KAMI LIMU

Cohort 8 Group Members and Roles

1. Shadrack Anyona - Project Manager
2. Sharon Chang'ach - Development Lead
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TeloSoma

Problem Background

Introduction

According to (Gudo et al., 2011) the demand for university education in Kenya far exceeds the available resources in public institutions, negatively affecting the quality of education. Public universities, in particular, face a shortage of physical facilities, inadequate student welfare services, and insufficient teaching staff. Furthermore, a study by (Charo et al., 2019) points out

that Kenyan higher education faces several challenges such as the use of traditional learning methods and inadequate academic resources.

A recent study by (Kitainge, 2022), shows that some of the most commonly utilized academic resources in Kenyan universities are lecture methods and use of handouts. Additionally, A 2023 study by Education International among tertiary-level teachers in Kenya, further indicates that they are most likely to use printed versions of commercial teaching materials in their classrooms, which could include printed lecture notes that are handed out to students to study after class.

To follow up on the effect of these printed handouts on studying habits, we conducted a pilot survey among 59 undergraduate students in tech from different Kenyan universities in August of 2024. This pilot study revealed significant challenges in personal study habits among the participants. Approximately 78% of students reported feeling unmotivated to study often and perceived study time as boring, with 37% of the respondents attributing this to large and bulky lecture notes that are tiresome to go through. According to Statista (2024), approximately 563,000 students enrolled in universities in Kenya during the 2022/2023 academic year, with 8.5% of them pursuing tech courses. This amounts to roughly 47,855 tech students. Based on our pilot study findings, about 37% of this group—approximately 17,706 students—are likely facing challenges related to bulky lecture notes for a single academic year.

To address this issue, several platforms have been implemented, such as MindGrasp.ai, Khan Academy, and Crookr.co. These platforms offer tools that enhance learning by, summarizing information and breaking down difficult topics into digestible parts, making it easier to study and retain information. However, there exist some gaps in these platforms such as limitations in uploading your notes, slow response for summarized notes, lack of progress tracker, lack of free features, and inability to save your work.

TeloSoma seeks to address this issue and bridge this gap by allowing users to upload their notes and get chunked bite-sized modules. In addition, users get a personalized leaderboard, streaks, and notifications to keep them motivated and to track progress in their studies.

Some of the research questions the project will aim to address are as follows:

- How do printed lecture notes impact study habits and motivation among Kenyan university students?
- How can platforms like TeloSoma improve student engagement and retention?
- What gaps in current learning platforms hinder effective study habits, and how can TeloSoma address them?
- How do chunked modules in TeloSoma affect motivation and academic performance compared to traditional notes?

Market Opportunity

Platforms like MindGrasp.ai, Khan Academy, and Crookr.co have emerged to help students overcome the challenges of traditional learning methods, by offering summarized content and online resources. However, gaps still exist in personalization, motivation, and real-time progress tracking, leaving room for innovation.

Existing platforms

Mind Grasp.ai

AI-powered summaries that simplify complex topics, making information easier to understand. It offers a personalized learning experience by adapting content to individual learning styles and

includes interactive tools to engage users. However, the platform has limitations, such as difficulties with uploading and integrating personal notes. Summarization can be slow, there is a lack of comprehensive progress tracking and does not support the saving of personal notes, which limits the use of existing study notes. The limited free features may also restrict full access to its capabilities.

Khan Academy,

Khan Academy features a vast content library with lessons across various subjects and grade levels. It includes interactive exercises and quizzes to reinforce learning and has a personalized dashboard that tracks progress and suggests tailored content. Despite these strengths, Khan Academy has gaps in customization options, limiting the integration of personal notes.

Crookr.co

Crookr.co promotes collaborative learning by enabling real-time interaction and resource sharing among students. It provides access to digital materials and supports live discussions and group work. However, it struggles with the efficient integration of personal notes and may experience slow performance in accessing resources. The platform lacks advanced features for tracking individual progress and has many valuable features behind a paywall, limiting accessibility for some users.

Gaps in existing technologies

While platforms like MindGrasp.ai, Khan Academy, and Crookr.co currently offer solutions to help students summarize information, break down complex topics, and improve study habits, several gaps remain unaddressed. These platforms provide useful tools, but they have limitations such as restricted features for uploading personal notes, slow response times for summaries, lack of progress tracking, limited free features, and the inability to save work.

The proposed platform, TeloSoma, seeks to address these shortcomings by allowing users to upload their notes, receive chunked bite-sized modules for easier studying, and use features like personalized leaderboards, streaks, and notifications to track progress and stay motivated.

Leveraging the Gap

The target market for TeloSoma includes undergraduate students in Kenya, particularly those in tech fields. This segment is substantial, with over 500,000 students enrolled in higher education institutions across the country. According to a study by Nicholas Munyasi (2021), students spend over Ksh.100,000 annually on tuition fees, more than Ksh.10,000 on books and materials, and additional amounts on other necessities. This significant consumer spending highlights the economic contribution of students and underscores the potential revenue for educational technology solutions. Given the increasing demand for digital learning tools and the potential to enhance education standards, TeloSoma has a substantial opportunity to capture a meaningful share of this market while contributing to the broader technological advancement and educational improvement in Kenya.

Solution Idea

Target User

The target users for this solution are university students in Kenya, especially those studying in tech-related fields. These students were identified through a pilot survey conducted among 59 undergraduate students from different Kenyan universities in August 2024, which revealed significant challenges in personal study habits and a reliance on bulky lecture notes.

This target group was chosen because they experience the problem firsthand—lecturers provide printed lecture notes that are cumbersome, leading to reduced study motivation and poor exam preparedness. University students are an ideal group because they directly interact with these notes and must actively engage with study material to succeed academically. The decision to focus on tech students was influenced by the survey results and their tendency to struggle with the traditional methods of note-taking, given their demanding course material.

While other students in non-tech fields may also face similar challenges, tech students' coursework often requires more dynamic and engaging study habits, which makes this group the most suitable for the solution.

Solution Prototype

The proposed solution, TeloSoma, is a digital study platform designed to simplify bulky lecture notes into bite-sized, manageable modules. It features interactive quizzes to reinforce learning, a progress tracker to monitor user advancement, and engaging elements like leaderboards and streaks to foster a competitive yet supportive learning environment. To maintain consistent study

habits, the platform also sends personalized notifications and reminders, ensuring students stay on track.

The platform is a web application, which is accessible via multiple devices, allowing students to use their smartphones, laptops, or PCs. This flexibility enables students to study from anywhere, overcoming the challenge of limited access to study materials outside the classroom.

Process Flow:

1. **User Registration** – Users register on the platform using their university email.
2. **Upload Lecture Notes** – Students upload lecture notes, which are automatically chunked into smaller, digestible modules.
3. **Chunked Modules** – Lecture notes are presented in shorter sections, making them easier to review.
4. **Interactive Quizzes** – After completing modules, users take quizzes to test their comprehension.
5. **Progress Tracking** – The system tracks study progress and gives points for completing quizzes and modules.

This solution directly addresses the problem by making the study materials more accessible and engaging. Instead of relying on bulky lecture notes, students can interact with the content through smaller, manageable modules. The interactive quizzes and progress trackers foster a sense of achievement and motivation, thus helping students stay engaged and improve their study habits.

Assumptions Made

In ideating this solution, the following assumptions were made:

- University students will prefer interactive, gamified learning platforms over traditional methods of studying from bulky notes.
- Students will benefit from chunked content, which reduces the cognitive load and increases engagement with the material.
- Most students will have access to a mobile phone, laptop, or PC and the necessary internet connection to access the platform.
- Students will be willing to upload their lecture notes and actively engage with the platform, either individually or in groups.

Value proposition

TeloSoma offers a solution that transforms bulky lecture notes into bite-sized, digestible modules. By integrating personalized quizzes, progress tracking, TeloSoma makes studying more efficient and engaging, ultimately improving study habits and academic performance.

Designed Solution

Technologies Used

- **Frontend: React**

  React was chosen for its component-based architecture, which facilitates the creation of reusable UI components and enhances the overall user experience. Its efficient rendering capabilities ensure a smooth interface as students navigate through modules and quizzes.
- **Backend: Node.js**

  Node.js provides a scalable and efficient environment for the backend, enabling real-time data processing and seamless integration with the frontend. This choice allows for handling multiple requests simultaneously, which is crucial for an interactive application.
- **Authentication: Firebase**

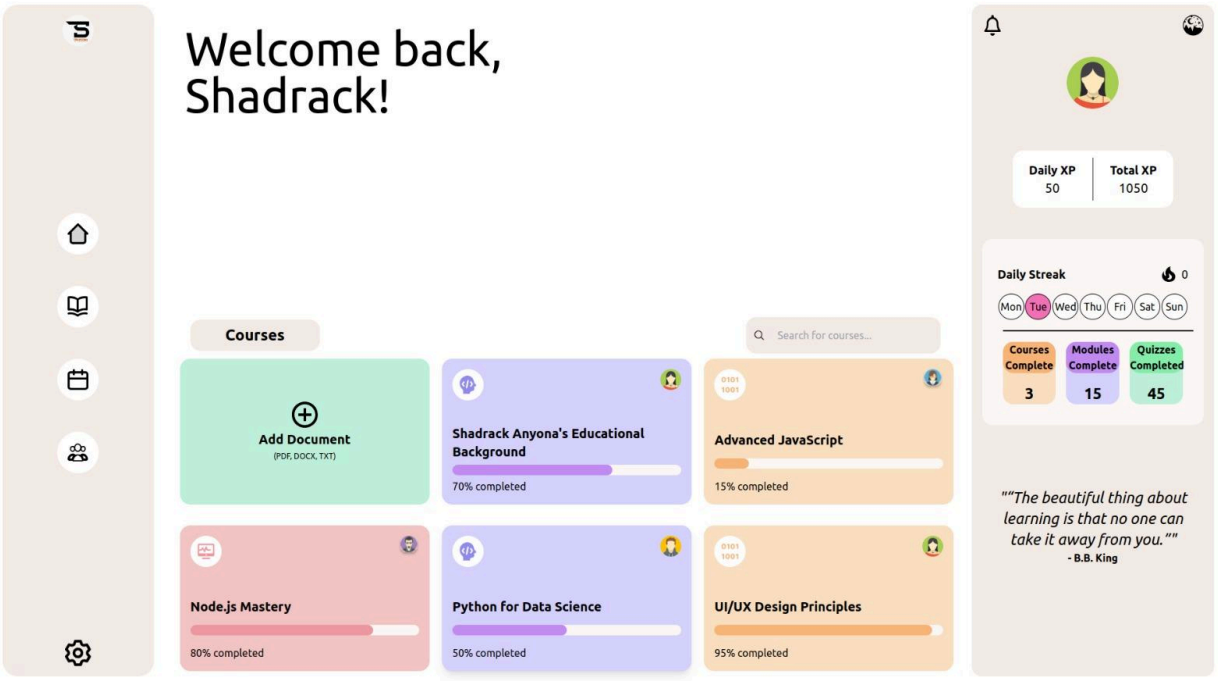
  Firebase offers a robust authentication system, making it easy to manage user accounts securely and efficiently. Its integration allows for quick sign-in options and user management without extensive backend setup.
- **API: OpenAI**

  The OpenAI API was utilized for its advanced natural language processing capabilities, enabling effective chunking of lecture notes into smaller, digestible parts. This enhances the learning experience by simplifying complex information.

Screenshots of Main Modules

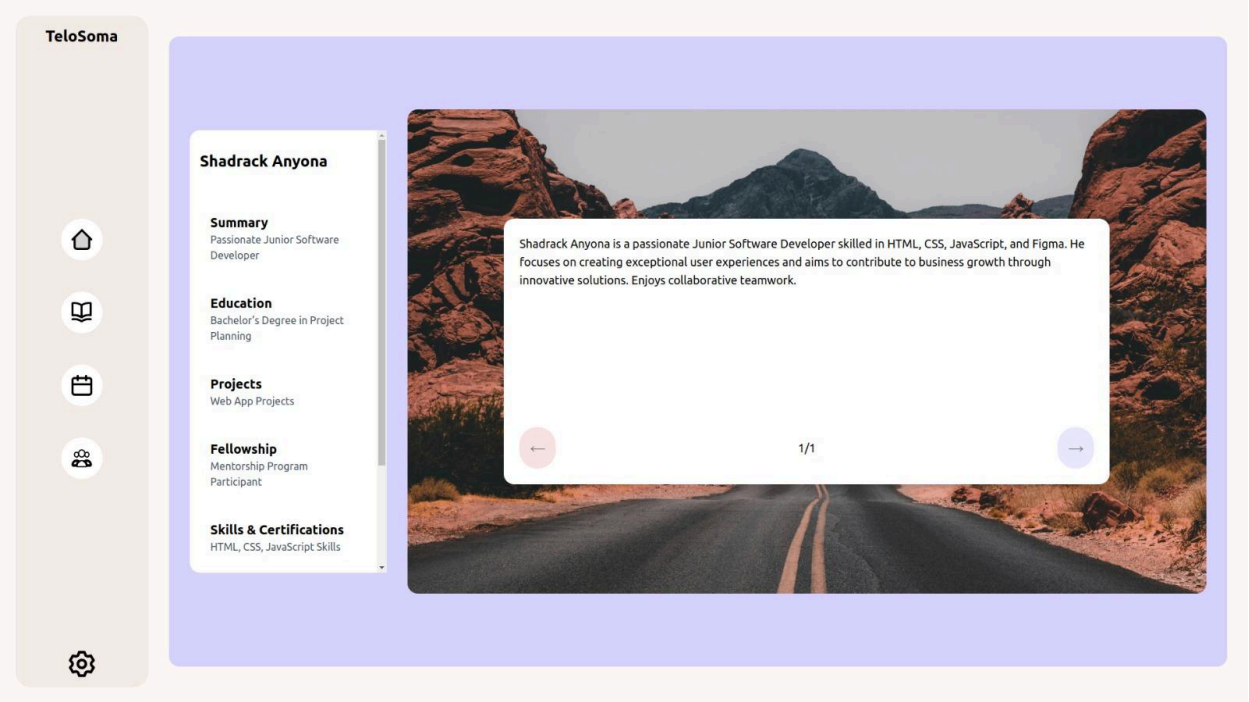
1. Modules Screen

This screen displays all available modules for the students, allowing easy navigation and selection of specific topics.



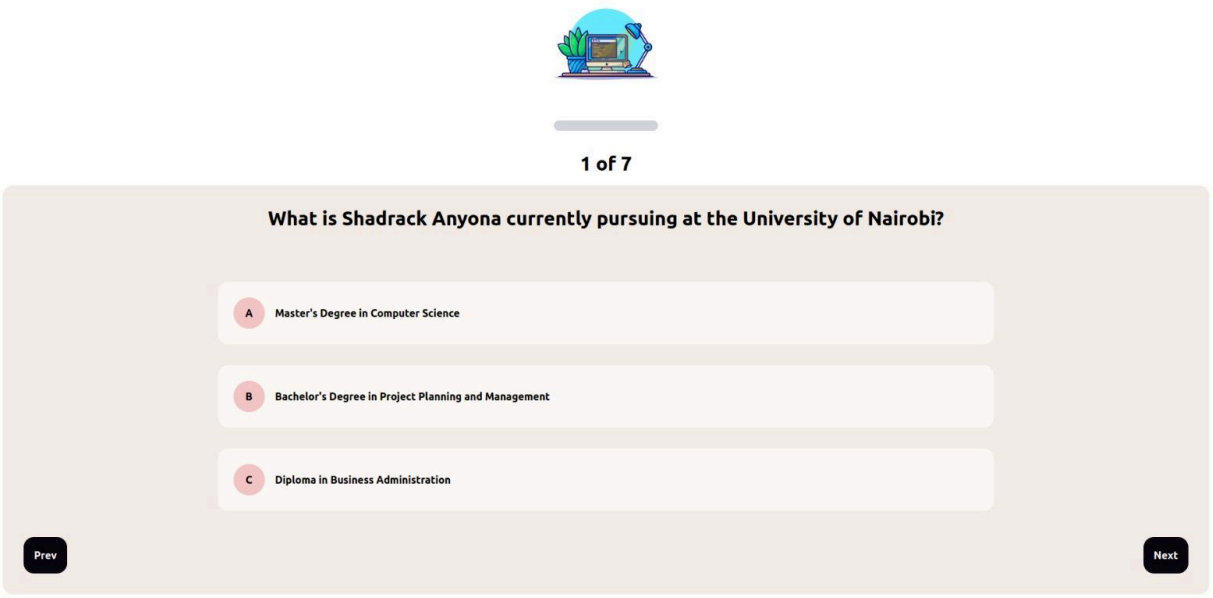
2. Notes Display Section

This module showcases the processed notes, allowing students to view the chunked information in a structured format, promoting better understanding and retention.



3. Quiz Section

In this section, students can take personalized quizzes based on the content they've studied. It helps reinforce learning and track progress over time.



Link to the Solution

- GitHub Repository - https://github.com/The-Dragonss/TeleSoma

Business Model

Who are our Customers at TeloSoma:

Primary Customers:

University students studying tech courses like computer science, engineering, IT, and related disciplines. Who often deal with dense and technical lecture notes.

Secondary Customers:

Educational institutions or **universities** looking to provide their students with better study tools, track student progress and performance, use analytics to identify areas for improvement, and offer targeted support.

TeloSoma's Revenue Streams:

Subscription Model: We offer tiered subscription plans which are basic, standard, and premium that provide access to different levels of features and support. This model will encourage recurring revenue.

Partnerships with Educational Institutions: Telosoma will offer licensing agreements to schools, colleges, or universities, providing them with a tailored version of the platform for their students.

Advertising and Sponsorships: We will collaborate with brands and educational institutions to feature sponsored courses or content within the platform. We will also integrate advertisements from relevant educational products or services, ensuring they align with your users' interests.

How do we at TeloSoma reach our Consumers:

Online Marketing and SEO

Targeted Ads: Paid ads on platforms like **Google, Facebook, Instagram, and LinkedIn** will target students, educators, and tech learners, bringing them directly to our platform.

Content Marketing: Writing blog posts, creating tutorial videos, and hosting webinars that provide tips on effective studying will draw students to the platform.

Search Engine Optimization (SEO): By optimizing for search terms like "best study tools for computer science students," We will increase our visibility on search engines, attracting more users to the platform organically.

On-campus activation:

We will host free workshops or seminars on topics relevant to students and set up information booths to provide demonstrations, answer questions, and encourage sign-ups. While also distributing promotional materials such as flyers, brochures, and branded merchandise to increase visibility.

Key resources required to make TeloSoma a success:

Funding and Capital: we need sufficient initial funding to cover startup costs and operational expenses.

Technology Infrastructure: We have to invest in reliable technology, including servers, software, and tools that support content delivery, user management, and analytics.

Skilled Workforce: We need to build a team of skilled professionals who can contribute to different aspects of the business such as marketing and sales personnel, Technical support, and customer service representatives

Who will be the key partners at TeloSoma:

Marketing and Advertising Agencies: who will, develop and execute marketing strategies to promote TeloSoma. Conduct market research to identify target audiences and trends.

Manage social media campaigns, SEO, and content marketing.

Payment Processors and Financial Institutions: Who will handle transactions and payment processing for subscriptions and Offer financial advice and support for funding initiatives.

Responsible Computing

Privacy and Security

Firebase Authentication

TeloSoma utilizes Firebase for secure authentication. Firebase ensures that users' credentials are protected using industry-standard encryption and that only authorized users can access specific features or data. This secures personal data from exploitation or unauthorized access, aligning with responsible data protection and privacy practices.

Data Handling

Beyond authentication, it's crucial to ensure that any user data stored or processed within TeloSoma follows privacy policies that guarantee data is only used for educational purposes and is not shared with third parties without consent. All user data is stored locally on the user's machine, ensuring full control over personal data. This approach minimizes the risk of external data breaches and provides a higher level of privacy as data is not uploaded to external servers.

Accessibility

Mobile Optimization

By making TeloSoma accessible on mobile devices, the platform reaches a wider audience, including those who may not have access to computers. This enhances accessibility for students from various backgrounds and locations, ensuring that education is not restricted by device or infrastructure limitations.

Traction

During our user interviews at Zetech University, Walker highlighted a key challenge he faces—staying motivated to study due to the overwhelming nature of long, bulky notes. This feedback reinforces the importance of our platform's approach, focusing on chunking content into manageable, engaging modules to enhance the learning experience.

First User Interaction

Walker, the first user of TeloSoma, explored the platform to address his challenge of staying motivated with long and bulky notes. After using TeloSoma, Walker provided valuable feedback on how the platform's features helped make his study process more manageable and engaging. His insights have been instrumental in refining the user experience for future learners.

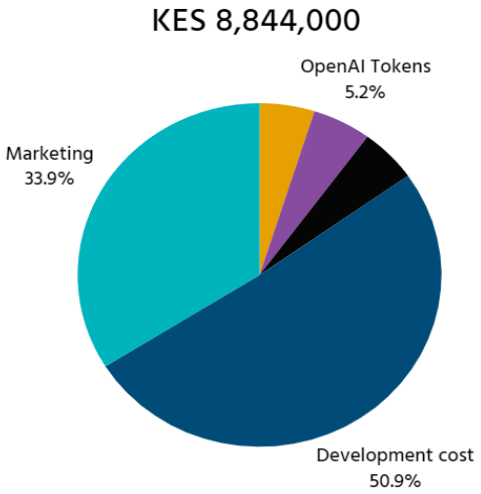
Monetization Strategy

While TeloSoma has not yet generated income, we have a clear monetization strategy in place. This includes a tiered subscription model, institutional partnerships through licensing, and advertising and sponsorship opportunities. These avenues will allow us to effectively monetize the platform as we expand our user base and service offerings.

User Impact

Walker, one of our early users, shared that TeloSoma made it easier for him to stay motivated and engaged with his lecture notes. By breaking the notes into smaller chunks and including assessments at the end of each module, he found the study process more manageable and effective in reinforcing his understanding.

Funding/Support Need



To implement Telosoma, we will require funding that is strategically allocated to ensure the successful development, testing, and scaling of the solution. The funding is broken down as follows:

Development Cost (50.9%) – KES 4,500,000
This will cover the software development phase, which includes building and refining the web platform, creating a user-friendly interface, integrating gamification, and setting up the backend architecture. We will also implement testing procedures and bug fixes.

Marketing (33.9%) – KES 3,000,000
This will be used to promote TeloSoma to institutions, educators, and students. It includes online

marketing, social media campaigns, and attending educational events for demonstrations. The goal is to create awareness and drive early adoption.

OpenAI Tokens (5.2%) – KES 460,000

These funds will be allocated for using OpenAI tokens, particularly in implementing natural language processing models, which will help in summarizing notes and providing interactive feedback for users.

Hosting Services (4.9%) – KES 433,560

This will cover the costs of hosting the web platform, ensuring reliable and secure access for users.

Legal Costs (5.1%) – KES 450,000

This allocation will handle legal fees, ensuring compliance with regulations and protecting intellectual property.

Team TeloSoma

David Maigwa (UI/UX and Documentation Lead)
David creates intuitive user interfaces for TeloSoma, ensuring an engaging experience. He also maintains comprehensive documentation for all processes and features

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Sharon Chang'ach (Development Lead)
Sharon drives the technical development of TeloSoma, coding and implementing core features. Her expertise ensures a functional and scalable platform.

Shadrack Anyona (Project Manager)

Shadrack oversees project execution, managing timelines and tasks to align the team with goals. His leadership ensures timely milestone achievement and an organized workflow.