disease Association of America
Sickle Cell Society

Comparison

Similarities:

All products aim to provide support and resources for individuals with sickle cell anemia.
They offer features such as educational resources, community support, clinical trials, one on one sessions with health practitioners.
Users can access information on managing symptoms, lifestyle recommendations, and connecting with others affected by the condition.

Differences:

Sickle Cell Foundation Nigeria focuses more on health tracking and personalized recommendations, with features like symptom logging and medication reminders.
Sickle Cell Society emphasizes community engagement and peer support, offering forums, chat rooms, and social networking features.
Sickle Cell Disease Association of America specializes in educational resources and advocacy, providing articles, videos, and webinars on sickle cell anemia awareness and research updates.

Reimplementation

Reimplementation of existing solutions was considered to leverage proven concepts and functionalities that have been successful in addressing the needs of individuals with sickle cell anemia.
However, reimplementation allows for customization and adaptation to specific project requirements and user preferences focusing on creating a product that can be of immense help to users with factual information and assistance.
By reimplementing key features while adding unique elements and enhancements, the project can differentiate itself in the market and offer a compelling value proposition to users.