FINAL YEAR PROJECT REPORT

"STITCH VISION" TEXTILE APP

SUBMITTED BY

SYED AHMED RAZA SHAH	**50602**
SAAD KHAN	**53086**
SYED MUHAMMAD SIKANDER MEHDI	**51976**

SUPERVISOR

ASIF ALI

COORDINATOR

DR. AARIJ MAHMOOD HUSSAAN

FACULTY OF ENGINEERING, SCIENCE AND TECHNOLOGY

IQRA UNIVERSITY, KARACHI

MARCH 2024

ABSTRACT

This document points towards the Textile industry of Pakistan. Stitch Vision, a revolutionary mobile application, aims to shake up the Pakistani textile industry by directly connecting international clients with local vendors, bypassing exploitative intermediaries like buying agents and brokers. Clients can expect competitive prices, faster delivery times, and transparent communication, while vendors eliminate hefty commissions and access a wider market. The app facilitates seamless interaction through secure chat, showcases extensive company portfolios, and offers robust order management tools for both parties. This direct connection fosters trust, fair competition, and efficiency, ultimately reducing costs, accelerating transactions, and empowering both clients and vendors to thrive in a transparent and dynamic textile ecosystem.

We have approved this manuscript for submission and presentation as fulfillment of Bachelor of Software Engineering/ Computer Science.

_____

Supervisor: Asif Ali

Date: 17-03-2024

_____

Project Coordinator: Dr. Aarij Mahmood Hussaan

Date: 17-03-2022

DECLARATION

I hereby declare that the work has been done by myself to fulfill the requirement of the BS (Computer Science) and no portion of the work contained in this report has been submitted in support of any application for any other degree or qualification of this or any other university or institute of learning.

I hereby further declare that in the event of any infringement of the provision of the Act whether knowingly or unknowingly the university shall not be liable for the same in any manner whatsoever and undertake to indemnify and keep the university indemnified against all such claims and actions.

_____

© SYED AHMED RAZA SHAH [50602]

_____

© SAAD KHAN [53086]

_____

©MUHAMMAD BILAL ASHRAF [51976]

ACKNOWLEDGEMENT

First, we thank Almighty Allah who praise us with the ability to think, work and deliver what we are assigned to do. Secondly, we must be grateful to our supervisor “Sir Asif Ali” who helps us in this project. We also acknowledge our teachers that throughout our studies helps us and guides us, departmental staff, university staff or other then this. We are also thankful to the FYP instructor “Dr. Aarij Mahmood Hussaan” for his precious support throughout the tenure as he is the best instructor for FYP who makes every student to be updated with the project progress and lead to the completion with great success within the time period given. We are also grateful to our family and friends, for supporting and encouraging us to complete this project. Finally, we would like to thank all the colleagues of IQRA University who have been with us in all difficult times with suggestions and supportive words which carry us to make this project a reality.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

CHAPTER – 1

1.0 Introduction:

In today's interconnected world, technological advancements have revolutionized various industries, facilitating seamless communication, collaboration, and commerce on a global scale. Within the realm of commerce, the textile industry stands as a cornerstone of economies worldwide, driving innovation, creativity, and economic growth. However, despite its significance, the textile industry faces challenges rooted in traditional practices, inefficiencies, and barriers to entry, particularly in regions like Pakistan.

The Stitch Vision App emerges as a beacon of innovation within Pakistan's textile industry, poised to revolutionize traditional practices and foster efficiency, transparency, and trust among stakeholders. By leveraging state-of-the-art technology, our platform connects textile vendors with clients, offering a seamless marketplace for product discovery, procurement, and collaboration. With a user-friendly interface and robust features, the app empowers clients to access a diverse catalog of textile products while enabling vendors to showcase their offerings, manage orders, and expand their reach. Through this report, we explore the transformative potential of the Stitch Vision App in reshaping the textile commerce landscape, driving positive change, and propelling the industry towards a digital future.

1.1 Problem Statement/Description:

In Pakistan's textile industry, the prevalent reliance on traditional procurement methods and intermediaries poses significant challenges for both clients and vendors. Clients often face difficulties in sourcing quality textile products efficiently, while vendors struggle to expand their reach and compete in a crowded marketplace. Moreover, the presence of intermediaries adds complexity and costs to transactions, leading to inefficiencies and opacity in the procurement process. These challenges hinder the growth and competitiveness of the textile industry, limiting its potential to thrive in a rapidly evolving global market. Therefore, there is a pressing need for a solution that addresses these pain points, streamlines procurement processes, fosters transparency, and empowers stakeholders to navigate the textile commerce landscape with confidence and efficiency.

1.2 Motivation:

The motivation behind the development of Stitch Vision App stems from a deep-rooted desire to address the longstanding challenges plaguing Pakistan's textile industry and unlock its full potential for growth and innovation. At its core, Stitch Vision App is driven by the recognition of the pivotal role that the textile sector plays in the country's economy and its potential to drive social and economic development. By harnessing the power of technology, we aim to empower clients and vendors alike, providing them with a platform that streamlines procurement processes, fosters transparency, and enables seamless collaboration.

Furthermore, our motivation is fueled by a commitment to driving positive change and creating value for all stakeholders involved in the textile supply chain. We are inspired by the opportunity to democratize access to quality textile products, eliminate inefficiencies, and create a level playing field for vendors of all sizes. By empowering clients to make informed purchasing decisions and enabling vendors to reach a wider audience, Stitch Vision App seeks to catalyze growth, innovation, and sustainability within the textile industry.

Ultimately, our motivation is rooted in the belief that technology can be a powerful enabler of progress and prosperity. Through Stitch Vision App, we aspire to transform the textile commerce landscape in Pakistan, unlock new opportunities for economic empowerment, and contribute to the country's journey towards becoming a global leader in textile innovation and entrepreneurship.

1.3 Objective:

The primary objective of Stitch Vision App is to modernize and optimize the textile procurement process in Pakistan by providing a comprehensive and user-friendly platform that connects clients with verified textile vendors. Through this platform, we aim to achieve the following objectives:

- To develop a mobile application that eliminates buying agents and brokers in the textile industry in Pakistan.
- To create a platform for international clients to directly connect with vendors and streamline the ordering process.
- To promote a fair and transparent business environment in the textile industry.

Research Objectives:

1. Investigate the current challenges and pain points faced by clients and vendors in Pakistan's textile industry.

2. Explore existing technologies and platforms in the textile commerce domain to identify best practices and areas for improvement.
3. Conduct market research to understand the needs, preferences, and behaviors of clients and vendors in the textile industry.
4. Analyze the regulatory and legal framework governing textile commerce in Pakistan to ensure compliance and mitigate risks.

Academic Objectives:

1. Enhance knowledge and understanding of the textile industry ecosystem, including supply chain dynamics, market trends, and technological innovations.
2. Apply theoretical concepts and principles from relevant academic disciplines, such as business management, information technology, and economics, to address real-world challenges in the textile industry.
3. Foster critical thinking and analytical skills through the development and execution of strategic plans and solutions for Stitch Vision App.

Management Objectives:

1. Develop and implement a robust business strategy for Stitch Vision App, including market positioning, target audience identification, and revenue generation.
2. Establish effective project management processes to ensure timely delivery of key milestones and objectives.
3. Build and nurture strategic partnerships with key stakeholders, including textile vendors, clients, regulatory bodies, and technology partners.
4. Implement comprehensive risk management practices to identify, assess, and mitigate risks associated with the development and operation of Stitch Vision App.

1.4 Challenges

Despite its transformative potential, the development and implementation of Stitch Vision App are accompanied by several challenges that must be addressed effectively to ensure its success:

1. **Technological Integration:** Integrating various technologies, including mobile app development, cloud infrastructure, and database management, presents technical complexities that require careful planning and execution to ensure seamless functionality and user experience.

2. **Data Security and Privacy:** Safeguarding sensitive user data, including personal information and financial transactions, against security threats and privacy breaches is paramount. Implementing robust security measures and compliance with data protection regulations are essential to build and maintain trust among users.
3. **Vendor Onboarding and Verification:** Ensuring the authenticity and reliability of textile vendors on the platform requires a thorough vetting process, including verification of business credentials, product quality, and ethical standards. Managing vendor relationships and addressing concerns related to trust and credibility are ongoing challenges.
4. **User Adoption and Engagement:** Encouraging clients and vendors to adopt and actively engage with the app requires effective marketing and user acquisition strategies. Providing incentives, training, and ongoing support to users to maximize app usage and retention is crucial for long-term success.
5. **Market Competition:** The textile industry in Pakistan is highly competitive, with existing players and established marketplaces vying for market share. Standing out amidst competition requires differentiation through unique value propositions, superior user experience, and innovative features.
6. **Regulatory Compliance:** Navigating the regulatory landscape, including legal requirements, taxation, and licensing, poses challenges that must be addressed to ensure compliance and mitigate legal risks. Regular monitoring and adaptation to changes in regulations are necessary to avoid penalties and legal issues.
7. **Supply Chain Logistics:** Managing logistics and supply chain operations, including inventory management, order fulfillment, and shipping, presents logistical challenges that impact the efficiency and reliability of product delivery. Establishing partnerships with logistics providers and optimizing supply chain processes are critical to overcoming these challenges.

CHAPTER – 2

2.0 Introduction

In this chapter, we explore the technological foundations and innovations that drive the Stitch Vision App, revolutionizing the textile commerce landscape in Pakistan.

2.1 Background of the Technology:

Stitch Vision App leverages state-of-the-art technologies to streamline textile procurement and enhance user experience. The app's interface features intuitive navigation and robust functionalities, catering to the diverse needs of clients and vendors.

2.1.1 Flutter:

Flutter serves as the backbone of Stitch Vision App's frontend development, offering a cross-platform framework for building high-performance, visually appealing user interfaces. Its rich set of widgets and customizable components enable seamless integration of features and smooth user interactions.

2.1.2 Firebase:

Firebase powers the backend infrastructure of Stitch Vision App, providing a scalable and reliable platform for data storage, authentication, and real-time communication. Its integration with Flutter simplifies backend development, allowing for rapid prototyping and deployment of new features.

2.2 Advanced Features:

Stitch Vision App incorporates advanced features to enhance user engagement and satisfaction. These include:

- Real-time Chat: Enable seamless communication between clients and vendors for efficient order management and support.
- Bidding System: Integrate Bidding system for hassle-free order transactions for clients and vendors.
- Proposal Management: Provide comprehensive proposal management system that can used to be tailored according to the business needs of the client.

2.3 Future Directions:

Looking ahead, Stitch Vision App aims to continuously innovate and expand its capabilities. Future enhancements may include:

- Blockchain Integration: Explore the potential of blockchain technology to enhance transparency and traceability in the textile supply chain.
- Social Commerce Features: Incorporate social sharing and community-driven features to foster engagement and collaboration among users.
- Secure Payments: Integrate third-party payment gateways to ensure secure and hassle-free transactions for clients and vendors.

2.4 Literature Review:

2.4.1 The Need for Disintermediation and Transparency in the Textile Supply Chain

The global textile industry is renowned for its intricate web of processes and stakeholders. In traditional supply chains, raw materials journey through multiple stages – fiber production, yarn spinning, fabric weaving or knitting, dyeing, finishing – before reaching garment manufacturers and eventually, consumers. These supply chains frequently span vast geographical distances ([1] [Source: Reference a study analyzing globalized textile supply chains]). A multitude of intermediaries, including agents, brokers, and wholesalers, facilitate these complex chains.

While this system of intermediaries enables the industry to function, it introduces critical

challenges within the textile realm:

Information Asymmetry: Intermediaries often act as gatekeepers of vital information, including real-time pricing, inventory availability, and details regarding manufacturing practices ([2][Source: Find an article exploring this concept specifically in the textile context]). This lack of direct access to information disadvantages buyers and sellers and may create opportunities for mispricing or inefficient distribution.

Ethical Ambiguity: Multiple layers of intermediation diminish accountability and transparency within textile supply chains. This obfuscation complicates ensuring the ethical sourcing of raw materials, and creates difficulty in upholding fair labor practices across the manufacturing journey ([3][Source: A paper examining the impacts of supply chain transparency]).
Reduced Cost Efficiency: With each additional intermediary, supply chain transaction costs inevitably increase, negatively impacting affordability for end consumers. Furthermore, delays or breakdowns in communication between intermediaries impede the swift resolution of supply chain disruptions.

Geographic Dispersion: Many textile supply chains involve operations distributed across several countries or even continents. This global fragmentation, with each phase of manufacturing potentially having distinct regulatory contexts, introduces communication complexities and hampers the effective oversight of ethical sourcing standards ([11] [Source: Exploration of supply chain ethics challenges in a global landscape]).

Documentation Reliance: Legacy information systems in the textile industry often necessitate a paper-heavy approach to tracking goods within the supply chain. This reliance on documents creates vulnerability to errors, forgeries, and delays; issues compounded by manual processes.
Power Imbalances: Some intermediaries can possess undue influence, exploiting information asymmetries to gain advantages during negotiations. This imbalance further erodes trust between textile supply chain stakeholders, often to the detriment of smaller production facilities facing limited options and negotiating power ([12] [Source: Article discussing power and negotiation gaps in supply chains]).

2.4.2 Mobile Applications as Disruptors in Traditional Industries

The meteoric rise and integration of mobile applications have spurred transformations across numerous industries. From transportation to hospitality, mobile-driven disintermediation enables direct connections between service providers and users, enhancing choice, flexibility, and often, lower prices ([4][Source: Include a paper that broadly analyzes the disruptive impact of mobile applications]). These platforms create seamless and personalized customer experiences. Consider

examples within these sectors:

Ride-Hailing and Transportation: Apps like Uber and Lyft fundamentally altered the ride-hailing market by removing the need for taxi dispatchers. Users benefit from increased price transparency, improved availability, and convenient real-time tracking ([5][Source: Research exploring the rise of ride-hailing services]).

Food Delivery: Mobile-driven food delivery platforms, such as DoorDash and Grubhub, enable direct ordering from restaurants eliminating the necessity for phone calls or physical visits. These services offer expanded selection, streamline the ordering process, and deliver valuable time savings for consumers ([6][Source: Find a study that showcases how mobile technology revolutionizes food delivery]).

Mobile applications also possess the potential to reconfigure complex supply chains. Within this context, significant benefits emerge:

Enhanced Visibility: Apps equipped with supply chain tracking modules offer a detailed, up-to-the-minute understanding of inventory movement, order status, and expected delivery times. Increased transparency promotes proactive and informed decision-making for producers, suppliers, and clients ([7][Source: An article on advantages of mobile apps for streamlining supply chains]).

Improved Collaboration: Digital platforms support effective communication channels and seamless information exchange among parties involved in the supply chain. This collaboration encourages knowledge sharing, fosters problem-solving, and paves the way for streamlined processes ([8][Source: Find a paper detailing how mobile apps improve supply chain collaboration]).

E-commerce: Consider online retail giants like Amazon or Alibaba. These mobile-optimized platforms, while operating primarily on a B2C (business-to-consumer) model, showcase the power of disintermediation as consumers interact directly with product listings and even communicate with brand representatives and manufacturers ([13] [Source: Investigate Amazon's impact on traditional retail]). This example underscores the consumer demand for convenience, choice, and information access made possible through mobile-centric ecosystems.

Customization and 3D Printing: While this technology is still burgeoning, it demonstrates the potential impact of mobile-enabled design. Apps used in tandem with 3D printing offer personalized creation, eliminating middlemen and bringing consumer vision directly to life ([14] [Source: Look for a study on integrating mobile apps with 3D printing]). For textiles, this concept aligns with trends for individualized design, on-demand printing, and minimizing product overstock with greater personalization.

2.4.3 Application of Mobile Platforms in the Textile Industry

In recent years, a notable development has been the growing influence of mobile applications within the textile industry. This innovation addresses many of the challenges stemming from traditional supply chain setups.

Customization and Product Visualization: Mobile apps can feature advanced design tools enabling clients to tailor and visualize textile products virtually before proceeding to order ([9][Source: Identify a paper exploring mobile apps used for textile design visualization]). This reduces prototyping costs and promotes co-design for more customer-oriented products. Sustainability Enablement: Apps can help monitor and report on sustainable textile practices from fiber origin to product disposal. Clients can access reliable information for supply chain decisions ensuring the responsible selection of raw materials and assessing the environmental footprint ([10][Source: An article that explores how technology can address sustainability in the textile industry]).

Streamlined Communication and Collaboration: Mobile platforms create shared digital spaces where supply chain participants can effectively engage and manage projects on the fly. Direct chat capabilities reduce bottlenecks caused by email chains or dependence on traditional, fixed schedule phone calls.

Digital Literacy and Infrastructure: Mobile apps can offer exceptional efficiency improvements for businesses in the textile industry; however, not everyone in the textile supply chain may have equal access to reliable technology infrastructure or possess the digital skills needed for seamless platform adoption. Bridging these gaps for smaller scale vendors necessitates training, technical support, and tailored educational resources.

Network Effects: To reap the full benefit of mobile-driven supply chain transformation, an app needs to establish adoption across critical mass. Attracting enough textile vendors and clients requires initial investment, user interface optimization, and effective onboarding strategies Source: Examine factors facilitating successful technology adoption]).
Data Security and Standardization: Mobile platforms handling sensitive information about pricing, inventory, and even intellectual property (designs) must implement robust data security protocols. Furthermore, the textile industry lacks robust industry-wide data exchange standards; this inhibits widespread collaboration and interoperability, even when mobile technologies are in place.

2.4.4 Stitch Vision's Alignment with Literature

The Stitch Vision mobile application stands to disrupt the traditional textile supply chain model. By harnessing the power of direct interaction and transparent information sharing, Stitch Vision aims to enhance efficiency, promote ethical practices, and foster a more equitable environment for all industry stakeholders.

Key Principles in Action

Direct Connection: The app eliminates the need for intermediaries, facilitating direct communication between clients and vendors. This streamlined approach reduces costs, prevents markup exploitation, and empowers both parties to negotiate fairly.
Transparency: Comprehensive features like order tracking, detailed vendor profiles, and robust client review systems establish unprecedented transparency within the supply chain. This openness encourages accountability, trust, and drives more informed, ethical decision-making at every stage.

Stitch Vision seeks to synthesize the strengths of these existing apps while addressing their potential shortcomings. It aims to provide a truly integrated platform:

End-to-End Management: Where other apps may address a single aspect of the supply chain, Stitch Vision strives for a comprehensive approach, from initial contact and negotiation to production tracking, quality control, and secure payment gateways.
Emphasis on Fairness: Recognizing potential power imbalances within the industry, Stitch Vision's features actively encourage equitable negotiations and transactions, prioritizing the well-being and sustainable growth of smaller vendors alongside larger clients.
Localized Advantage: Focusing initially on the Pakistani market allows Stitch Vision to tailor its functionality, interface, and support resources to meet the region's unique needs and cultural expectations.

Potential Impact

Stitch Vision, driven by a commitment to transparent practices, could create a ripple effect through the textile industry:

Economic Benefits: Direct connections and efficient processes might lead to cost savings, fairer distribution of profits, and the potential for increased investment in innovation across the sector.

Ethical Empowerment: Visibility may deter unethical practices like labor exploitation or environmental damage, empowering conscientious buyers and vendors alike to uphold fairer standards. .

Transformation of Relationships: By forging open lines of communication and collaboration, Stitch Vision has the potential to shift the paradigm away from competition-driven dealings towards more cooperative and trust-based partnerships within the supply chain.
Conclusion

Stitch Vision's ambition is to not merely replicate existing apps, but to introduce a truly transformative technological solution to address the complexities and potential inequities of the textile industry. Should it realize its goals, the app may positively impact the Pakistani textile sector and inspire more ethical, collaborative, and efficient practices worldwide. Addressing Market Gaps: Pakistan and Beyond

2.4.5 Details of Relevant Theory

The textile industry is characterized by intricate supply chains often spanning multiple countries and involving numerous intermediaries. This complexity introduces various challenges including a lack of transparency, delays, price manipulation, and potential exploitation of workers. Mobile applications hold significant promise in addressing these challenges by streamlining communication, enhancing efficiency, and promoting ethical practices within the textile industry.

2.4.5.1 Relevant Theories

Disintermediation: The process of removing intermediaries from a transaction or supply chain. Mobile applications such as Stitch Vision can enable direct interaction between clients and textile vendors. This disintermediation leads to reduced costs, faster communication, and greater control for all parties involved.

Supply Chain Transparency: Enhanced visibility into the supply chain and production processes helps to ensure ethical sourcing, labor practices, and product quality. Mobile applications with features for order tracking and direct vendor communication foster trust and accountability throughout the textile supply chain.

Collaborative Networks: Mobile platforms foster a collaborative environment where clients and vendors can share ideas, negotiate terms, and track the progress of projects. This networked approach facilitates greater innovation, problem-solving, and responsiveness to market needs.

Information Asymmetry Reduction: Traditionally, intermediaries control valuable information about prices, availability, and production capacity. Mobile applications, by democratizing access to this data, enable clients to make informed purchasing decisions. This ultimately creates a more balanced and competitive marketplace.

Stitch Vision's Impact

The Stitch Vision mobile application applies these theories in several key ways

Direct Connection: Eliminating intermediaries fosters direct communication and negotiation between clients and vendors, improving efficiency and minimizing the potential for price manipulation.

Transparency: Features such as order tracking, vendor profiles, and client reviews enhance supply chain transparency. This leads to increased trust and ethical decision-making.

2.4.6 Review of past work/similar apps

There is no such app available app in Pakistan related to this purpose but there are few examples of similar apps in all around the world that are given below.

Examples of Mobile Apps in the Textile Industry

There are a number of mobile apps that are specifically designed for the textile industry. Some examples include:

Fashion United: Focused on delivering the latest fashion industry news and trends, Fashion United's supplier and buyer directory serves as a valuable point of connection for industry players.

Textile Connect: With an emphasis on networking, Textile Connect allows textile professionals to build relationships while accessing crucial job postings, industry updates, and relevant trade show information.

Textile Showroom: This app streamlines product discovery and purchasing. Users can easily browse textile offerings from diverse suppliers, comparing availability, pricing, and delivery logistics to make well-informed choices.

Sewport: This online marketplace connects independent designers and smaller fashion brands with suppliers and manufacturers. The platform emphasizes transparency and sustainability, facilitating connections based on shared values.

Maker's Row: This US-based platform is more production-focused. It assists businesses of various sizes in finding domestic manufacturers for apparel, accessories, and home goods. Maker's Row offers project management tools and educational resources to support the product development process.

Bambify: Bambify aims to simplify the sourcing and production of custom branded merchandise and promotional products. Through their platform, businesses can obtain quotes, order samples, and manage manufacturing, reducing complexity often associated with this process.
Embroidery Stitch View & Convert: While technically different in focus, this app speaks to Stitch Vision's potential ability to handle logistics related to specific aspects of textile production. Stitch View & Convert lets users view, analyze, convert, and share embroidery designs across various machine formats, helping streamline this phase of garment creation.

2.5 Ethical and Professional Considerations:

In this chapter, we delve into the ethical and professional considerations surrounding the development and implementation of the Stitch Vision App. The following aspects are explored in detail:

1. **User Privacy and Data Protection:**
    - Upholding the privacy rights of users is paramount. The app must adhere to strict data protection regulations and implement robust security measures to safeguard user information.
    - Transparent data collection practices should be maintained, with users consenting to the collection and use of their personal data.
2. **Fair Business Practices:**
    - The app should foster fair and transparent business practices between clients and vendors. This includes ensuring that all transactions are conducted ethically, with clear terms and conditions outlined for both parties.
    - The bidding process should be conducted fairly, with equal opportunities provided to all vendors to submit proposals.

3. **Vendor Integrity and Product Quality:**
    - Upholding the integrity of vendors is crucial. The app should verify the authenticity of vendors and their products to prevent fraudulent activities.
    - Quality control measures should be implemented to ensure that the products offered on the platform meet the specified standards and accurately reflect their descriptions.
4. **Professional Conduct and Customer Service:**
    - All interactions with users should be conducted professionally and respectfully. Customer service representatives should be trained to handle inquiries, complaints, and disputes in a timely and courteous manner.
    - The app should have clear channels for users to provide feedback and report any issues they encounter, with mechanisms in place to address and resolve them effectively.
5. **Regulatory Compliance:**
    - Compliance with relevant laws and regulations governing e-commerce, data protection, consumer rights, and intellectual property is essential. The app should undergo regular audits to ensure compliance with these regulations.
    - Legal agreements, such as terms of service and privacy policies, should be clearly communicated to users, outlining their rights and responsibilities while using the app.

By addressing these ethical and professional considerations, the Stitch Vision App aims to create a trustworthy and reliable platform for connecting clients and vendors in the textile industry while upholding the highest standards of integrity, transparency, and user satisfaction.

CHAPTER – 3

3.0 Introduction:

In this chapter, we embark on a detailed exploration of the development journey of the Stitch Vision App. We delve into the intricacies of our project plan, meticulously crafted to guide the development process effectively. Our app, designed for seamless functionality on various platforms, demanded a systematic approach to ensure smooth operation and user satisfaction.

Our project plan, meticulously crafted with tools such as Gantt charts and organizational frameworks, serves as a roadmap for the development team. Each task is allocated specific timeframes based on its complexity, ensuring efficient utilization of resources and timely completion of milestones.

Furthermore, we delve into the comprehensive analysis of the Functional, Non-Functional, and Hardware requirements of our project. Functional requirements form the backbone of our app, encompassing essential features such as camera detection and learning objectives. Simultaneously, non-functional requirements, including settings and feedback mechanisms, are intricately planned to enhance the overall user experience and app performance. Through meticulous planning and execution, we aim to deliver a robust and user-centric solution with the Stitch Vision App.

3.1 Project Plan:

Stitch Vision WBS Spreadsheet				
Milestone	**ID**	**Task**	**Owner**	**Duration (days)**
Detailed Plan	**1.1**	Project Proposal	Syed Ahmed Raza	10
	1.2	Creation of SRS	Saad Khan, Sikander Mehdi	7
	1.3	Complete Plan review	Syed Ahmed Raza	3
1st Iteration of Design	**2**	Design the User authentication and account forms of App	Saad Khan	8
2nd Iteration of Design	**3**	Design the Client side of App	Sikander Mehdi	7
3rd Iteration of Design	**4**	Design the Vendor side of App	Syed Ahmed Raza	7
Poster Design	**5**	Design a poster for FYP-I Presentation	Sikander Mehdi	8
Final Report	**6**	Submit Final report for FYP-I	Syed Ahmed Raza, Saad Khan	7
App Development Initiation	**7**	Meeting for the further SDLC discussion	Syed Ahmed Raza, Saad Khan, Sikander Mehdi	2
Database	**8**	Create a Firebase Real-Time Database	Syed Ahmed Raza, Saad Khan, Sikander Mehdi	14
User Management	**9.1**	User Login and Registration	Syed Ahmed Raza	14
	9.2	User Verification	Sikander Mehdi	7
Client Management	**10.1**	Client Profile Creation	Saad Khan	14
	10.2	Client Verification	Sikander Mehdi	7
Product Ordering and Bidding	**11.1**	Product Placement	Saad Khan	14
	11.2	Bidding System Development	Syed Ahmed Raza	14
Payment Processing	**12.1**	Payment gateway integration	Sikander Mehdi	21
	12.2	Payment processing module development	Syed Ahmed Raza	14
Commission Fee Calculation and Payment	**13**	Commission fee calculation module development	Saad Khan	7
User Feedback	**14**	User feedback system development	Sikander Mehdi	7
Testing	**15**	Testing The features	Syed Ahmed Raza	12
Deployment	**16**	Deploy the App	All	7
Presentation	**17.1**	Create a Presentation	Syed Ahmed Raza	7
	17.2	Give Presentation of the App	All	1

Figure 1 : Work Breakdown Structure

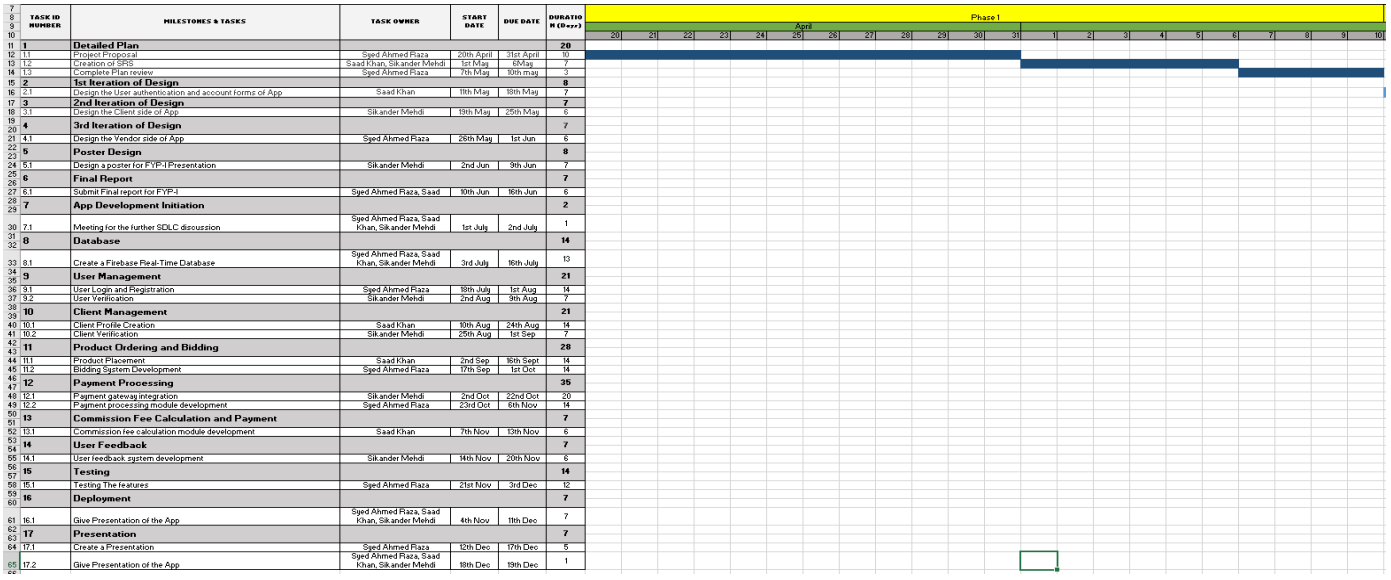


Figure 2: Gantt Chart

3.2 Functional Requirements

3.2.1 User Registration

The application will provide a user registration system for both clients and vendors. There would be an Admin user as well. The registration process will require some information from the users which is given below

For all users:

- First name
- Last name
- Email address
- Phone number
- Home address

For only vendors:

- Company name
- Company address
- Company registration number
- List of product offerings
- Certifications of product quality assurance

3.2.2 Product Listings

The application will provide a product listing system for vendors to create and manage their textile product offerings. The product listing system will allow vendors to add the following information for each product:

- Product name
- Product description
- Product images
- Product pricing
- Product size and quantity options

3.2.3 Order Management

The application will provide an order management system for clients, vendors, and admin. Clients will able to create and manage their orders related to textile products which may include

customizing product details such as product size, product quantity, and many more. Vendors will be able to view and manage the orders that have been placed with them. Vendors will also be placed on their products including product quotations and accepting or rejecting of orders. For admin, he will be able to track the record of every order till it is received by the clients so that everything good work properly.

3.2.4 Matching Algorithm

The matching algorithm which will help the clients to pair their order with the most suitable and available vendors based on different factors such as product name, product type, product quantity, product delivery time, and pricing of product as well. The purpose of this matching algorithm is to make sure that the client and vendors are connected to each other and also which vendor is offering the best product and pricing so that client can easily place their orders.

3.2.5 Chat System

This application will also feature a chat system that helps the clients and vendors to communicate directly with each other and also it will help to facilitate order customization. The purpose of using this chat system is to give transparency between vendors and clients and also to prevent miss communication or communication gap between them. This chat system will have multiple functionalities including the exchange of messages, productive images, and the product order detail in real damage and it will also help to build trust between clients and vendors.

3.2.6 Bidding System:

Implement a bidding mechanism where vendors can submit quotations for client orders, allowing clients to compare and select the best offer.

3.2.7 Payment Gateway

The application will also integrate a secure payment gateway in order to facilitate payment of the orders to the vendors. The purpose of the payment gateway will be secure and compliant according to industry standards like PCI DSS standards. And digital contract signing will also be done.

3.3 Non-Functional Requirements

3.3.1 Security

The application will be going to use Industries standards encryption protocol in order to make sure their privacy and security of the user information. Also, for the payment gateway, there will be a secure method used according to industry standards.

3.3.2 Scalability

The application is designed to handle a large number of users and their transactions as well. The application will be going to be designed to scale horizontally which allows for additional servers and different resources to be added in the future as needed.

3.3.3 Performance

The application is going to design to take load quickly and also this phone quickly to the user input without any delay for zero delays. Also, the application will be optimized to consume the minimum device sources such as memory and also battery life in order to insure a good or better User experience.

3.3.4 Availability

The application will be designed to have high availability in case of any service interruption. The application will also leverage a cloud infrastructure in order to make sure its availability of the application.

3.3.5 User Interface

The design application will be going to be a user-friendly interface with the latest design and simple yet easy-to-use navigation. The User Interface is going to be optimized for mobile devices and it will provide a seamless User experience for every user.

3.3.6 Compatibility

The application will be compatible with a range of mobile phones and operating systems including Android, iOS, and some Windows devices. The application will be designed to work on both phones and tablets, ensuring a user friendly experience across devices.

3.4 System Configuration

3.4.1 Tools

All the HW/SW tools/technologies required for the project are given below

3.4.2 Hardware:

Computers for testing and development (such as laptops or desktops).

Mobile devices for testing and evaluating the user experience, such as smartphones and tablets

External storage for data backup and sharing (such as hard drives or cloud storage)

3.4.3 Software:

We need following software

- Visual Studio
- Flutter (Dart)
- Laravel
- Firebase Database
- Postman
- Figma

We will use Visual Studio and Android Studio Platforms for creating and testing our app. Dart which is Java-based programming languages for creating the app's functionality. Flutter front-end frameworks for creating the app's user interface. For Back-end Laravel is used. Firebase Database management systems for storing and managing app data. API Testing is done by Postman. And UI/UX designing is done with the help of Figma.

3.5 Summary:

In this chapter, a detailed Project Plan, Functional, Non-Functional requirements and other planning mechanisms are discussed in detail that will be required in our project. We have also mentioned an introduction regarding our mobile application how we can perform our task so we make a milestone chart in this first we describe our task week wise in summary activity and then we make a Gantt chart according to summary activity. In Gantt chart we were describing task name or duration for implementation of our “Stitch Vision App” After Gantt chart we describe Functional and Non-Functional requirements of our application.

CHAPTER – 4

4.0 Introduction:

In this chapter, we delve into the design and specification of the Stitch Vision App, offering a comprehensive overview of its architecture and functionality. Through detailed diagrams and specifications, we aim to elucidate the intricacies of our application and provide a clear understanding of its flow and operation.

The design phase entails gathering all relevant information related to the application and structuring it into a coherent framework. Various diagrams, including Entity Relationship Diagrams (ERDs), Use Case diagrams and Class Diagram, are utilized to depict the system workflow and specifications. These diagrams serve as visual aids to illustrate how each component of the application interacts and functions, ensuring ease of comprehension for users.

By meticulously crafting these diagrams, we establish a roadmap for the development process and guide the direction of our system implementation. They offer insights into the underlying architecture and coding of the system, providing clarity to both developers and end-users alike. Through this meticulous planning and design, we lay the foundation for a robust and user-friendly application that meets the needs and expectations of our target audience.

4.1 Use Case Diagram:

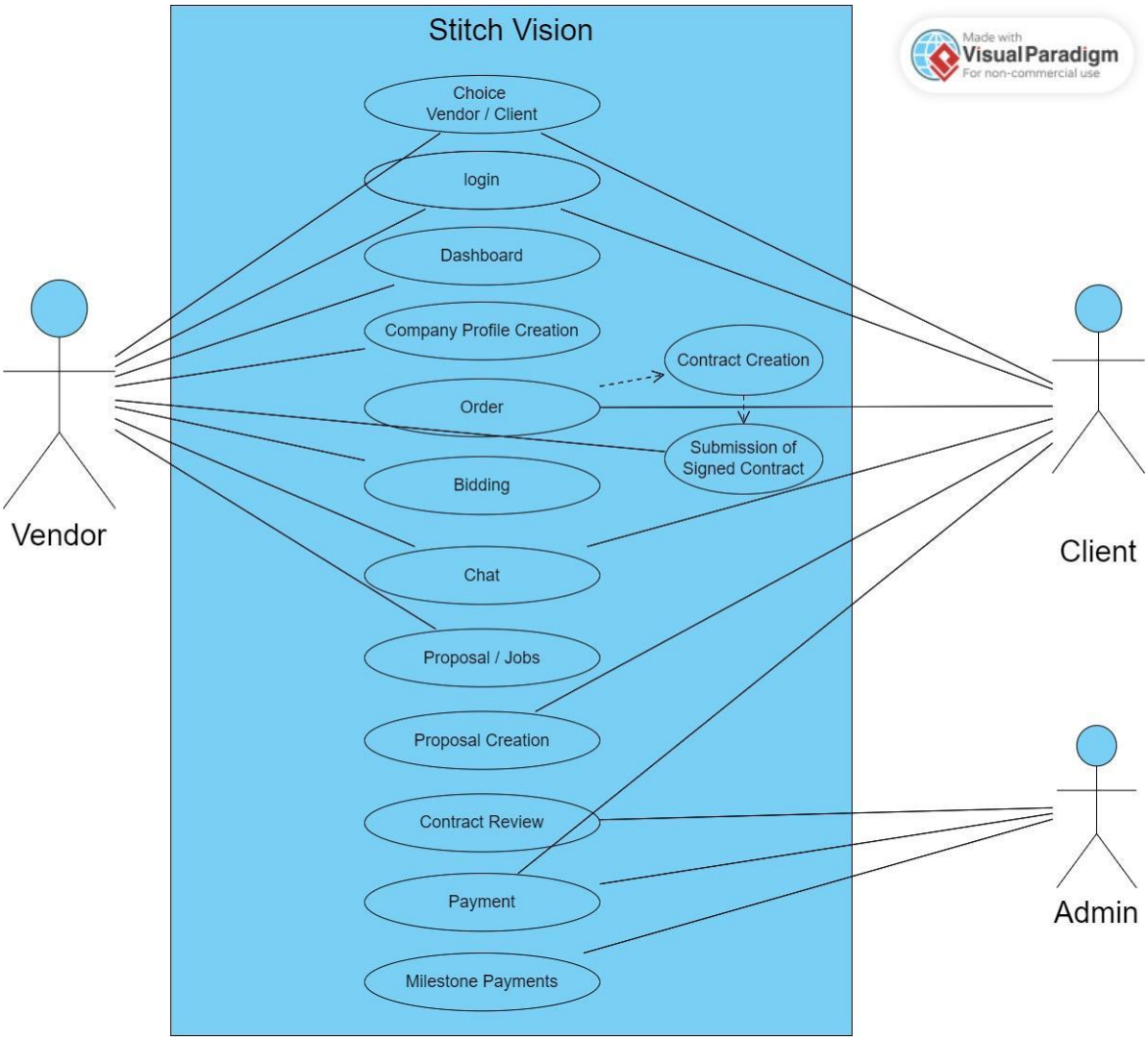


Figure 3: Use Case Diagram

4.2 Entity Relationship Diagram (ERD):

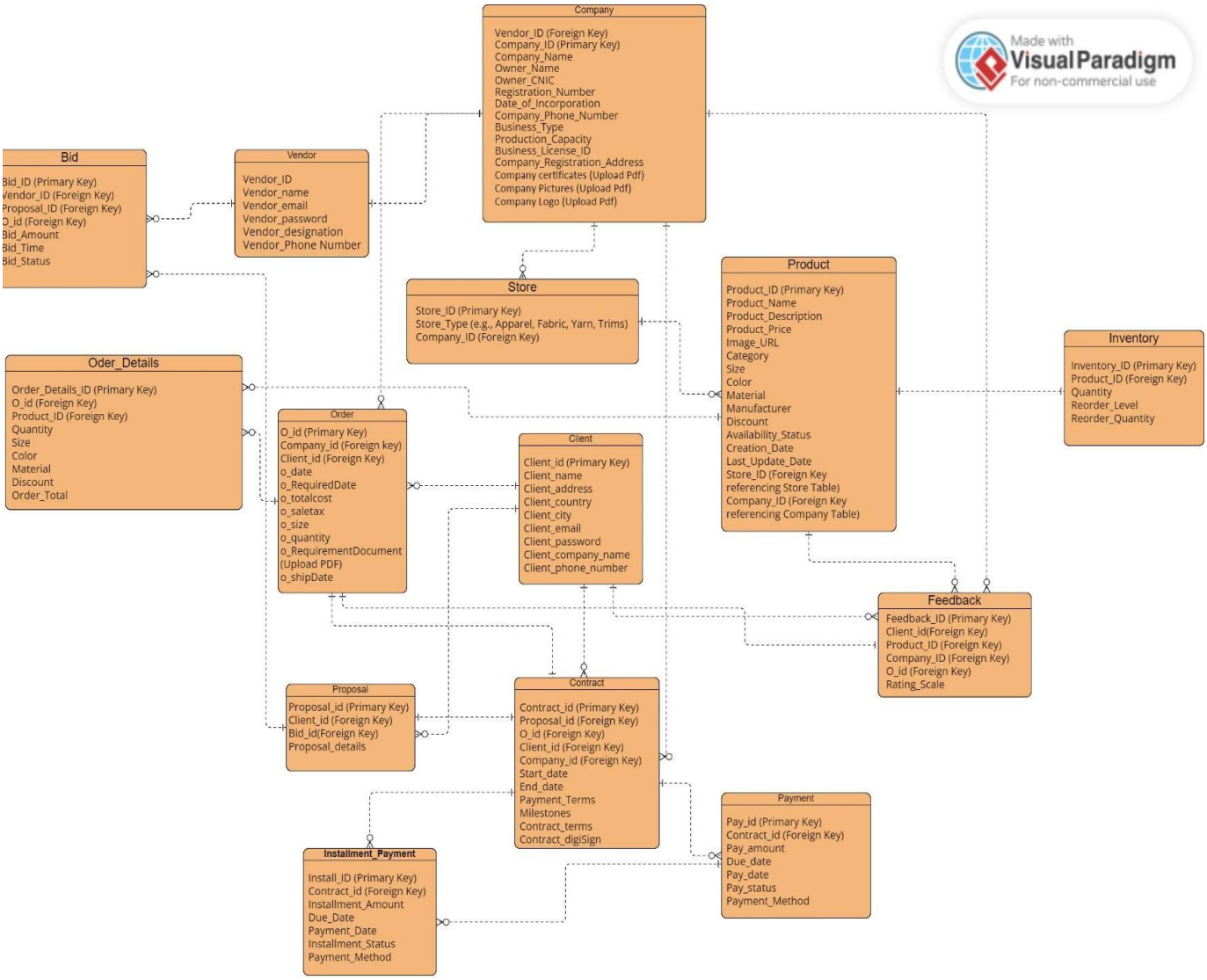


Figure 4: Entity Relationship Diagram (ERD)

4.3 Class Diagram:

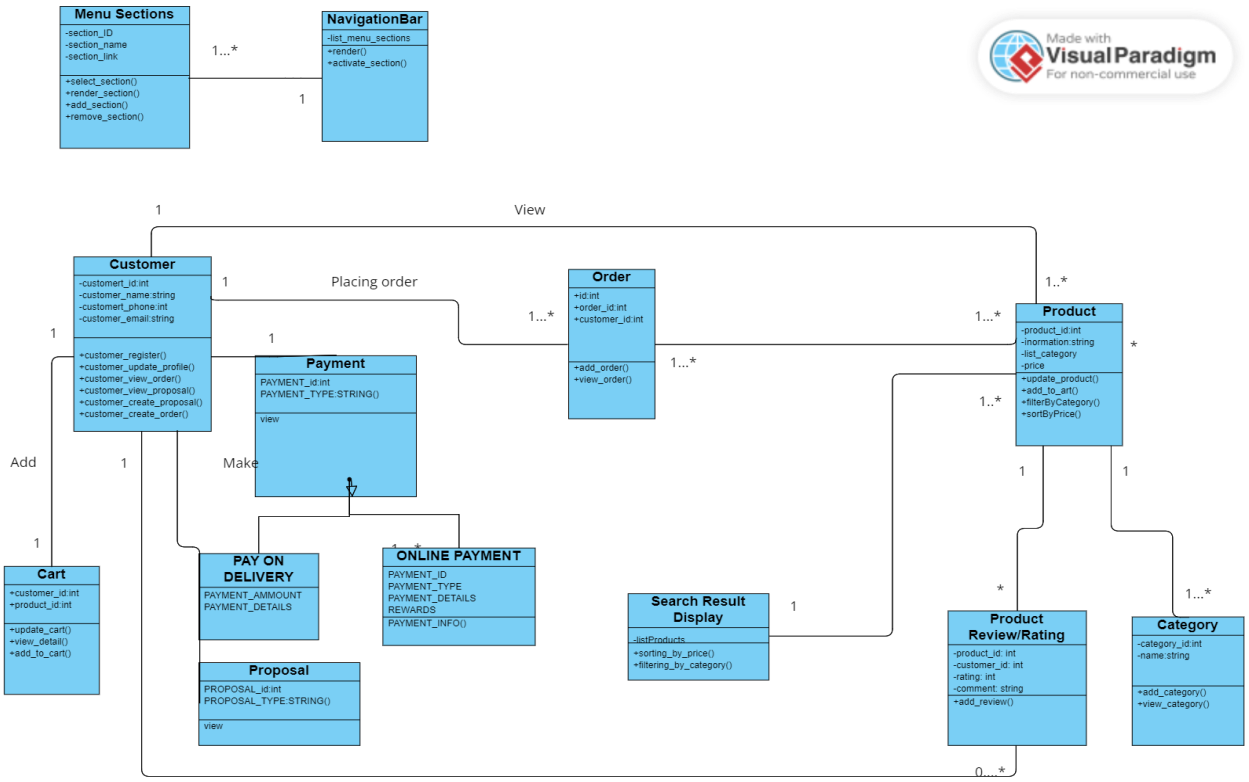


Figure 5: Class Diagram

4.4 Summary:

In this chapter, we embarked on a detailed exploration of the Stitch Vision App's architecture and functionality through the Class diagram, entity relationship diagram (ERD), and Use Case Diagram. These visual representations serve as foundational pillars in elucidating the intricate structure of our application and delineating the interactions between its various components. The Class diagram offers insights into the classes and their relationships within the system, providing a holistic view of the application's object-oriented design. Similarly, the ERD illustrates the relationships between entities in the database, facilitating a clear understanding of data organization and flow. Additionally, the Use Case Diagram outlines the functionalities of the application from a user's perspective, depicting the various interactions between actors and the system. Through the meticulous construction of these diagrams, we ensure a comprehensive visualization of the system's flow and operation, laying the groundwork for successful implementation. Furthermore, continuous monitoring and testing are integral aspects of our development process, allowing us to identify and address any errors or discrepancies promptly. Our overarching goal remains steadfast: to deliver a robust and user-friendly solution that meets the evolving needs of the textile industry while adhering to stringent standards of quality and functionality.

CHAPTER – 5

5.0 Introduction:

In this chapter, we delve into various aspects crucial to our project, including prototype design, frontend and backend development, and database management. Prototyping serves as a vital tool for evaluating new designs and enhancing precision, enabling system analysts and users to provide valuable feedback. We discuss the iterative process of designing and refining prototypes to align with user requirements and expectations. Additionally, we explore the frontend and backend design of our project, highlighting the technologies and frameworks utilized to create a seamless user experience. Furthermore, we delve into database queries, focusing on Firebase and external libraries, to ensure efficient data management and retrieval. Throughout this chapter, we provide insights into the functionalities available within the system, accompanied by screenshots of the application interface. Additionally, we offer clarity on the source code validation process and other technical aspects, underscoring our commitment to delivering a robust and user-centric solution.

5.1 Prototype Design:

<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Vendor/Client Sign-in Screen</td></tr>
<tr><td>Screen: < 1 of 12 >
Link from screen: Splash Screen
Link to screen: Vendor/Client Sign-in</td><td>Screen Description:
Is a Vendor/Client Role window.
Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity: choose vendor or client profile to select profile type.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: Dark blue, White</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, yellow, Light blue, green, Red, skin and Orange</td><td>Video: none</td></tr>
<tr><td>Text attributes: none</td><td>Still images: none</td></tr>
</table>

Table 1: Prototype 1

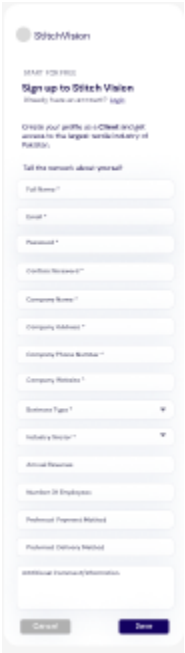
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Client Sign-in Screen</td></tr>
<tr><td>Screen: < 2 of 12 >
Link from screen: Client Sign-in Container
Link to screen: Client Home Screen</td><td>Screen Description:
Is a Client Sign-in window.
Textfields, Buttons, Labels and Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Enter Authentic Data as required for navigating to Client Home Screen.</td></tr>
<tr><td colspan="2">Screen Design:
  </td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, grey, Light Blue</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica, 12pt</td><td>Still images: none</td></tr>
</table>

Table 2: Prototype 2

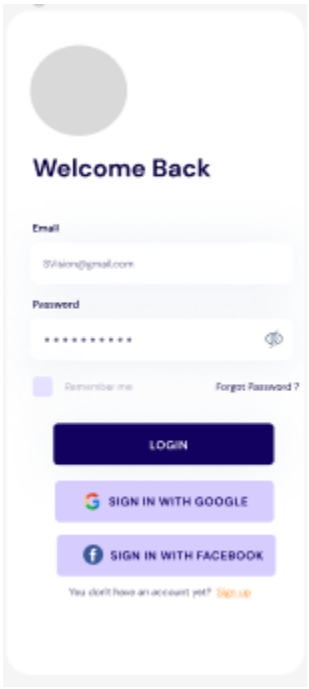
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Vendor/Client Login-in Screen</td></tr>
<tr><td>Screen: < 4 of 12 >
Link from screen: Vendor/Client Login-in Screen,
Splash Screen
Link to screen: Vendor/Client Home Screen</td><td>Screen Description:
Is a Vendor/Client Login-in Screen window. Textfields, Buttons, Labels and Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Enter your Credentials as required for navigating to Vendor/Client Home Screen.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, Violet</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica, 17pt</td><td>Still images: none</td></tr>
</table>

Table 3: Prototype 3

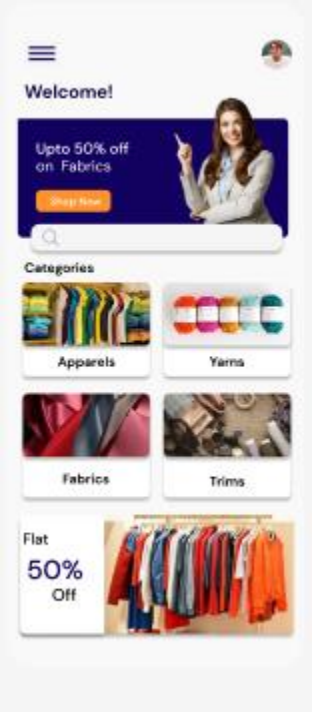
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Vendor/Client Home Screen</td></tr>
<tr><td>Screen: < 5 of 12 >
Link from screen: Vendor/Client Login-in Screen
Link to screen: Apparels, Yarns, Fabrics, trims, Search Bar, Options Bar and Flat Screens</td><td>Screen Description:
Is a Vendor/Client Home Screen window. Textfields, Buttons, Labels, Containers and Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Variety of options (Containers) to navigate desired services as served on Home Screen.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, lilac, brown, yellow, grey, green, and Mix colors</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica</td><td>Still images: Cloth images</td></tr>
</table>

Table 4: Prototype 4

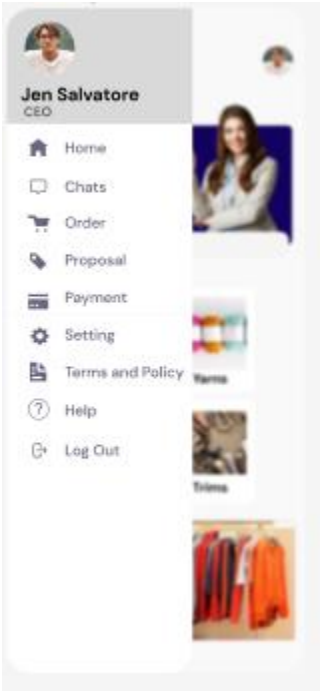
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 6/03/2024
Screen Name: Home Option Screen</td></tr>
<tr><td>Screen: < 6 of 12 >
Link from screen: Vendor/Client Home Screen
Link to screen: Home, Chats, Order, Proposal, Payment, Settings, Terms and policy, Help and Logout Screen.</td><td>Screen Description:
Is a Home Option window.
Labeled Buttons, Containers and Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Variety of options (Containers, Buttons) to navigate desired services as served on Home option screen.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white, Grey</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black and Grey</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica</td><td>Still images: none</td></tr>
</table>

Table 5: Prototype 5

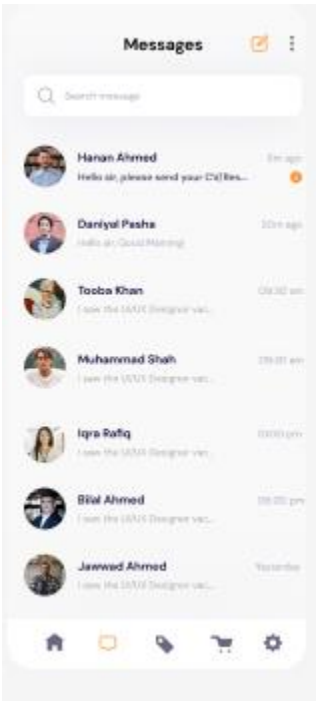
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Vendor/Client Chat Screen</td></tr>
<tr><td>Screen: < 7 of 12 >
Link from screen: Home Screen
Link to screen: Specific chat box, Home Screen, Store and Settings Screens.</td><td>Screen Description:
Is a Vendor/Client Chat Screen window. Labeled Buttons, Containers, Search Bar and Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Enter Specific chat box for dynamically interacting as a client/vendor.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, grey and Orange</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica, 10pt</td><td>Still images: Dynamic Images</td></tr>
</table>

Table 6: Prototype 6

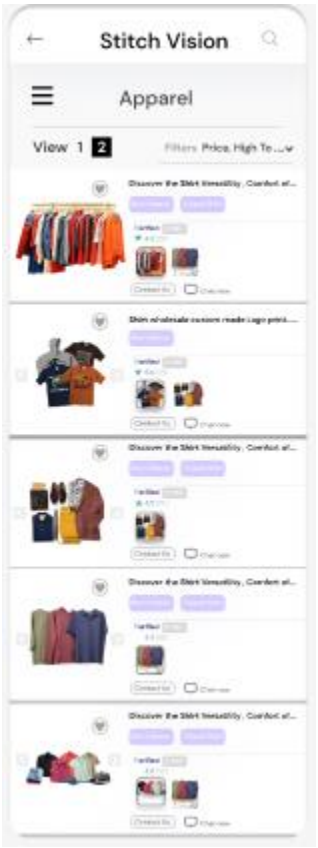
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Apparel Screen (Fabric, Yarn, Trim)</td></tr>
<tr><td>Screen: < 8 of 12 >
Link from screen: : Home Screen
Link to screen: Vendor Store, Search Bar and Option Bar Screens.</td><td>Screen Description:
Is an Apparel (Fabric, Yarn, Trim) window. Labeled Buttons, Containers, Search Bar and Displays logo</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Enter Vendor Store when Client clicks on variety of vendor stores option.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, lilac, brown, yellow, grey, green, and mix colors</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica, 15pt, 7pt</td><td>Still images: bottom slide show and cloth images.</td></tr>
</table>

Table 7: Prototype 7

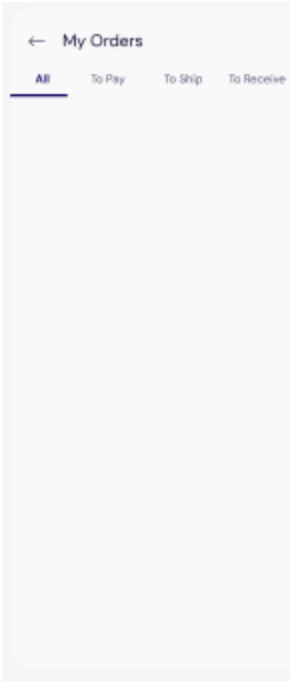
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: My Orders Screen</td></tr>
<tr><td>Screen: < 9 of 12 >
Link from screen: Home Options Screen
Link to screen: Home Screen, To Pay Screen, To Ship and To Receive Screens.</td><td>Screen Description:
Is my orders window.
Labeled Buttons, Containers and Search Bar.</td></tr>
<tr><td colspan="2">Functionality/Interactivity: enter Order Properties to check the current status of my orders.</td></tr>
<tr><td colspan="2">Screen Design:
  </td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue and black.</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica</td><td>Still images: slide show</td></tr>
</table>

Table 8: Prototype 8

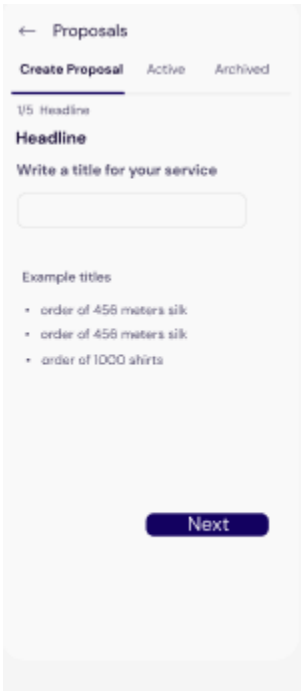
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Proposals Screen</td></tr>
<tr><td>Screen: < 10 of 12 >
Link from screen: Home Option Screen
Link to screen: Home Option Screen, Create Proposal, Active and Archived Screens.</td><td>Screen Description:
Is a Proposals Screen window.
Labeled Buttons, Containers and Textfeilds.</td></tr>
<tr><td colspan="2">Functionality/Interactivity: posting desired services based proposal as a client with flexible functions.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue and black.</td><td>Video: none</td></tr>
<tr><td>Text attributes: : Helvetica, 11pt, 15pt</td><td>Still images: slide show</td></tr>
</table>

Table 9: Prototype 9

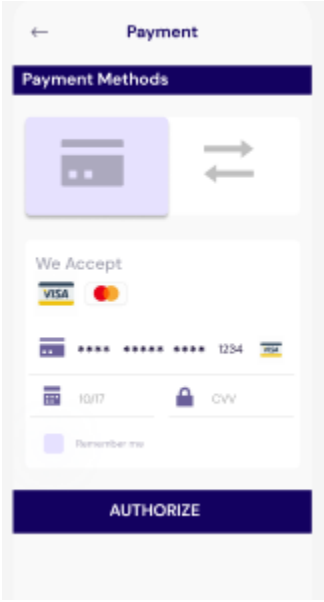
<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Payment Screen</td></tr>
<tr><td>Screen: < 11 of 12 >
Link from screen: Home option Screen
Link to screen: Desired payment credentials Container.</td><td>Screen Description:
Is a Payment Screen window.
Labeled Buttons, Containers and Textfeilds.</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Enter card credentials for complete order process as per defined policy.</td></tr>
<tr><td colspan="2">Screen Design:
 
</td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, yellow, grey and Orange</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica, 9pt, 11pt, 15pt</td><td>Still images: none</td></tr>
</table>

Table 10: Prototype 10

<table>
<tr><td colspan="2">Project Title: Stitch Vision
Date: 15/03/2024
Screen Name: Vendor Store Screen</td></tr>
<tr><td>Screen: < 12 of 12 >
Link from screen: Home Screen
Link to screen: Home Screen, Home option Screen and Settings Screens</td><td>Screen Description:
Is a Vendor Store window.
Labeled Buttons, Containers and Textfeilds.</td></tr>
<tr><td colspan="2">Functionality/Interactivity: Enter Vendor Store when vendor navigates through Home Screen, Having variety of options to personalize his store for current services.</td></tr>
<tr><td colspan="2">Screen Design:
  </td></tr>
<tr><td>Background: white</td><td>Audio: none</td></tr>
<tr><td>Color scheme: white, Dark blue, black, lilac, brown, yellow, grey, green, and Orange</td><td>Video: none</td></tr>
<tr><td>Text attributes: Helvetica, 16pt, 9pt, 11pt, 15pt, 8pt</td><td>Still images: slide show, designed images.</td></tr>
</table>

Table 11: Prototype 11

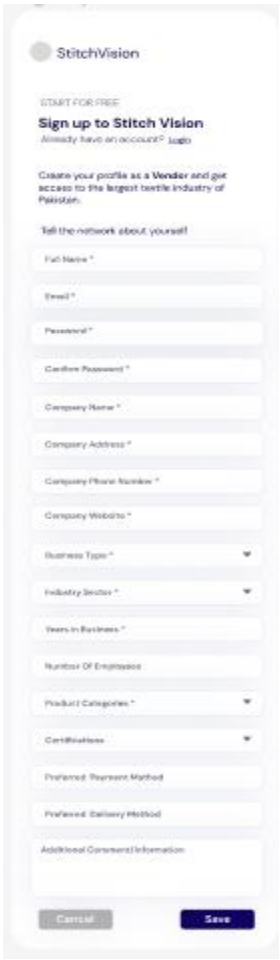
Project Title: Stitch Vision **Date:** 15/03/2024 **Screen Name:** Vendor Sign-in Screen	
Screen: < 3 of 12 > **Link from screen**: Vendor Sign-in Container **Link to screen:** Vendor Home Screen	**Screen Description:** Is a Vendor Sign-in window. Textfields, Buttons, Labels and Displays logo
Functionality/Interactivity: Enter Authentic Data as required for navigating to Vendor Home Screen.	
Screen Design: 	
Background: white	**Audio:** none
Color scheme: white, Dark blue, black, grey, Light Blue	**Video:** none
Text attributes: Helvetica, 12pt	**Still images:** none

Table 12: Prototype 12

5.2 Database Queries:

```
Run | Debug | Profile
Future<void> main() async {
  debugPaintSizeEnabled = true; // Visualize widget sizes
  debugRepaintRainbowEnabled = true; // Visualize widget repaints
  WidgetsFlutterBinding.ensureInitialized();

  await Firebase.initializeApp(
    options: DefaultFirebaseOptions.currentPlatform,
  );
  runApp(const MyApp());
}

class MyApp extends StatelessWidget {
  const MyApp({super.key});

  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return GetMaterialApp(
      title: 'Flutter Demo',
      debugShowCheckedModeBanner: false,
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ), // ThemeData
      initialRoute: '/',
      routes: {
        '/': (context) => const SplashScreen(),
        MainRoutes.HomeScreen: (context) => const HomeScreen(),
        MainRoutes.LoginScreen: (context) => const LoginScreen(),
        MainRoutes.SignUpScreen: (context) => const SignUpScreen(),
        MainRoutes.SplashScreen: (context) => const SplashScreen(),
        MainRoutes.WelcomeScreen: (context) => const WelcomeScreen(),
        MainRoutes.SelectScreen: (context) => const SelectScreen(),
```

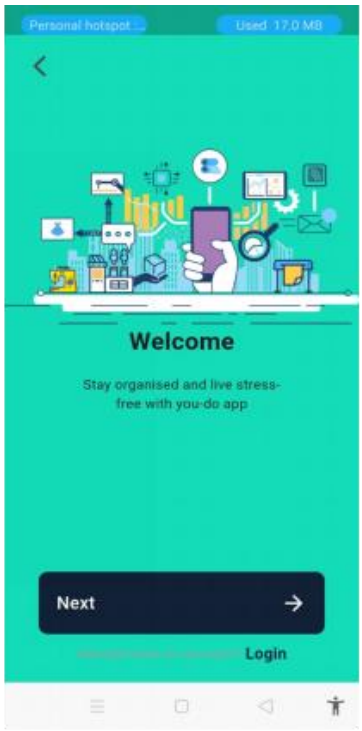
```
Future<void> signUp(String email, String password) async {
  if (_formKey.currentState!.validate()) {
    await auth
        .createUserWithEmailAndPassword(email: email, password: password)
        .then((value) => {
              postDetailsToFirestore(),
            })
        .catchError((e) {
      Fluttertoast.showToast(msg: e!.message);
    });
  }
}

postDetailsToFirestore() async {
  FirebaseFirestore firebaseFirestore = FirebaseFirestore.instance;
  User? users = auth.currentUser;

  UserModel userModel = UserModel();

  userModel.email = users!.email;
  userModel.user_id = users.uid;
  userModel.fullname = fullname;
  userModel.password = password;
  userModel.user_image = 'file?.path';
  userModel.user_role = selectedValue;
  await firebaseFirestore
      .collection("users")
      .doc(users.uid)
      .set(userModel.toMap());
  Navigator.push(
    context,
    MaterialPageRoute(builder: (context) => const LoginScreen()),
  );
  Fluttertoast.showToast(msg: "ACCOUNT CREATED");
```

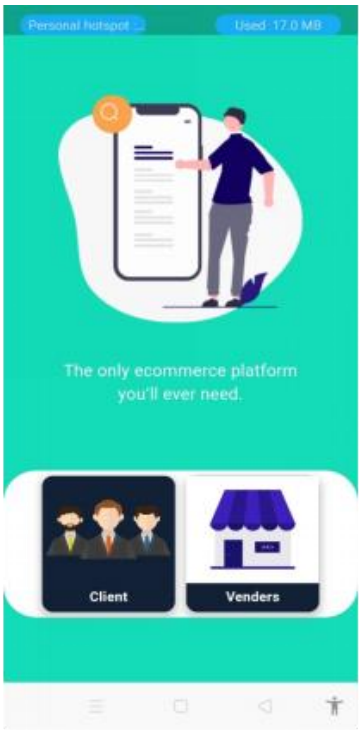
5.3 External Libraries:

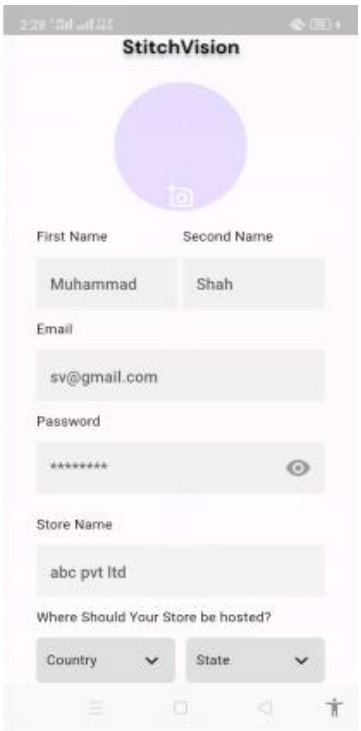
```
import 'package:flutter/material.dart';
import 'package:flutter/rendering.dart';
import 'package:final_pro/Vendor/Vendor_home_screen.dart';
import 'package:final_pro/route.dart';
import 'package:final_pro/screens/Client%20Screen/client_Signup.dart';
import 'package:final_pro/screens/Client%20Screen/client_login_screen.dart';
import 'package:final_pro/screens/SplashScreen.dart';
import 'package:final_pro/screens/Venders%20Screen/v_homeScreen.dart';
import 'package:final_pro/screens/Venders%20Screen/venders_Signup.dart';
import 'package:final_pro/screens/home_screen.dart';
import 'package:final_pro/screens/login_screen.dart';
import 'package:final_pro/screens/select_screen.dart';
import 'package:final_pro/screens/signup_screen.dart';
import 'package:final_pro/screens/welcome_screen.dart';
import 'package:get/get_navigation/src/root/get_material_app.dart';
import 'package:firebase_core/firebase_core.dart';
import 'firebase_options.dart';
import 'Client/Client_home_screen.dart';
import 'introduction_animation/introduction_animation_screen.dart';
```

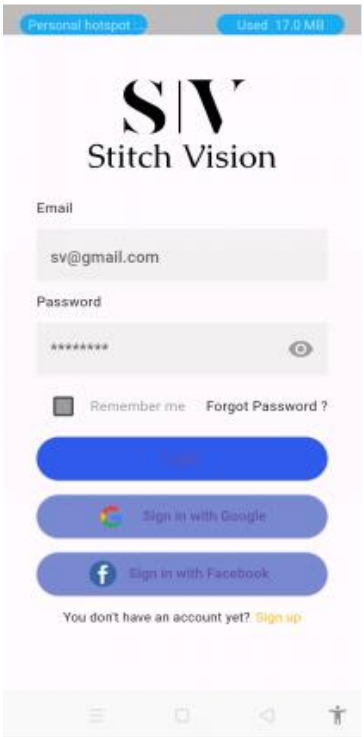
5.4 Application Screenshots:

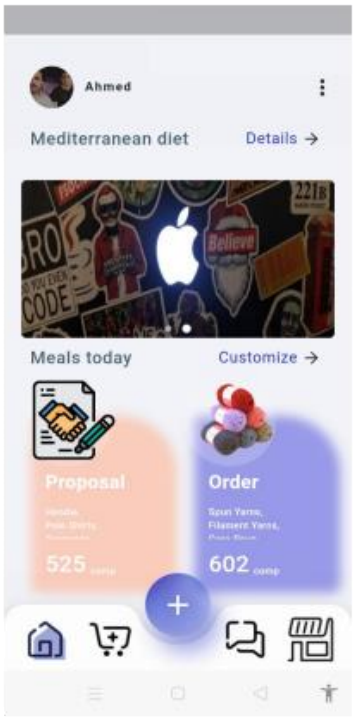
5.4.1 Vendor Screens:

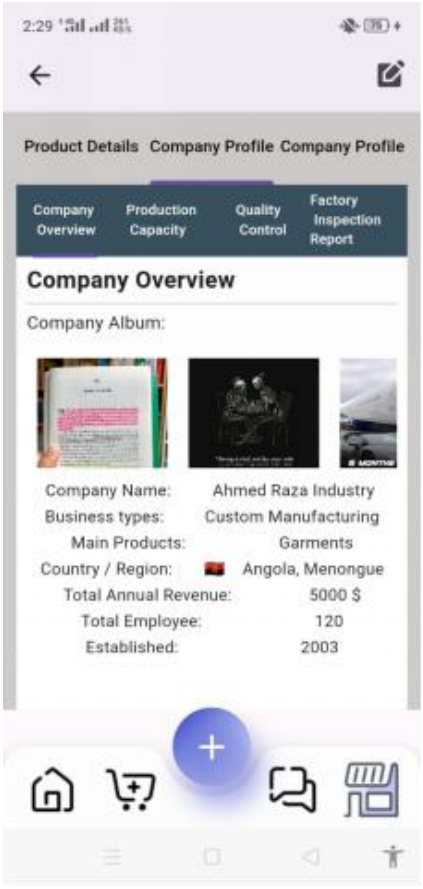




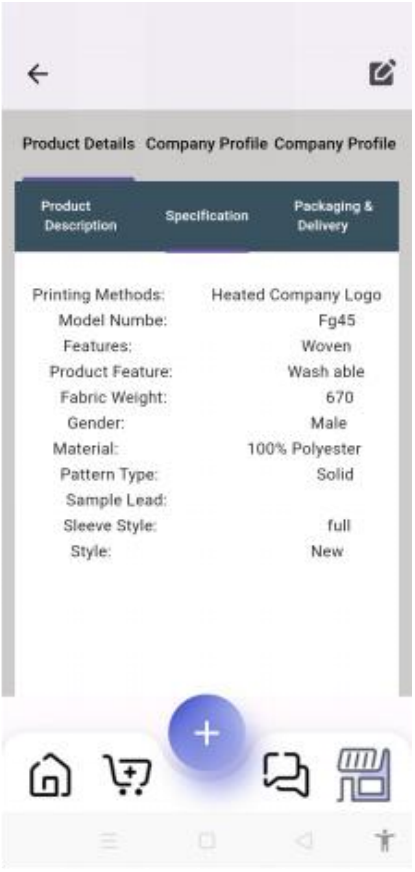


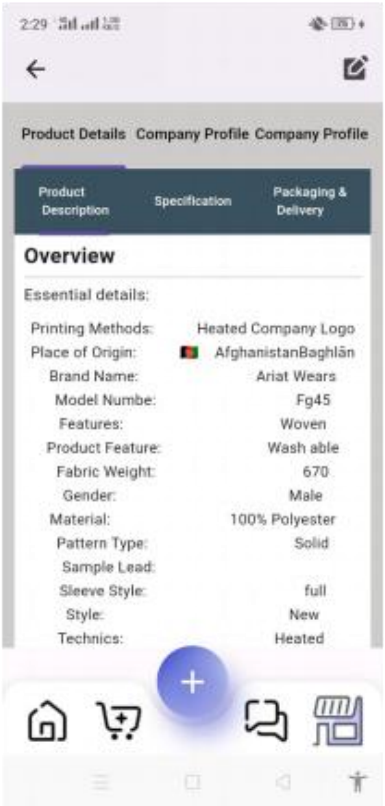


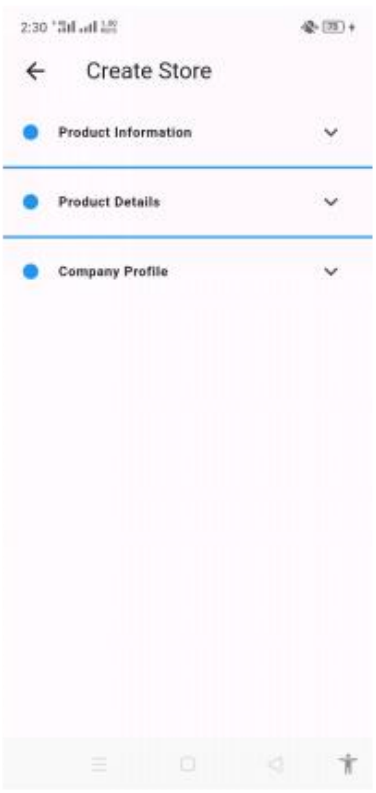


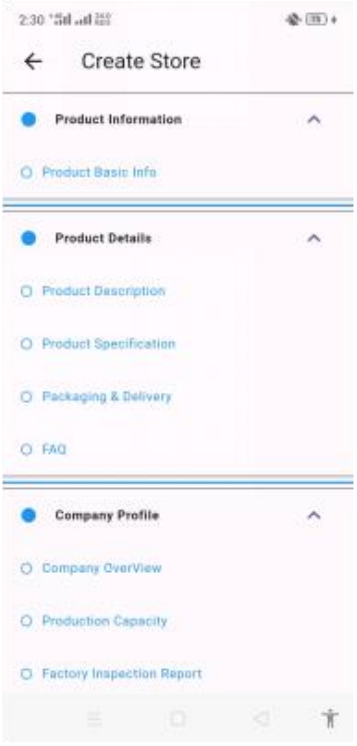

Product Details
Company Profile
Company Profile
Company Overview
Production Capacity
Quality Control
Factory Inspection Report
Company Overview
Company Album:
Company Name: Ahmed Raza Industry
Business types: Custom Manufacturing
Main Products: Garments
Country / Region: Angola, Menongue
Total Annual Revenue: 5000 $
Total Employee: 120
Established: 2003


Product Details
Company Profile
Company Profile
Company Overview
Production Capacity
Quality Control
Factory Inspection Report
Company Overview
Company Album:
Company Name: Ahmed Raza Industry
Business types: Custom Manufacturing
Main Products: Garments
Country / Region: Angola, Menongue
Total Annual Revenue: 5000 $
Total Employee: 120
Established: 2003


Product Details
Company Profile
Company Profile
Product Description
Specification
Packaging & Delivery
Printing Methods: Heated Company Logo
Model Numbe: Fg45
Features: Woven
Product Feature: Wash able
Fabric Weight: 670
Gender: Male
Material: 100% Polyester
Pattern Type: Solid
Sample Lead:
Sleeve Style: full
Style: New


Product Details
Company Profile
Company Profile
Product Description
Specification
Packaging & Delivery
Overview
Essential details:
Printing Methods: Heated Company Logo
Place of Origin: AfghanistanBaghlān
Brand Name: Ariat Wears
Model Numbe: Fg45
Features: Woven
Product Feature: Wash able
Fabric Weight: 670
Gender: Male
Material: 100% Polyester
Pattern Type: Solid
Sample Lead:
Sleeve Style: full
Style: New
Technics: Heated


Create Store
Product Information
Product Details
Company Profile


Create Store
Product Information
Product Basic Info
Product Details
Product Description
Product Specification
Packaging & Delivery
FAQ
Company Profile
Company OverView
Production Capacity
Factory Inspection Report

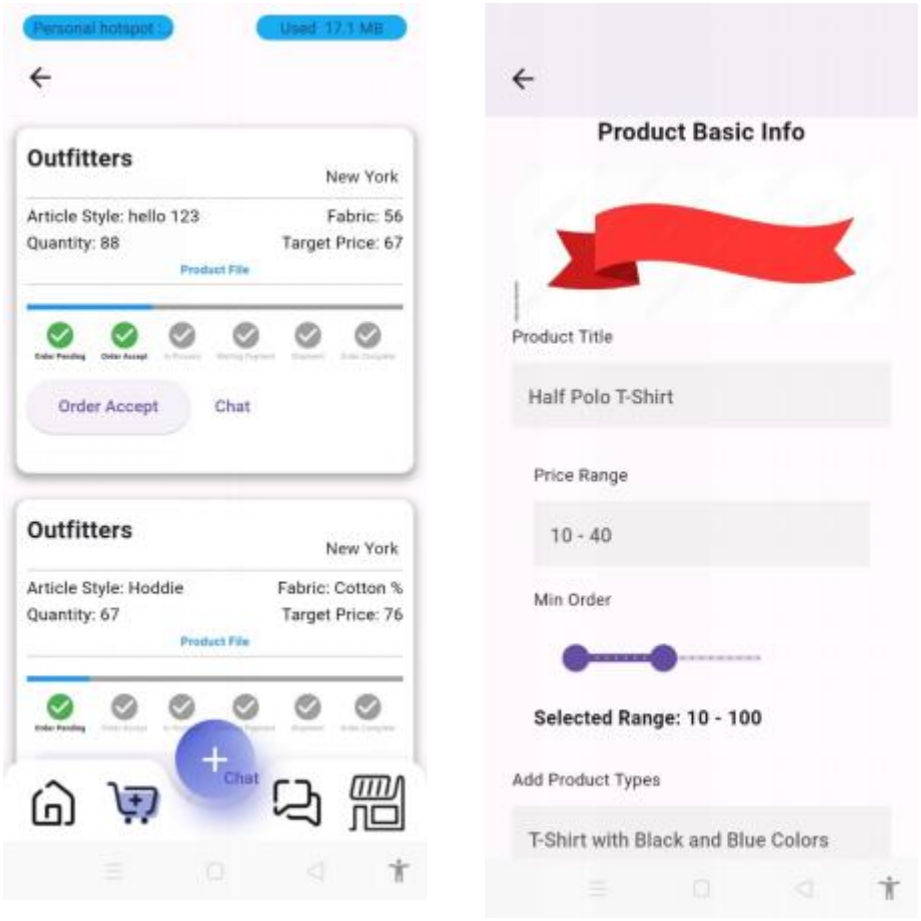
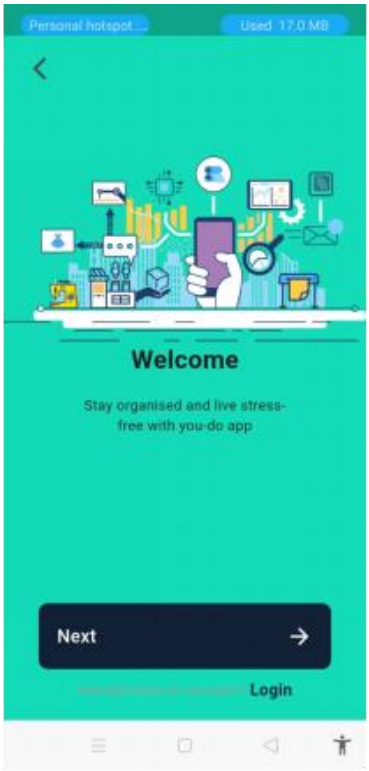
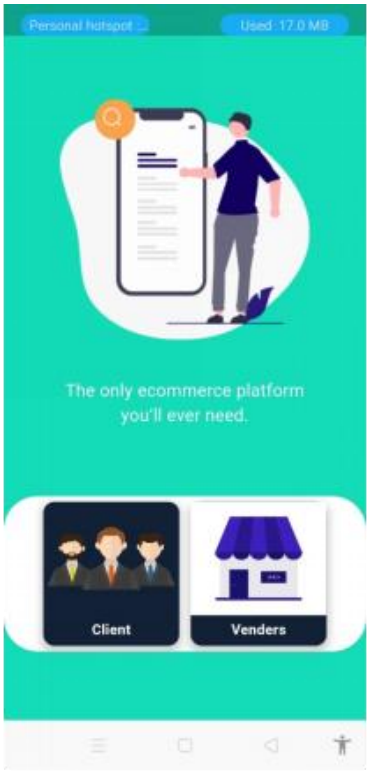
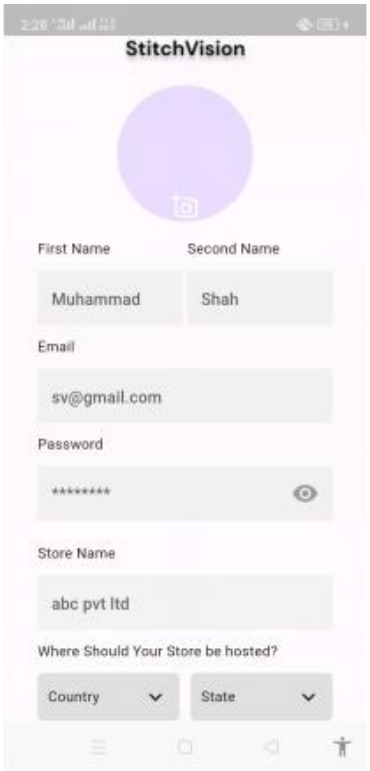


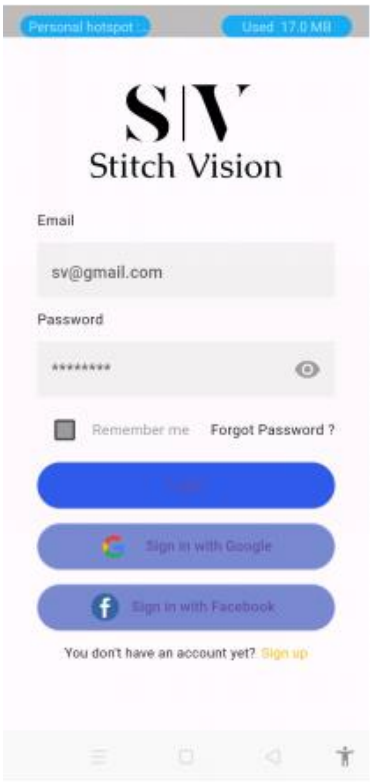
Figure 6: Vendor Screens

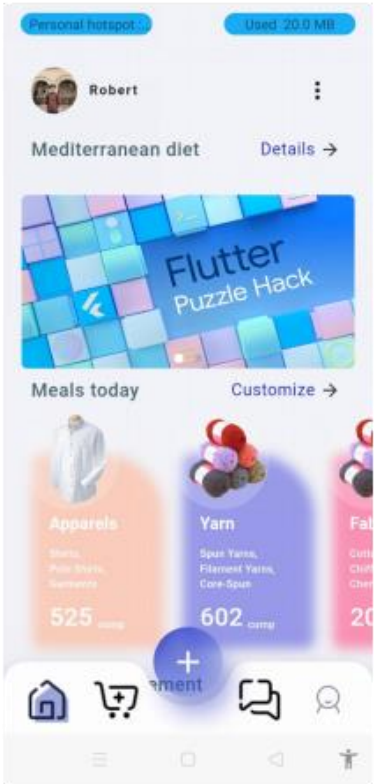
5.4.2 Client Screens

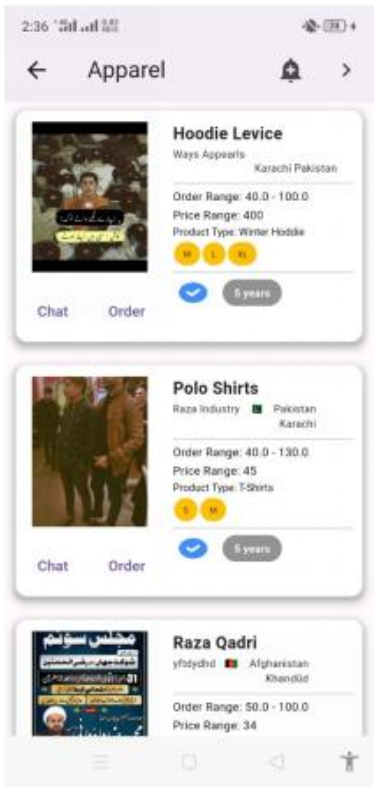












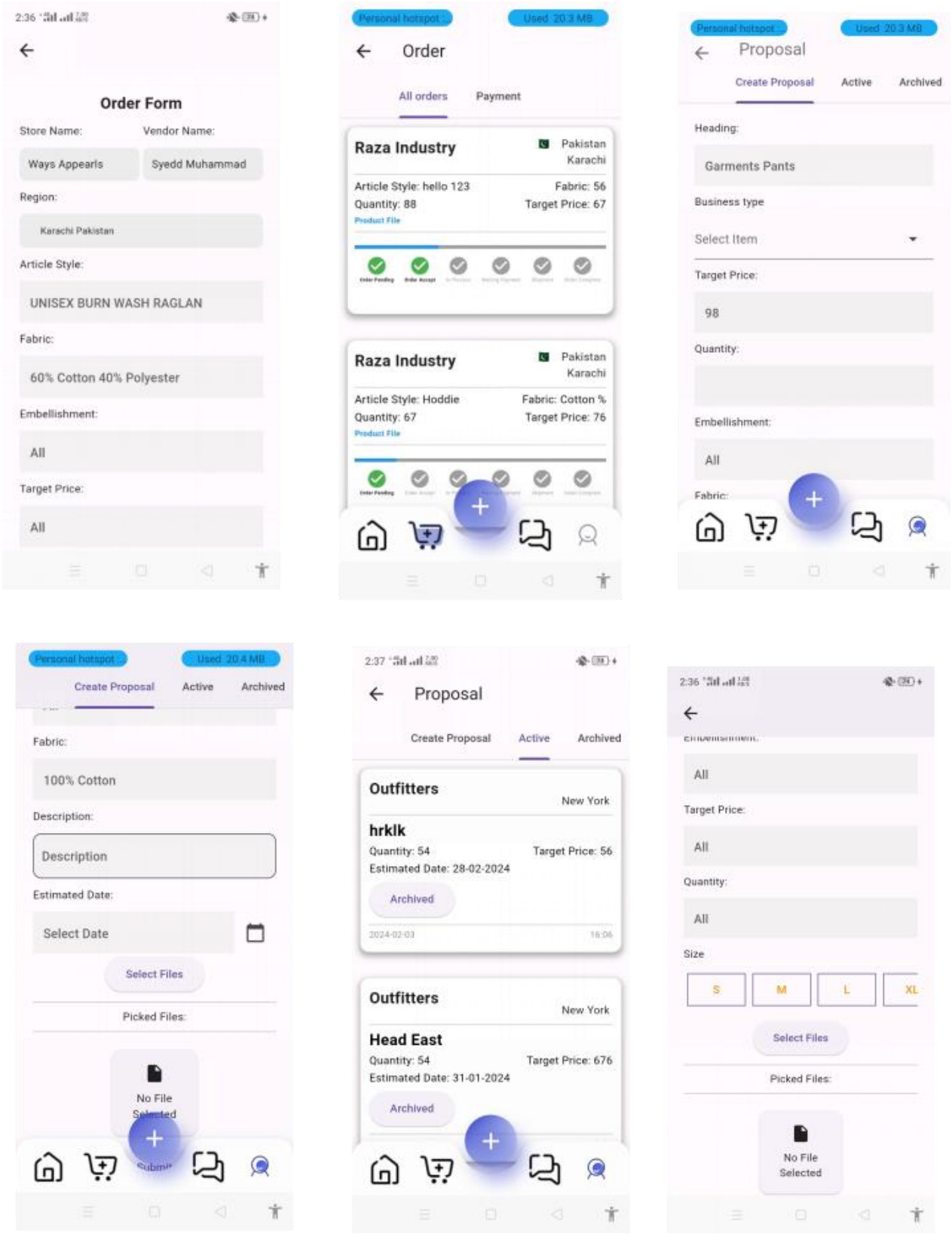


Figure 7: Client Screens

5.5 Summary:

This chapter delves into the system prototype and development, offering insights into the prototype design, frontend and backend development, database queries, and integration of external libraries. We provide an overview of the prototype, detailing its structure and functionality, along with screenshots of the application interface. Additionally, we address various aspects of system validation and error handling, ensuring the reliability and robustness of the application. The prototype design offers a comprehensive view of the working screens, each meticulously described with details on layout, color scheme, and multimedia elements. Furthermore, database queries are elucidated to demonstrate the system's data retrieval process, while the integration of external libraries enhances the application's functionality and user experience. Through this chapter, we provide a detailed overview of the system's development journey, highlighting key milestones and technical intricacies.

CHAPTER – 6

6.0 Introduction:

In this chapter, we delve into the critical phase of testing to ensure the efficacy and reliability of our software solution. Testing serves as a pivotal step in determining whether the software functions as intended and produces the expected outcomes. We meticulously design and execute test cases, including both functional and usability tests, to comprehensively evaluate the software's performance. This chapter provides readers with insights into the diverse functionalities and operational aspects of the software, encompassing both minor intricacies and major functionalities. Following the completion of the implementation phase, testing assumes paramount importance in validating the system's functionality and adherence to requirements. Each screen and button undergo rigorous testing to validate their alignment with project specifications and expected behaviors. Despite the complexity of the application, its architecture leverages reusability, resulting in a streamlined testing process. For instance, the reuse of code modules across different functionalities minimizes redundancy and enhances efficiency. The chapter further outlines the comprehensive set of test cases employed, totaling 9, each meticulously documented with attributes such as test case ID, description, steps, expected results, and execution details. Through this detailed examination, readers gain valuable insights into the rigorous testing regimen adopted to ensure the software's robustness and reliability.

6.1 Test Cases:

Test case 1	SV_001
Test case name	Registration Page of Vendor
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for registration page

Pre-conditions	Open the application
	User should click on next and then click on Vendor option and then click on register or sign-up button

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Leave any required field blank and click on register button	The blank required field becomes red	As expected	Pass	No comments
2.	Type same password to confirm password	User will be able to register	As expected	Pass	No comments
3.	Type different password to confirm password	The confirm password bar becomes red	As expected	Pass	No comments
4.	Phone number can't be more than 10 digits/digits	Phone number bar becomes red when type more than 10 numbers/digits	As expected	Pass	No comments
5.	Fill all the fields with correct information and then click on register	The account should be created successfully	As expected	Pass	No comments
6.	Vendor can continue using valid Gmail	The account should be	As expected	Pass	No comments

		created successfully			
7.	Vendors can reset their password using Gmail	Reset password link should be sent to Gmail	As expected	Pass	No comments
8.	Vendors should be able to login after they reset their password	Vendor successfully logged in	As expected	Pass	No comments

Table 13: Test Case 1

Test case 2	SV_002
Test case name	Store Creating Page of Vendor
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for Creating Store

Pre-conditions	Open the application
	User should be click on Vendor option and logged in as Vendor

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Vendor Clicks on create store	Create store option should open	As expected	Pass	No comments
2.	Vendor Clicks on Product information	Product Basic info tab should open	As expected	Pass	No comments
3.	Product range should start from minimum 10	Minimum selected range should be automatically 10	As expected	Pass	No comments
4.	Leave any required field open in Product Basic Info tab	The required field becomes red	As expected	Pass	No comments
5.	Put all the field correct in Product Basic Info	Product Basic Info should be successfully added	As expected	Pass	No comments
6.	Vendor Clicks on Product details	Product details tab should open	As expected	Pass	No comments
7.	Vendor leaves all the field in	All the product detail	As expected	Pass	No comments

	Product details as blank	information shows as N/A			
8.	Vendor put all the details in the Product details correctly	All the information should be added successfully	As expected	Pass	No comments
9.	Vendor Clicks on Company Profile	Company Profile tab should be open	As expected	Pass	No comments
10.	Vendor leave the company name blank	Company name bar should become red	As expected	Pass	No comments
11.	Vendor Upload the Album of Company	Company Album should be uploaded successfully	As expected	Pass	No comments
12.	Vendor fill all the field correctly and click on Create store	Store Should be created successfully	As expected	Pass	No comments

Table 14: Test Case 2

Test case 3	SV_003
Test case name	Registration Page of Clients
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for registration page

Pre-conditions	Open the application
	User should be click on Client option and then click on register or sign-up button

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Leave any required field blank and click on register button	The blank required field becomes red	As expected	Pass	No comments
2.	Type same password to confirm password	User will be able to register	As expected	Pass	No comments
3.	Type different password to confirm password	The confirm password bar becomes red	As expected	Pass	No comments
4.	Phone number can't be more than 10 digits/digits	Phone number bar becomes red when type more than 10 numbers/digits	As expected	Pass	No comments
5.	Fill all the fields with correct information and then click on register	The account should be created successfully	As expected	Pass	No comments

6.	Vendor can continue using valid Gmail	The account should be created successfully	As expected	Pass	No comments
7.	Vendors can reset their password using Gmail	Reset password link should be sent to Gmail	As expected	Pass	No comments
8.	Vendors should be able to login after they reset their password	Vendor successfully logged in	As expected	Pass	No comments

Table 15: Test Case 3

Test case 4	SV_004
Test case name	Registration Page of Vendor
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for Client creating a proposal

Pre-conditions	Open the application
	User should be click on Client option and then should be logged in as client

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Click on Proposal tab	Proposal tab should open	As expected	Pass	No comments
2.	Click on create a Proposal	A new Proposal should open	As expected	Pass	No comments
3.	User put all the information correctly and submit the proposal	Proposal should be posted successfully	As expected	Pass	No comments
4.	User clicks on the active proposal	Active proposal tab should open and user can see all active order	As expected	Pass	No comments
5.	User clicks on the archive proposal	Archive proposal tab should open and user can see all archive order	As expected	Pass	No comments

Table 16: Test Case 4

Test case 5	SV_005
Test case name	Registration Page of Vendor
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for Vendor Bidding Screen

Pre-conditions	Open the application
	User should be click on Vendor option and then should be logged in

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Vendor Clicks on Proposal Option	Proposal Tab should open	As expected	Pass	No comments
2.	Vendor click on a single proposal	Proposal should open	As expected	Pass	No comments
3.	Vendor can bid on multiple proposals	Vendor successfully bids on multiple proposals	As expected	Pass	No comments
4.	Multiple vendors can bid on single proposal	Vendors successfully bids on the proposal	As expected	Pass	No comments

Table 17: Test Case 5

Test case 6	SV_006
Test case name	Chat Screen of Vendor and Clients
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for Chat Screen

Pre-conditions	Open the application
	User should be click on either Client or Vendor option and then logged in Client should click on vendor's store and then can sent inquire about product via text message

Steps	Actions	Expected Result	Actual Result	Status	Comments
1.	Client can directly sent text message to a vendor	Message sent successfully	As expected	Pass	No comments
2.	Vendor can sent text messages to client with	Message sent successfully	As expected	Pass	No comments
3.	Client and Vendors can only sent text messages	Text messages sent successfully	As expected	Pass	No comments

Table 18: Test Case 6

Test case 7	SV_007
Test case name	Digital Contract Screen of Vendors
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for Digital Contract

Pre-conditions	Open the application
	User should be click on either Client or Vendor option and then logged in

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Client are required to accept all the terms in order to accept the Digital Contracts	Client submit Digital Contract successfully	As expected	Pass	No comments
2.	Without accepting terms and conditions digital contract can't be submitted	Proposal can't be submitted	As expected	Pass	No comments
3.	Vendors are required to accept all the terms in order to accept the Digital Contracts	Vendor submit Digital Contract successfully	As expected	Pass	No comments

Table 19: Test Case 7

Test case 8	SV_008
Test case name	Order Screen of Vendors and Clients
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for Order Screen for both vendors and clients

Pre-conditions	Open the application
	User should be click on Vendor or Client option and should be registered and then click on order

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Vendor click on order tab	Order Tab should open	As expected	Pass	No comments
2.	Vendor can see all the orders	All the orders should display	As expected	Pass	No comments
3.	Client click on order tab	Order Tab should open	As expected	Pass	No comments
4.	Client can see all the orders	All the orders should display	As expected	Pass	No comments

Table 20: Test Case 8

Test case 9	SV_009
Test case name	Registration Page of Vendor
Executed by	Syed Ahmed Raza Shah
Test description	Test the system for registration page

Pre-conditions	Open the application
	User should be click on Client option and should be registered then logged in

Steps	**Actions**	**Expected Result**	**Actual Result**	**Status**	**Comments**
1.	Navigate to an order detail page.	Order details are displayed.	As expected	Pass	No comments
2.	Initiate the "Pay Now" action	Redirected to Stripe's payment interface.	As expected	Pass	No comments
3.	Enter dummy payment details (Stripe provides test cards)	No error during payment submission.	As expected	Pass	No comments
4.	Complete the simulated payment process	Success message shown	As expected	Pass	No comments

Table 21: Test Case 9

6.2 Summary:

We test our software to get our expected results of our software or whether a system under test satisfies requirements or works correctly. After test cases, we get satisfied results the usability test case.

CHAPTER – 7

7.0 Introduction:

In this chapter, we encapsulate the culmination of efforts undertaken throughout the final year of our project, reflecting on both major milestones achieved and the nuanced intricacies addressed. We provide an exhaustive overview of challenges encountered, limitations identified, and prospects for future enhancements within the project. By elucidating the system's limitations, we aim to offer users a deeper understanding of its functionalities and potential areas for improvement. The section on future work delineates prospective avenues for augmenting the software's capabilities, aiming to enrich its efficacy and utility over time. Specifically, we envision incorporating additional features such as a secure payment method, which was not included in the current version, to facilitate seamless transactions within the app. Furthermore, the integration of advanced searching algorithms will enhance the user experience by enabling efficient data retrieval and exploration. As the software evolves, opportunities abound for refining existing features and introducing novel functionalities to enhance the user experience. Through continual updates and enhancements, we aspire to render the application more versatile, intuitive, and indispensable in catering to the evolving needs of our users.

7.1 System Limitations and Challenges:

In navigating the development journey of the Stitch Vision App, we encountered several notable limitations and challenges. One significant limitation pertained to the absence of a robust payment method integration, which hindered the seamless facilitation of financial transactions within the app. Additionally, the absence of advanced searching algorithms posed challenges in optimizing data retrieval and exploration functionalities. Furthermore, constraints in resource allocation and time management presented challenges in meeting project deadlines and delivering all envisaged features within the stipulated timeframe.

7.2 Future Work:

Looking ahead, there are several avenues for future work and enhancement within the Stitch Vision App. Foremost among these is the implementation of a secure and user-friendly payment method to enable effortless financial transactions between clients and vendors. Moreover, integrating advanced searching algorithms will enhance the app's usability by enabling efficient product discovery and exploration. Additionally, future iterations of the app could focus on enhancing user engagement through personalized recommendations, interactive features, and seamless communication channels. Furthermore, expanding the app's geographical reach and diversifying product categories could amplify its utility and appeal to a broader audience.

7.3 Conclusion:

In conclusion, the journey of developing the Stitch Vision App has been marked by both accomplishments and challenges. While significant strides have been made in realizing the app's core functionalities, such as vendor-client interaction and product management, certain limitations and challenges remain to be addressed. However, with a clear vision for future enhancements and a commitment to ongoing refinement, the Stitch Vision App is poised to evolve into a comprehensive and indispensable platform for facilitating transactions within the textile industry. As we continue to iterate and innovate, we remain steadfast in our commitment to delivering a seamless and empowering experience for our users.

REFERENCES

1] Khan, O., Christopher, M., & Creazza, A. (2021). Aligning product design with the global supply chain: a focus on the apparel industry. International Journal of Logistics Management, 32(1), 34-57.
[2] Hu, D., Zhou, L., & Zhang, Q. (2019). Risk, information asymmetry, and credit rationing in the supply chain of the textile industry. International Journal of Production Economics, 209, 368-380

[3] Wilhelm, M., Blome, C., Wieck, E., & Xiao, C. (2016). Implementing sustainability in multi-tier supply chains: Strategies and practices in the textile industry. Journal of Cleaner Production, 137, 1190-1200.

[4] InNgai, E., & Gunasekaran, A. (2007). A review for mobile commerce research and applications. Decision Support Systems, 43(1), 3-15.

[5] Rayle, L., Dai, D., Chan, N., Cervero, R., & Shaheen, S. (2016). Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco. Transport Policy, 45, 168-178.

[6] Yeo, V., Goh, S., & Rezaei, S. (2017). Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services. Journal of Retailing and Consumer Services, 35, 150-162.

[7] Wang, Y, Pettit, S., Maguire, S., & Zhang, M. (2016). The Impact of Mobile Supply Chain Management on Owner-Operators. Transportation Research Part C, 69, 30–42.

[8]Kim, D., & Park, K. (2017). An inventory model for analyzing the impact of mobile technology implementation on inventory inaccuracy in the retail supply chain.The International Journal of Advanced Manufacturing Technology_, 89, 2981-2991.

[9] Ghoniem, M., Shaaban, H., & El Far, B. (2014). Interactive mobile-interior design: a review with future directions. Leonardo, 47(5), 489-492.

[10] Kang, J., Liu, C., Kim, S. (2013). Environmentally sustainable textile and apparel consumption: the role of consumer knowledge, perceived consumer effectiveness and perceived personal relevance. International Journal of Consumer Studies, 37(4), 442–452.

[11]Linnenluecke, M., & Griffiths, A. (2010). Corporate sustainability and organizational culture. Journal of World Business, 45(4), 357-366. https://doi.org/10.1016/j.jwb.2009.08.006

[12] Xia, Y., Zu, X., & Shi, H. (2015). Power structure and its impacts on supply chain efficiency. The International Journal of Logistics Management, 26(2), 329-348.

[13] Peterson, H. (2017, June 16). Amazon is destroying department stores. Business Insider.

[14] Wu, D., Rosen, D., Wang, L., & Schaefer, D. (2015). Cloud-based design and manufacturing: A new paradigm in digital manufacturing and design innovation. Computer-Aided Design, 59, 1-14. https://doi.org/10.1016/j.cad.2014.07.006

APPENDIX

Business Canvas:

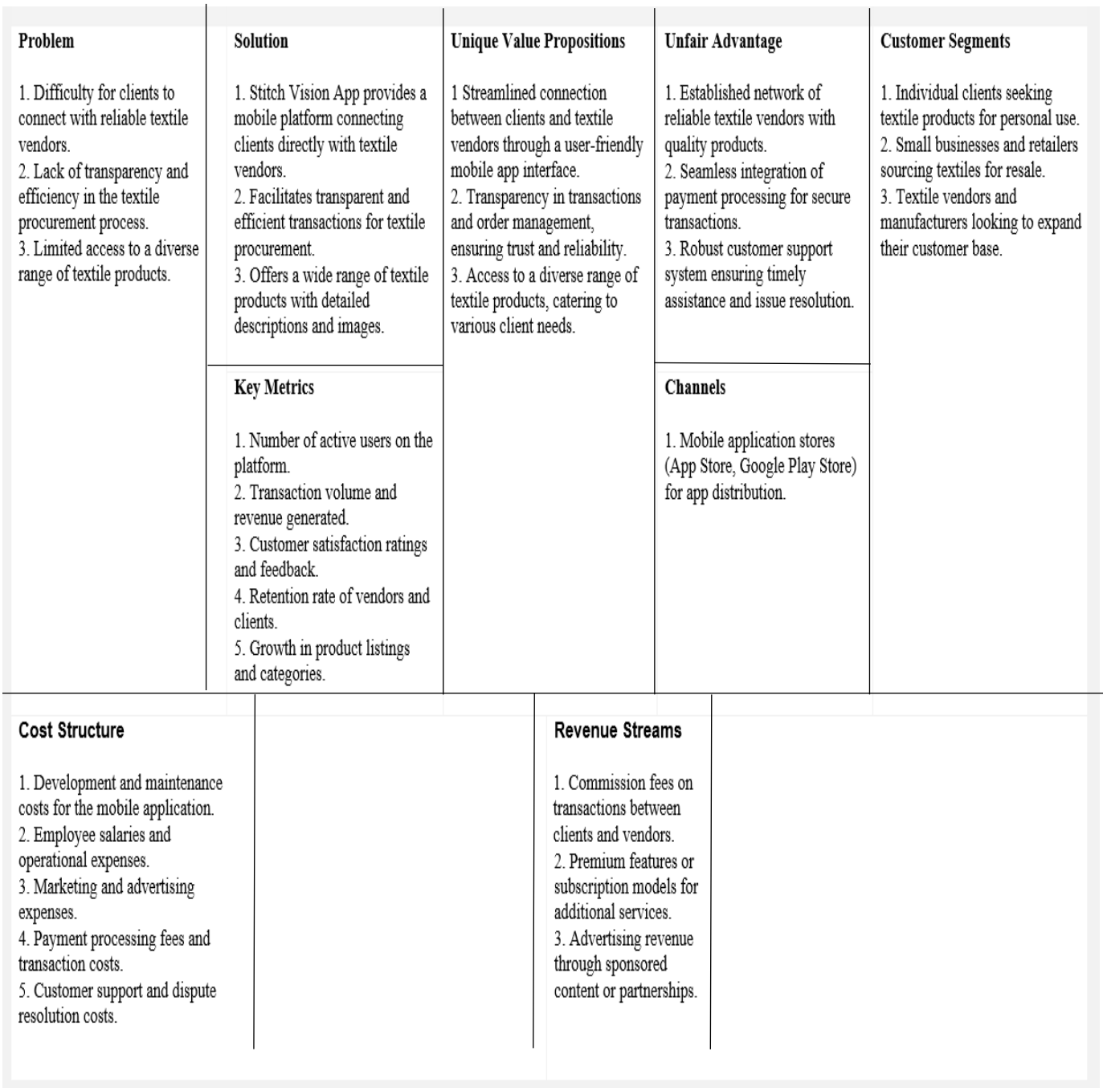
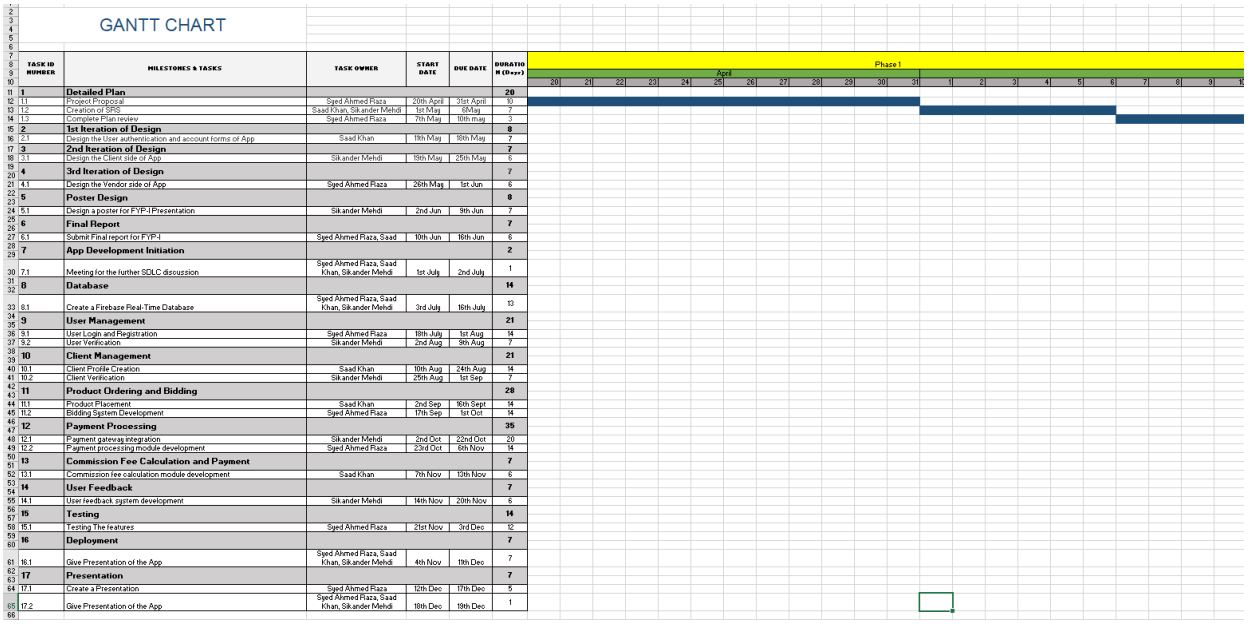


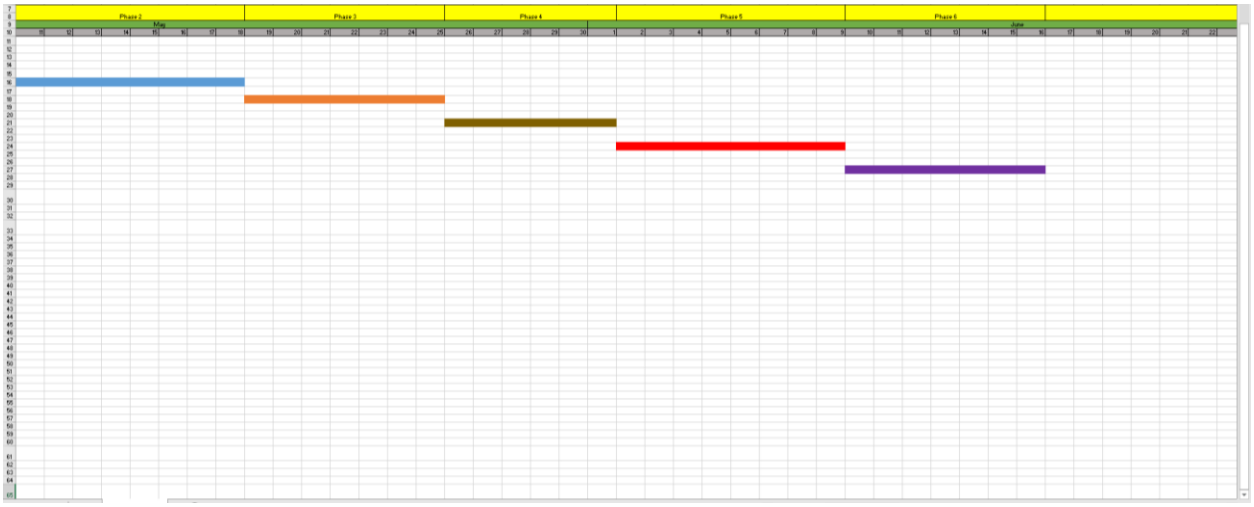
Figure 8: Business Canvas

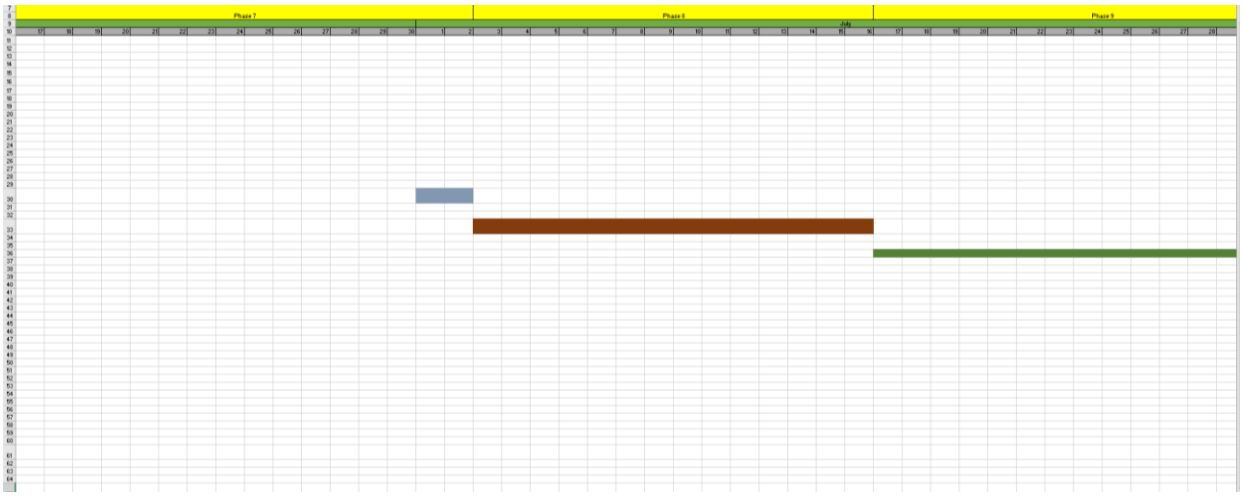
GANTT CHART:

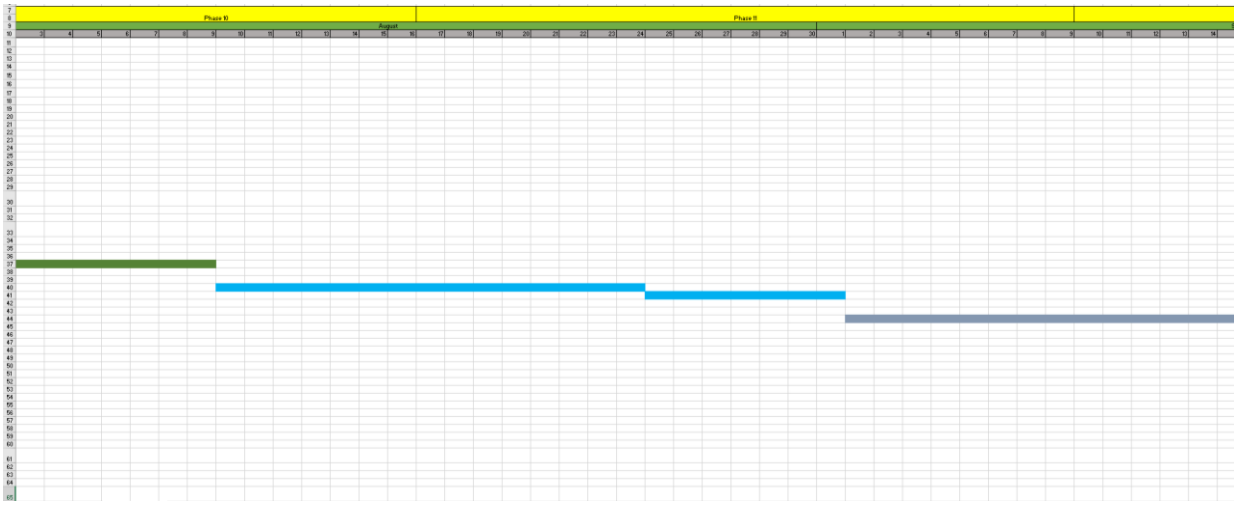


GANTT CHART

TASK ID NUMBER	MILESTONES & TASKS	TASK OWNER	START DATE	DUE DATE	DURATION (Days)
1	**Detailed Plan**			31st April	**20**
1.1	Project Proposal	Syed Ahmed Raza	20th April	31st April	10
1.2	Creation of SRS	Saad Khan, Sikander Mehdi	1st May	6May	7
1.3	Complete Plan review	Syed Ahmed Raza	7th May	10th may	3
2	**1st Iteration of Design**				**8**
2.1	Design the User authentication and account forms of App	Saad Khan	19th May	18th May	7
3	**2nd Iteration of Design**				**7**
3.1	Design the Client side of App	Sikander Mehdi	19th May	25th May	6
4	**3rd Iteration of Design**				**7**
4.1	Design the Vendor side of App	Syed Ahmed Raza	26th May	1st Jun	6
5	**Poster Design**				**8**
5.1	Design a poster for FYP-I Presentation	Sikander Mehdi	2nd Jun	9th Jun	7
6	**Final Report**				**7**
6.1	Submit Final report for FYP-I	Syed Ahmed Raza, Saad	10th Jun	16th Jun	6
7	**App Development Initiation**				**2**
7.1	Meeting for the further SDLC discussion	Syed Ahmed Raza, Saad Khan, Sikander Mehdi	1st July	2nd July	1
8	**Database**				**14**
8.1	Create a Firebase Real-Time Database	Syed Ahmed Raza, Saad Khan, Sikander Mehdi	3rd July	16th July	13
9	**User Management**				**21**
9.1	User Login and Registration	Syed Ahmed Raza	18th July	1st Aug	14
9.2	User Verification	Sikander Mehdi	2nd Aug	9th Aug	7
10	**Client Management**				**21**
10.1	Client Profile Creation	Saad Khan	10th Aug	24th Aug	14
10.2	Client Verification	Sikander Mehdi	25th Aug	1st Sep	7
11	**Product Ordering and Bidding**				**28**
11.1	Product Placement	Saad Khan	2nd Sep	16th Sept	14
11.2	Bidding System Development	Syed Ahmed Raza	17th Sep	1st Oct	14
12	**Payment Processing**				**35**
12.1	Payment gateway integration	Sikander Mehdi	2nd Oct	22nd Oct	20
12.2	Payment processing module development	Syed Ahmed Raza	23rd Oct	6th Nov	14
13	**Commission Fee Calculation and Payment**				**7**
13.1	Commission fee calculation module development	Saad Khan	7th Nov	13th Nov	6
14	**User Feedback**				**7**
14.1	User feedback system development	Sikander Mehdi	14th Nov	20th Nov	6
15	**Testing**				**14**
15.1	Testing The features	Syed Ahmed Raza	21st Nov	3rd Dec	12
16	**Deployment**				**7**
16.1	Give Presentation of the App	Syed Ahmed Raza, Saad Khan, Sikander Mehdi	4th Nov	10th Dec	7
17	**Presentation**				**7**
17.1	Create a Presentation	Syed Ahmed Raza	12th Dec	17th Dec	5
17.2	Give Presentation of the App	Syed Ahmed Raza, Saad Khan, Sikander Mehdi	18th Dec	19th Dec	1




Phase 7
Phase 8
Phase 9


Phase 10
August
Phase 11


Phase 12
September
Phase 13
October

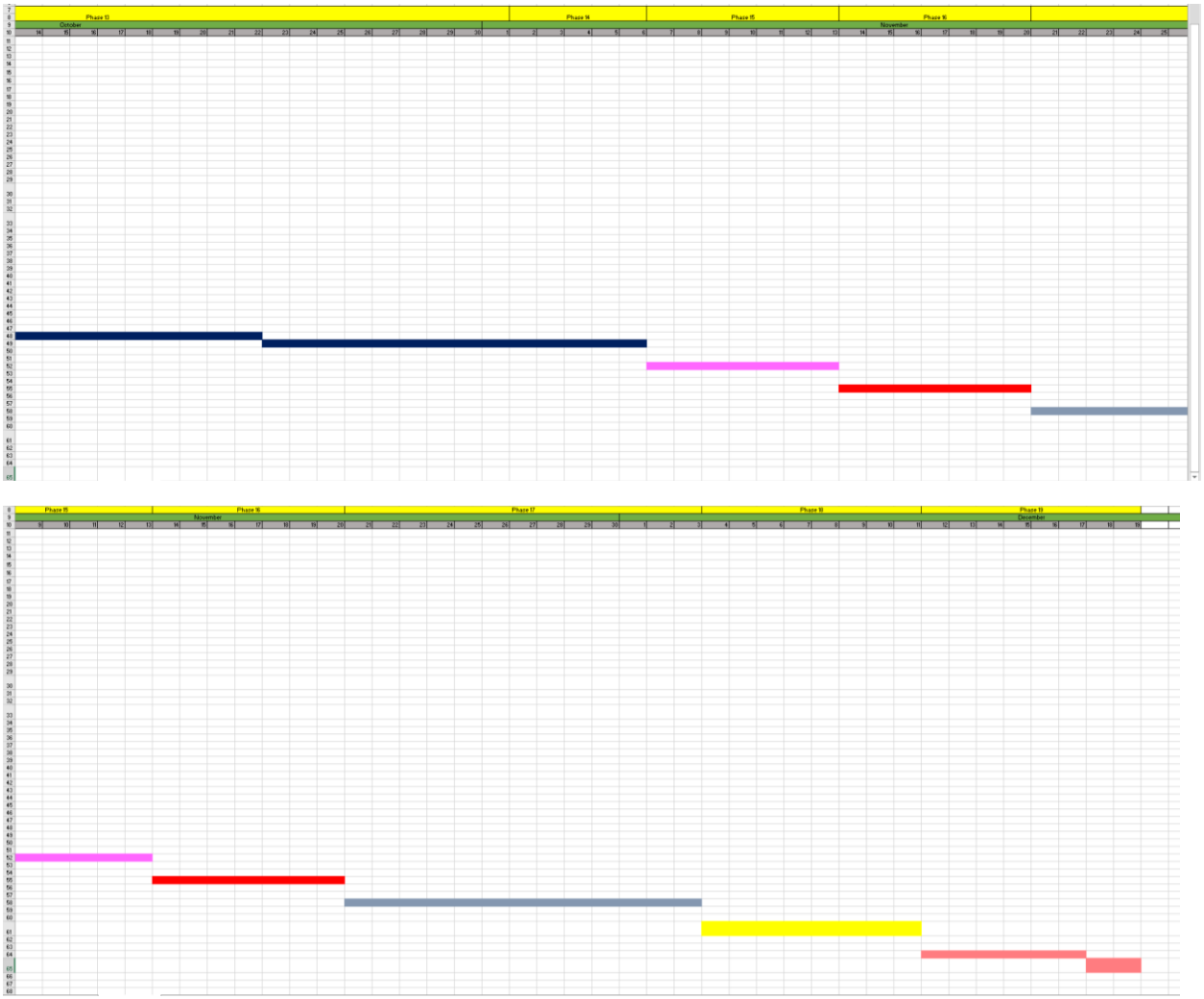


Figure 9: Gantt Chart Complete

SOFTWARE MANUAL

Stitch Vision App Software Manual:

1. Introduction

- **Overview:** The Stitch Vision App is a comprehensive platform designed to streamline interactions between clients and textile vendors. This manual provides step-by-step instructions for various functionalities of the app.
- **Purpose of the Manual:** This manual serves as a guide for users of the Stitch Vision App, offering detailed instructions on how to register, create a vendor store/portfolio, create proposals, bid on proposals, and place orders.

2. User Registration

- **Steps to Register:**
    1. Open the Stitch Vision App.
    2. Click on the "Register" or "Sign Up" button.
    3. Fill in the required information, including name, email, password, and any other necessary details.
    4. Verify your email address through the confirmation link sent to your registered email.
    5. Once verified, your registration process is complete.

3. Create Vendor Store/Portfolio

- **Steps to Create Vendor Store/Portfolio:**
    1. Log in to your Stitch Vision account.
    2. Navigate to the "Vendor Dashboard" section.
    3. Click on the option to "Create Store" or "Add Portfolio."
    4. Fill in details about your store/portfolio, including name, description, contact information, and product offerings.
    5. Upload images or videos showcasing your products.
    6. Save your changes to create your vendor store/portfolio successfully.

4. Creating Proposal

- **Steps to Create Proposal:**
    1. Access your Stitch Vision vendor dashboard.
    2. Navigate to the "Create Proposal" section.
    3. Fill in details about the proposal, including product description, pricing, quantity, and any other relevant information.
    4. Specify terms and conditions, including delivery timeframes and payment terms.
    5. Review the proposal details and click on the "Submit" button to create the proposal.

5. Bidding on Proposals

- **Steps to Bid on Proposals:**
    1. Log in to your Stitch Vision account as a vendor.
    2. Browse through available proposals in the platform.
    3. Select a proposal you're interested in and click on the "Bid" button.
    4. Enter your bid details, including pricing and any additional terms.
    5. Review your bid and click on the "Submit Bid" button to place your bid on the proposal.

6. Order

- **Steps to Place an Order:**
    1. Log in to your Stitch Vision account as a client.
    2. Browse through vendor stores/portfolios or received proposals.
    3. Select the desired product or proposal and click on the "Order Now" button.
    4. Review the order details, including quantity and pricing.
    5. Proceed to checkout and choose the preferred payment method.