



GROUP 79

SUBA SHOE FASHION WEBSITE

Group Details

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Module: PUSL 2021 Computing Group Project

Group Number: 79

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Introduction

Overview of the Project

This project creates an e-commerce website for a handmade sandal business in Sri Lanka. It aims to address the challenges of limited access, inefficient ordering, and lack of online presence by offering a user-friendly platform with features such as product display, customization, and direct communication with the shoemaker. The site aims to improve customer satisfaction, increase sales, and empower local artisans by connecting them with a wider audience and fostering collaboration within the industry. This is a strategic initiative to propel the business towards success in the competitive footwear market through technology.

Purpose of the project

The aim of this project is to create a website that will act as a digital platform to promote and sustain business for a footwear manufacturer in Sri Lanka.

The grant problem here is less consumer appeal.

So, our main goal is to fulfill the need for an efficient and user-friendly online interface that facilitates the advertisement, customization, ordering and delivery of handmade sandals.

Justification for the project

In response to observed consumer behavior and business practices, there is a clear need for a digital solution to improve the visibility and accessibility of the footwear business. The project aims to meet growing demand from local and remote customers, provide personal shopping experience, streamline the ordering process, and expand the client's market reach. Additionally, incorporating advertising opportunities and providing a platform for wholesale inquiries contributes to the sustainability and growth of the business.

Scope and Objectives

Extensive Business Promotion: Produces a digital platform to promote the footwear business of Sri Lankan and global customers by attracting remote customers.

Improving customer experience: Improves user experience by offering features like customizable status, color-based searches, and direct interaction with the shoe manufacturer.

Categorization and Product Findability: Organizes footwear inventory into distinct categories (e.g., wedding, heels, flats, school-friendly) for easy navigation and product selection for customers.

Technical Activity: Developing a robust website using modern web development technologies (HTML, JavaScript, PHP, CSS) to ensure functionality, security, and visual appeal.

Additional Sources: Allowing advertising spaces to allow other businesses to promote their products, creating additional traffic for the client.

Target Users: Provide features and functionality tailored to the needs of various user groups, including local and remote consumers, fashion enthusiasts, advertisers, and wholesalers/retailers.

Business/Achievements: Addressing the evolving needs of the footwear industry in Sri Lanka, leveraging social marketing channels for business ventures and contributing to local industrial economic empowerment.

Overall, the project aims to enhance the client's market presence, deliver comprehensive and scalable digital offerings that contribute to business growth in the companion footwear industry that fosters consumer engagement.

Background

Literary Study:

Research in the fields of e-commerce, web development and footwear industry has provided valuable insights into various aspects related to the project. Studies have focused on consumer behavior in online shopping, website design principles, digital marketing strategies and innovations in the footwear market.

Consumer behavior in e-commerce: Studies have explored several factors that influence online purchase decisions, such as website usage, product presentation, customization options, and trustworthiness of online sellers.

Website Design Principles: Research has identified key elements of effective website design, including user interface design, navigation structure, visual aesthetics, and responsiveness across devices. Studies also emphasize the importance of security features and seamless check-out processes.

Digital Marketing Strategies: The literature has examined various digital marketing strategies such as search engine optimization, social media marketing, email campaigns and online advertising to improve online visibility and attract customers.

Available Solutions:

Several existing e-commerce platforms and website builders offer solutions for creating online stores, including customizable templates, payment processing integration.

Below are the websites we studied.

<https://sereppulk.com/>

<https://www.dsifootcandy.lk/>

<https://www.laydeez.lk/>

<https://shoes.lk/>

<https://mirrormirror.lk/Shoes>

But in these websites, in the way we expect, consumers have not been given the opportunity to make sandals as they wish.

Advantages:

- Pre-built components and functionalities provide a basis for developing the existing solution project.
- They can save time and resources compared to building a website from scratch.
- Most solutions offer user-friendly interfaces and technical support for troubleshooting.

Disadvantages:

- Generic solutions cannot fully meet the specific needs of the footwear business, such as customization options and direct interaction with the shoemaker.
- Limited flexibility in customization and scalability compared to a proper website development approach.
- Reliance on third-party platforms may limit features, data security, and control of future updates.

Theoretical framework for the solution:

The development of the project should integrate various theoretical frameworks and design principles to create a user-centric and technically robust website.

User-centered design: UCD principles emphasize involving users in the design process, understanding their needs and preferences, and replicating the user experience.

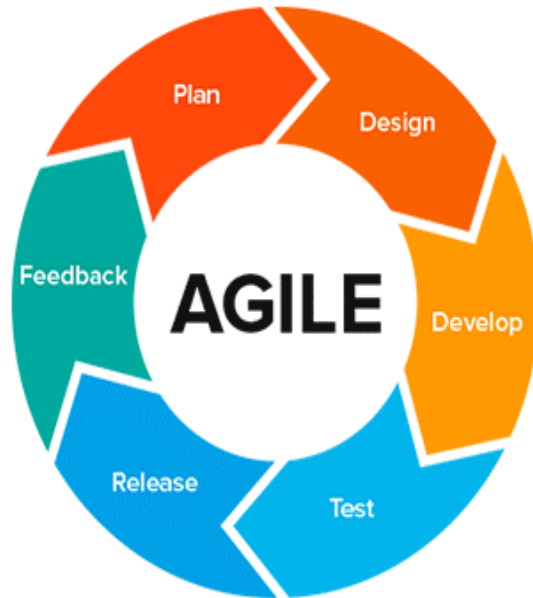
Responsive Web Design (RWD): RWD principles ensure that the website adapts to different screen sizes and devices, providing a consistent and optimal experience to users accessing the website from desktops, tablets, or smartphones. This supports the project's goal of reaching a diverse audience across Sri Lanka.

Responsive web design is the practice of creating websites that automatically adjust their layout and elements to fit the screen size and resolution of the device being used. The aim is to ensure that the website is user-friendly and visually appealing whether accessed from a desktop computer, laptop, tablet, or smartphone. In essence, RWD allows websites to seamlessly adapt to different screen sizes and orientations, providing users with a consistent and optimized experience across different devices.

Security by Design: Incorporating security measures from the design stage ensures protection of user data, transaction integrity and site integrity. This coincides with the project's emphasis on implementing encryption protocols, authentication mechanisms and secure payment gateways to protect user information.

Agile Development Methodology: Agile methodologies facilitate iterative development, collaboration, and adaptation to changing requirements throughout the project lifecycle. This approach allows for continuous improvement based on user feedback and emerging trends in the footwear industry.

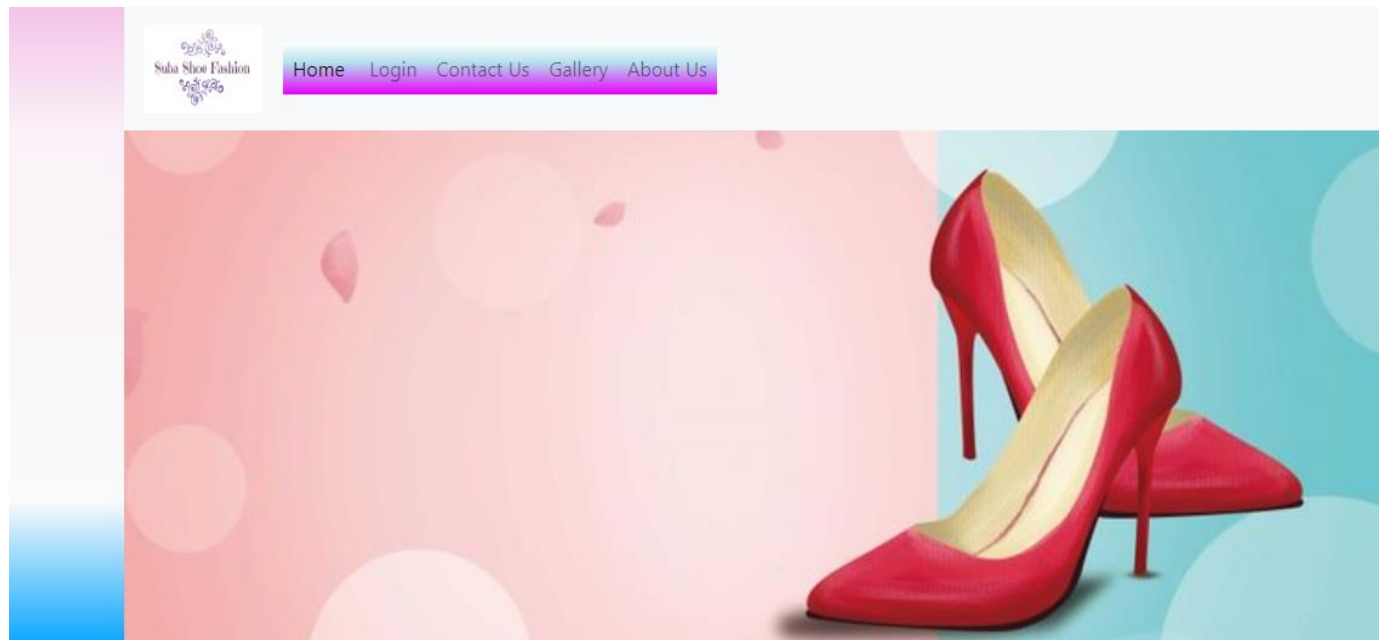
By combining these theoretical frameworks and design principles, the project aims to not only meet the immediate needs outlined by the client, but to deliver a website that is adaptable and resilient to future changes in technology and customer preferences.



There are several reasons why we decided to use the agile method for our project.

This method allows us to perform tasks very quickly.

Also, if we feel inclined to do something different, we can do it here very easily. There is a possibility to change the system by repeatedly identifying the functional requirements.



User Requirement

Identification of users

We were able to identify several users.

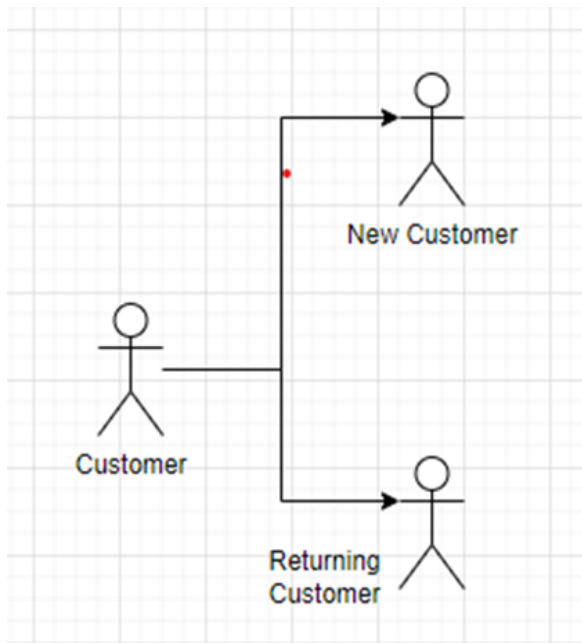
Stakeholders for the project include the client (footwear business owner), customers (local and remote), advertisers, wholesalers, retailers, and the development team.

But we think it is enough to use only admin and customer for the system.

Customer

The main user of the online shopping platform is the "Customer". He may be new or returning. New customers must register, returning customers can log in. Customers can browse products, add items to their cart, and edit or delete items. They can view product details and sort items. At checkout, they provide shipping and billing information, select a payment method, and confirm the order. After confirmation, they will receive an email and their order will be processed.

However, products can also be produced based on the consumer's preferences through our website.



Admin

"Administrator" is a key character in the online shopping platform. Their main tasks are adding new products to the website, keeping existing product information up to date and handling order cancellations. They ensure that the platform runs smoothly, and customers have access to accurate product information.

Customer:

The main actor in this scenario is the customer, who interacts with the website to browse, select, and purchase products.

New Customer Registration:

Description: New customers register for an account before shopping.

Steps:

- Navigate to the website's registration page.
- Fill out the required fields (e.g., name, email, password).
- Submit registration form.
- Receive confirmation email with account activation link.
- Activate account by clicking on the link.

Returning Customer Login:

Description: Returning customers log in to their existing accounts.

Steps:

- Navigate to the website's login page.
- Enter email and password.
- Click the "Login" button.
- Access account dashboard.

Browsing and Shopping:

Description: Customers browse products, add items to cart, and manage cart contents.

Steps:

- Browse product categories or use the search function.
- View product details.
- Add desired items to cart.
- View/edit/delete items in cart.
- Continue shopping or proceed to checkout.

Checkout Process:

Description: Customers complete the checkout process to place an order.

Steps:

- Click the "Checkout" button.
- Enter shipping and billing information.
- Choose payment method (e.g., credit card, PayPal).
- Review order summary.
- Confirm order and payment.
- Receive confirmation email with order details.

Admin:

The admin is responsible for managing product inventory, processing orders, and overseeing the overall operation of the website.

Adding New Products:

Description: Admin adds new products to the website.

Steps:

- Access admin dashboard.
- Navigate to the "Add Product" section.
- Enter product details (e.g., name, description, price, image).
- Set product categories and attributes.
- Save new products to inventory.

Managing Existing Products:

Description: Admin updates or removes existing products from the website.

Steps:

- Access admin dashboard.
- Navigate to the "Manage Products" section.
- Locate desired product in inventory.
- Edit product details as needed (e.g., price, quantity).
- Save changes or delete products from inventory.

Canceling Orders:

Description: Admin cancels orders that cannot be fulfilled or are no longer desired by the customer.

Steps:

- Access admin dashboard.
- Navigate to "Orders" section.
- Locate the desired order in the list.
- Select option to cancel order.
- Provide reason for cancellation (optional).
- Confirm cancellation and notify customer.

Requirements Prioritization:

Essential Features:

- Order customization functionality.
- Secure payment gateway
- User-friendly interface
- Advertisement placement options

Important Features:

- Categorization of products
- Color-based search functionality.
- Wholesale inquiry form
- Responsive design for mobile compatibility

Nice-to-Have Features:

- User account creation and management
- Multi-factor authentication for security
- Integration with social media platforms
- Detailed product descriptions and visuals

Functional/Non-functional Requirements:

Functional Requirements:

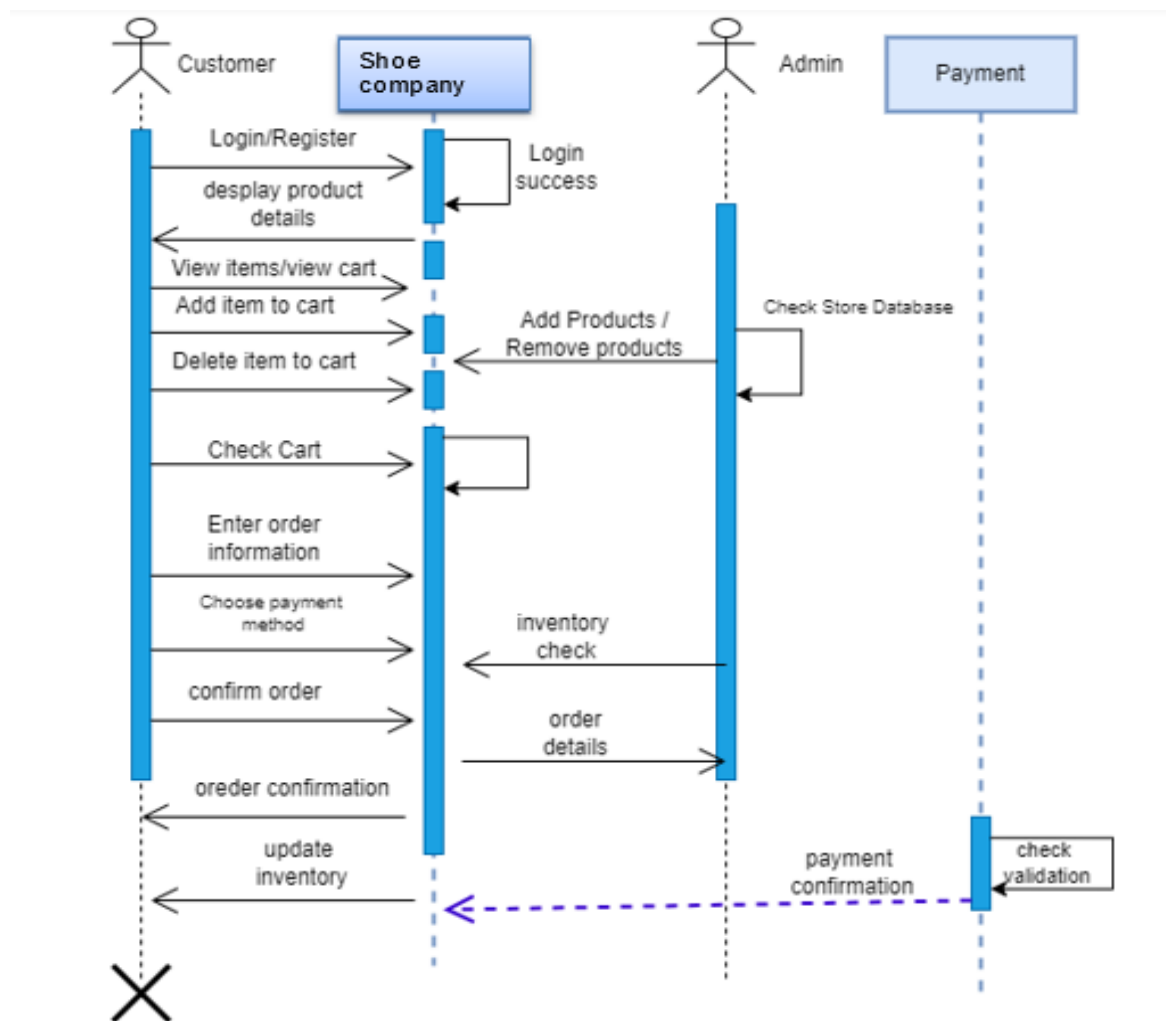
- User registration and login system
- Product catalog with categories (wedding, heels, flats, kids)
- Customization options for sandals
- Order management system.
- Advertisement management system

Non-functional Requirements:

- Security measures (SSL/TLS encryption, user authentication)
- Performance optimization for fast loading times
- Compatibility with different web browsers and devices
- Scalability to accommodate increasing website traffic.

Validation and Verification of the findings

Validation and verification of findings is critical to ensure that the needs of all stakeholders involved with the site are met. For this reason, user testing sessions are conducted to verify the usability and functionality of the website. We audit these sites involving real users interacting with the site to identify any usability issues or bugs in these sessions. Additionally, testing will also be used to compare different layouts, features, and content to determine which ones resonate best with users and ultimately improve the user experience. Feedback is collected from stakeholders including the client, customers, and advertisers to ascertain whether the website meets their needs and expectations. This feedback will be used to make necessary adjustments and improvements to the website. We confirmed the data about the requirements we obtained by conducting several tests.



Functional Specification

Requirement ID: FR-001

Requirement Description: User Registration and Login System

Dependencies: None

Acceptance Criteria:

Users can register for a new account by providing necessary information such as name, email, and password.

Upon registration, users receive a confirmation email with an activation link.

Users can log in using their registered email and password.

The system verifies login credentials and grants access to the user account dashboard.

Priority: High

Requirement ID: FR-002

Requirement Description: Product Catalog with Categories

Dependencies: None

Acceptance Criteria:

The website displays a comprehensive product catalog organized into categories such as wedding, heels, flats, and kids.

Users can easily navigate through different categories to find desired products.

Each product listing includes essential details such as name, description, price, and image.

Priority: High

Requirement ID: FR-003

Requirement Description: Customization Options for Sandals

Dependencies: Product Catalog

Acceptance Criteria:

Users can customize sandals by selecting desired attributes such as size, color, and material.

The customization interface provides clear options and previews of the selected attributes.

Changes made to customization options reflect in real-time previews.

Priority: High

Requirement ID: FR-004

Requirement Description: Order Management System

Dependencies: User Registration and Login System, Product Catalog

Acceptance Criteria:

Users can add desired products to their cart for purchase.

The system allows users to view, edit, and delete items in their cart before checkout.

Upon checkout, users enter shipping and billing information, choose payment method, and confirm the order.

Admin can view and manage orders, including order status updates.

Priority: High

Requirement ID: FR-005

Requirement Description: Advertisement Management System

Dependencies: None

Acceptance Criteria:

Admin can manage advertisement spaces on the website, including placement, duration, and content.

Advertisers can submit advertisements for approval through a designated interface.

The system displays advertisements in designated spaces across the website.

Priority: Medium

Requirement ID: FR-006

Requirement Description: User-Friendly Interface

Dependencies: None

Acceptance Criteria:

The website features intuitive navigation and layout for easy access to different sections and functionalities.

User interface elements such as buttons, menus, and forms are visually appealing and responsive.

The interface maintains consistency in design across all pages for a seamless user experience.

Priority: High

Requirement ID: FR-007

Requirement Description: Secure Payment Gateway

Dependencies: Order Management System

Acceptance Criteria:

The website integrates a secure payment gateway to facilitate online transactions.

Users can choose from various payment methods such as credit card, PayPal, and other secure options.

Payment information is encrypted and processed securely to protect user data.

Priority: High

Requirement ID: FR-008

Requirement Description: Performance Optimization

Dependencies: None

Acceptance Criteria:

The website is optimized for fast loading times to enhance user experience.

Pages load efficiently even under high traffic conditions to minimize latency.

Performance metrics are regularly monitored and optimized for continuous improvement.

Priority: Medium

Requirement ID: FR-009

Requirement Description: Compatibility with Different Devices and Browsers

Dependencies: None

Acceptance Criteria:

The website is compatible with various web browsers including Chrome, Firefox, Safari, and Edge.

The website is responsive and adjusts seamlessly to different screen sizes and resolutions, ensuring optimal viewing experience across devices such as desktops, laptops, tablets, and smartphones.

Priority: High

Requirement ID: FR-010

Requirement Description: Scalability

Dependencies: None

Acceptance Criteria:

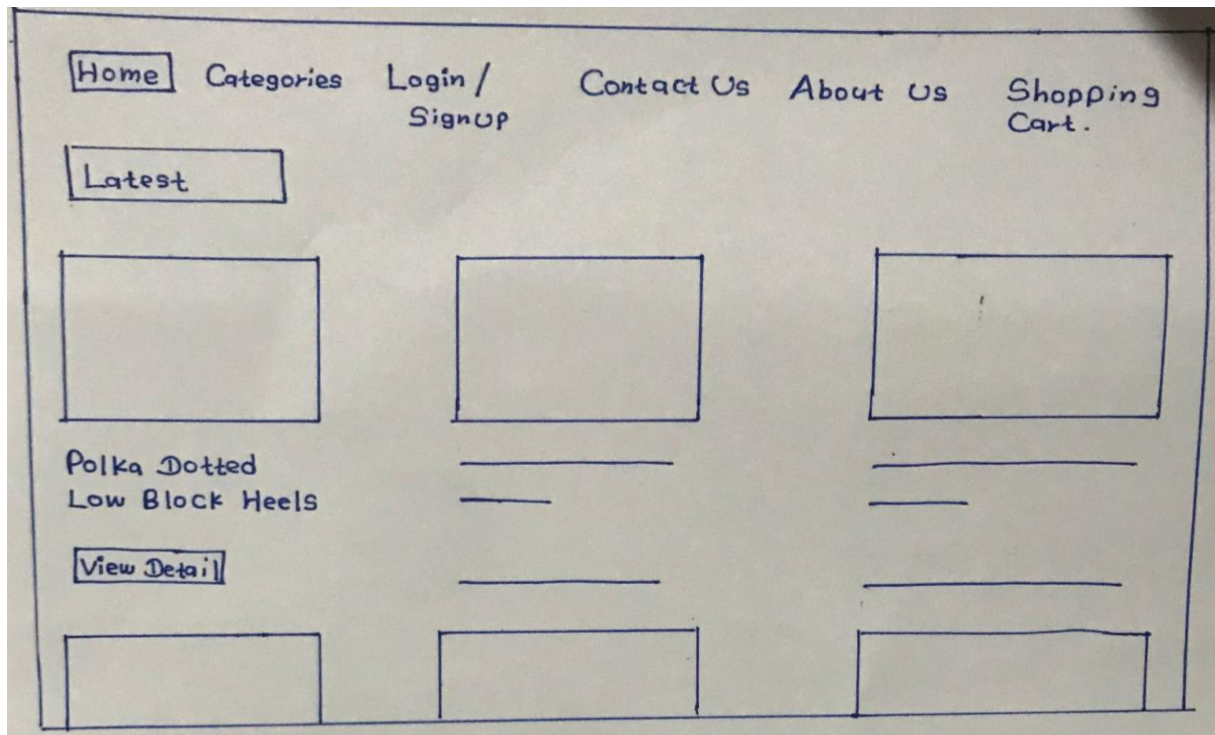
The website architecture is designed to scale efficiently to accommodate increasing website traffic and user interactions.

Scalability measures include optimized server resources, caching mechanisms, and load balancing to ensure consistent performance during peak periods.

Priority: High

Technical Specification

User Interface Design- UI and UX (wireframes)



This is our home page idea.

The homepage of a website is the main or introductory page that users encounter when they visit the site. It serves as the entry point to the website and typically provides an overview of the site's content, features, and navigation options. The homepage often includes elements such as a logo or brand name, navigation menu, featured content or products, promotional banners, search bar, and links to important sections or pages within the site. Its primary goal is to engage visitors, guide them to relevant information or actions, and create a positive first impression of the website.

A hand-drawn sketch of a 'Sign Up' form. The title 'Sign Up' is centered at the top. Below it are five input fields: 'Name', 'Email', 'User Name', 'Password', and 'Re-Enter Password'. Each label is to the left of its corresponding rectangular input box. At the bottom right of the form is a rectangular button labeled 'Sign Up'.

Join our community of sandal lovers and embark on a personal shopping journey tailored just for the consumer. Signing up is quick, easy and opens a world of exclusive benefits. Account must be created to gain access to special offers, track customer's orders and enjoy a seamless shopping experience.

A hand-drawn sketch of a 'Log In' form. The title 'Log In.' is centered at the top. Below it are two input fields: 'User Name' and 'Password'. Each label is to the left of its corresponding rectangular input box. At the bottom center of the form is a rectangular button labeled 'Log In'.

Contact Us

Name

Email

Message

Send

About.

WHO WE ARE

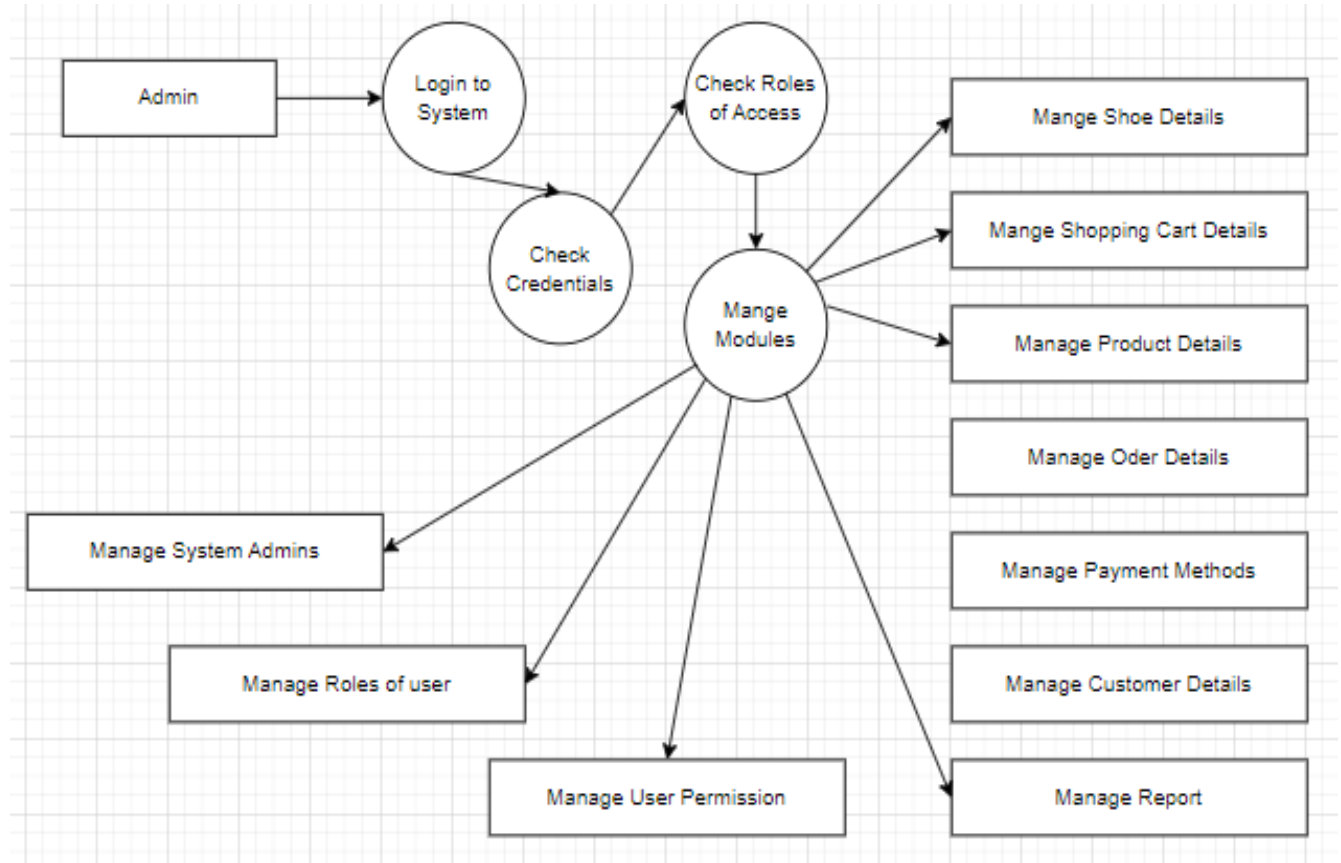
Admin.

SHOPPING CART

Total : LKR 4200.00

Data Model-DFD

DFD diagram:



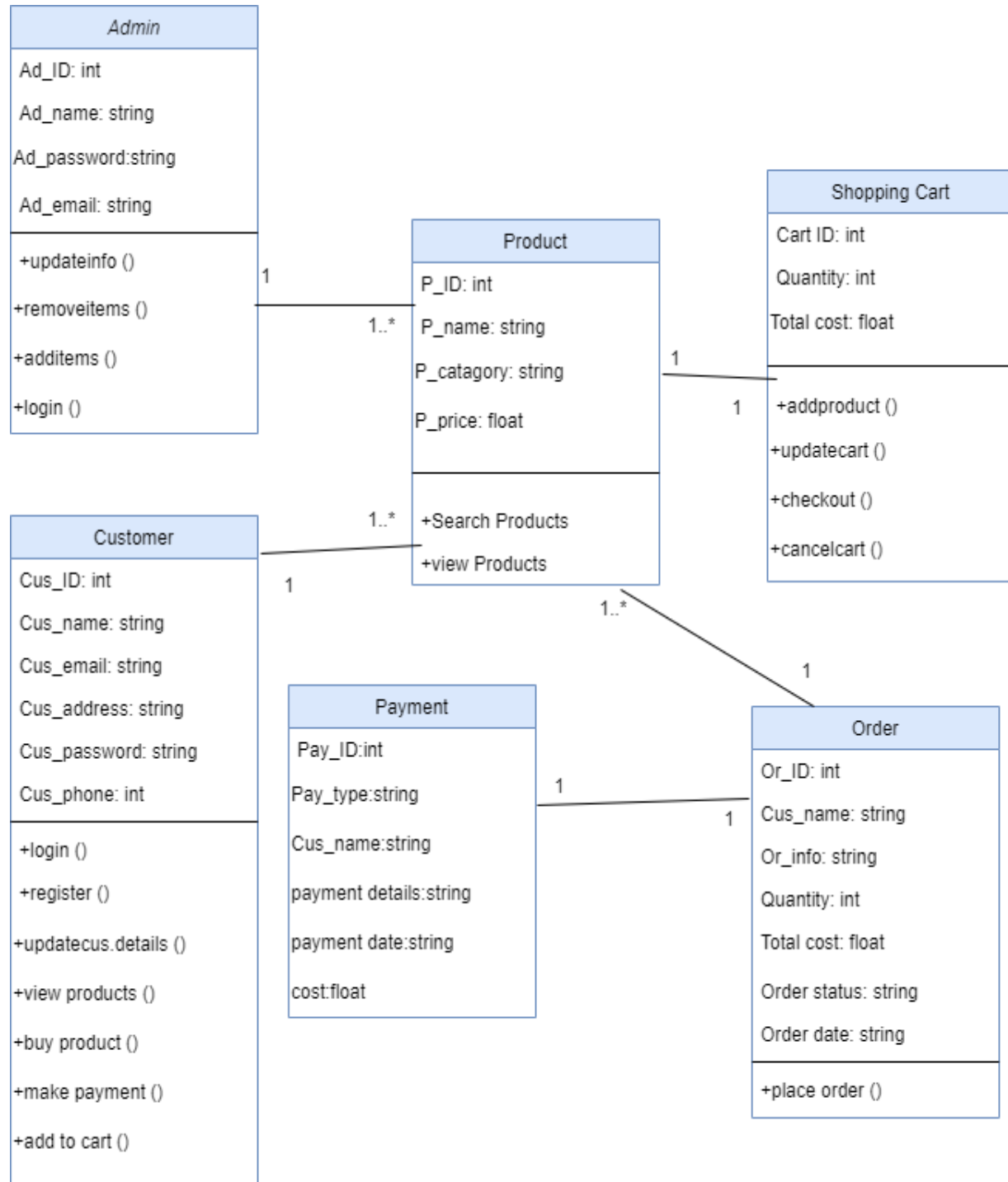
The DFD illustrates the flow of data within the system, depicting processes, data stores, and data flows. It outlines how information moves between different components of the e-commerce website.

Database Design:

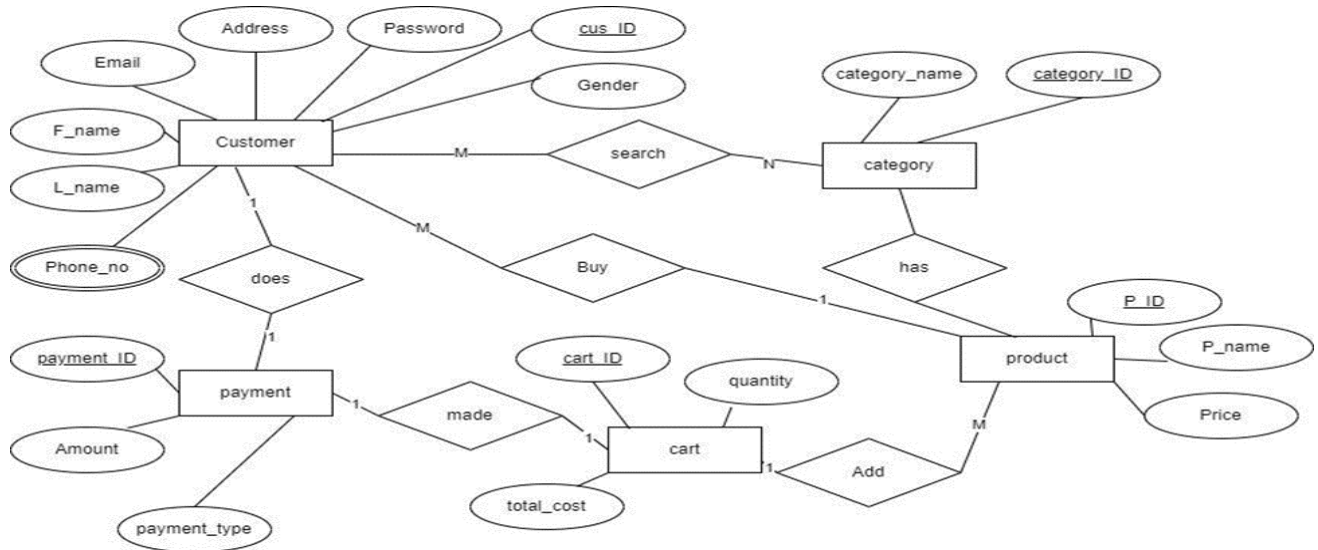
User Data: Stores user information such as name, email, password (hashed), shipping addresses, and order history.

Product Catalog: Contains details of all available products, including name, description, price, image URLs, and associated categories.

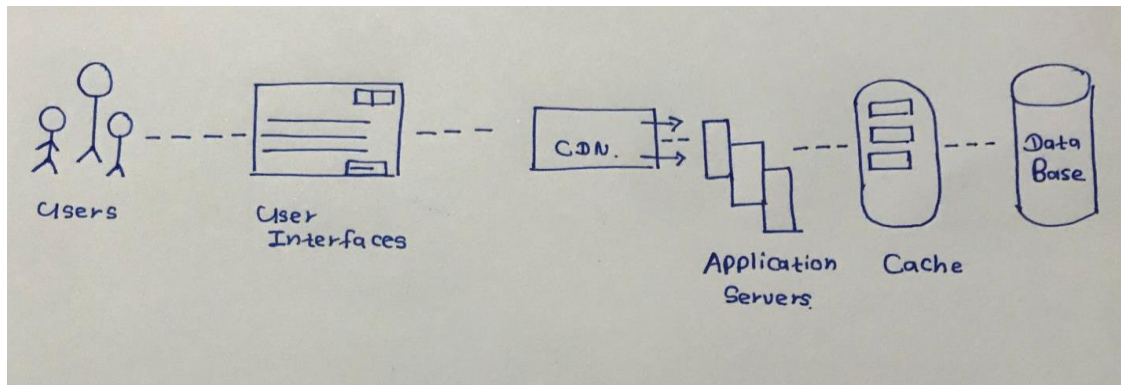
class diagram:



ER diagram:



System Architecture



Client-Side: HTML, CSS, JavaScript for front-end interface.

Server-Side: PHP for server-side scripting, handling requests, and interacting with the database.

Database: MySQL or similar relational database management system (RDBMS) for storing user data, product information, orders, and advertisements.

Web Server: Apache or Nginx for hosting the website and handling HTTP requests.

Payment Gateway Integration: Integration with secure payment gateway APIs for processing online transactions securely.

Advertisement Management System: Custom module or third-party service for managing advertisement spaces and content.

Deployment means setting up the website on a production server and setting up the necessary infrastructure for optimal performance and reliability.

Hosting: Choose a reliable web hosting provider with adequate resources and scaling options.

Server Configuration: Configure the web server, database server, and other components according to best practices for security and performance.

Test strategy:

Unit Testing: Testing individual components/modules to ensure they work correctly.

Integration Testing: Interaction between various modules, APIs and databases should be verified.

User Acceptance Testing (UAT): Real users should be engaged to test the usability, functionality, and performance of the website in a real-world environment.

We are already conducting a unit test where we have decided to resolve several issues that are being uncovered.

Dependencies

APIs: Payment Gateway API, Ad Management API, and integration with any other third-party services.

Libraries/Frameworks: Using front-end frameworks like Bootstrap, jQuery for improved UI/UX and development efficiency.

Web Server: Deploy web servers such as Apache.

Database Management System: Interacting with an RDBMS such as MySQL or PostgreSQL to store and retrieve data.

Work breakdown project timeline.

Project Phases and deliverables

Phase 1: Planning and Requirements Gathering

Deliverable: Project Scope Document, Requirements Specification Document

Phase 2: Design and Prototyping

Deliverable: User Interface Design Mockups, Database Schema Design

Phase 3: Development

Deliverable: Functional Website Prototype, Database Implementation

Phase 4: Testing and Quality Assurance

Deliverable: Test Plan, Bug Reports, User Acceptance Testing Results

Phase 5: Deployment

Deliverable: Live Website, Deployment Documentation

Tasks breakdown at each phase

Phase 1: Planning and Requirements Gathering

- Define project scope.
- Identify stakeholders.
- Conduct requirements gathering sessions.
- Create project documentation.

Phase 2: Design and Prototyping

- Design user interface mockups.
- Develop database schema.
- Prototype key features.

Phase 3: Development

- Front-end development
- Back-end development
- Database development
- Integration of third-party APIs

Phase 4: Testing and Quality Assurance

- Develop test cases.
- Conduct unit testing.
- Perform integration testing.
- Execute user acceptance testing.

Phase 5: Deployment

- Prepare deployment environment.
- Deploy website to production server.
- Perform post-deployment testing.

Project Timeline

- Phase 1: 2 weeks
- Phase 2: 3 weeks
- Phase 3: 6 weeks
- Phase 4: 2 weeks
- Phase 5: 2 weeks

Task	Gardiyehewa Fonseka: 10899518	Welapura Padmasiri: 10899641	Sooriyabandara Sooriyabandara: 10900372	Hanshini Weerakkodi: 10899723	Pana Nimnanjalee: 10899638	Hewadu Jayaweera: 10900378
Phase 1						
Phase 2						
Phase 3						
Phase 4						
Phase 5						

Resource Allocation

- Front-end Developer: Phase 2, Phase 3
- Back-end Developer: Phase 3
- Database Administrator: Phase 2, Phase 3
- Quality Assurance Engineer: Phase 4
- Project Manager: Throughout all phases

Time plan:

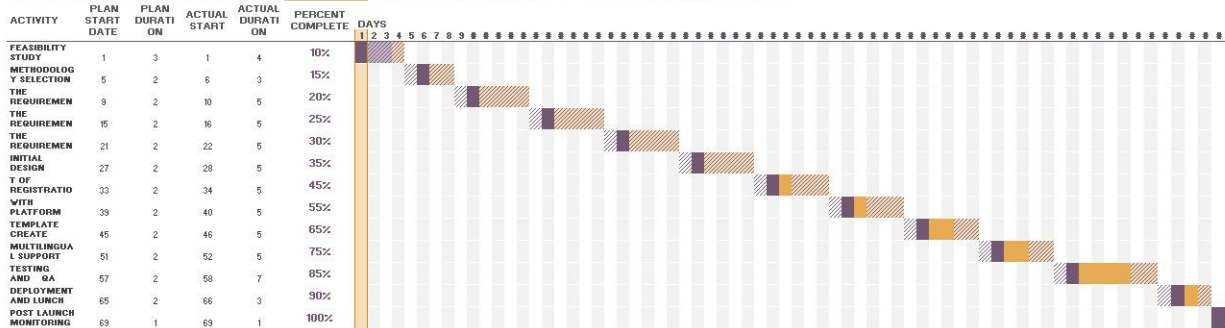
<https://trello.com/b/4ZA7YEC8/79-group-project-se>

GANTT Chart

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SUBA SHOE FASHION WEBSITE

Select a period to highlight at right. A legend describing the charting is: **Period Highlight** 1 Plan Duration Actual Start % Complete Actual (beyond plan) % Complete (beyond plan)



Although this is our plan, due to certain reasons, These intervals may vary depending on the setting.

Git hub

https://github.com/nimnamjalee/PUSL2021-Group_project

Current Status

Project Timeline Highlight Status

Week 1-2: Planning and Gathering Requirements

Status: Complete

Progress Update: Defined project scope identified stakeholders and documented requirements.

Key Achievements: Clear project goals and objectives have been established.

Work Completed: Project Scope Document, Requirements Specification Document.

Work in Progress: No.

Current Issues, Risks and Mitigation Strategy: None identified.

Week 3-5: Design and Prototyping

Status: In progress

Progress update: User interface mockup design and database schema development.

Key achievements: Prototype key features for validation.

Work completed: basic UI mockups, database schema design.

Work in progress: Finalizing UI design, prototyping remaining features.

Current Issues, Risks and Mitigation Strategy: Potential delays due to design iterations; Regular communication with stakeholders to prompt feedback.

Week 6-11: Development

Status: Forward

Progress update: Front-end, back-end and database development.

Key Achievements: Key activities successfully implemented.

Work Completed: Establishing the front-end development framework, establishing the basic database architecture.

Work in progress: coding the user interface, implementing the backend logic.

Current Issues, Risks and Mitigation Strategy: Potential challenges with third-party API integration; Thorough inspection and early detection of problems.

Week 12-13: Testing and Quality Assurance

Status: Forward

Progress update: Creating test cases and conducting QA tests.

Key Achievements: Developed comprehensive test plans.

Work completed: Test plan drafted; test environment set up.

Work in progress: writing test cases, preparing for QA testing.

Current Issues, Risks and Mitigation Strategy: Resource constraints may impact testing schedule; Prioritizing critical tests and allocating additional resources if needed.

Week 14: Deployment

Status: Forward

Progress Update: Setting up the deployment environment and finalizing the website.

Key Achievements: Successful deployment plan outlined.

Work completed: Deployment environment configured; final site testing completed.

Work in progress: finalizing documents, conducting last minute checks.

Current Issues, Risks and Mitigation Strategy: Potential deployment challenges such as server configuration errors; Detailed investigations and contingency plans are in place.

Next steps and resource allocation

Week 3-5: Design and Prototyping

Resource Allocation: UI/UX Designer, Database Administrator.

Week 6-11: Development

Allocation of resources: front-end developers, back-end developers, database administrators.

Week 12-13: Testing and Quality Assurance

Resource Allocation: Quality Assurance Engineering.

Week 14: Deployment

Resource allocation: Full development team for final checks and deployment.

Conclusion

Developing an e-commerce website for the handmade sandal business in Sri Lanka is a strategic initiative to address various challenges such as limited access, inefficient ordering processes and lack of online presence. The project aims to increase customer satisfaction, increase sales and empower local artisans by providing a user-friendly platform with features such as product customization and direct communication with the shoemaker.

Recommendations and suggestions

As the project progresses well, vigilance and adaptability to possible deviations from the plan is essential.

Continuous Communication: Maintain open lines of communication between the development team, stakeholders, and clients to promptly resolve any issues that arise.

Agile approach: Embrace an agile development methodology for flexibility and ease of adaptation to changing requirements or unexpected challenges.

Quality Assurance: Prioritize thorough testing and quality assurance procedures to ensure site functionality, security, and performance.

User Feedback: Regularly collect feedback from users, stakeholders, and customers throughout the development process to incorporate improvements and enhancements based on their needs and preferences.

Resource Management: Effectively manage and allocate resources based on project priorities and deadlines to optimize productivity and meet milestones.

Lessons learned.

Several valuable lessons have been learned throughout the project.

Importance of planning: Setting clear project goals, managing expectations and gathering comprehensive plans and requirements is critical to mitigating risks.

Flexibility and Adaptability: Projects may face unexpected challenges or changes, highlighting the importance of flexibility and adaptability in setting strategies and timelines accordingly.

Collaborative Approach: Collaboration and teamwork among project members, stakeholders, and clients are essential to success and achievement of project objectives.

Continuous Improvement: Embrace a culture of continuous improvement by seeking feedback, learning from experience, and implementing lessons learned to improve future projects.

By incorporating these lessons into future projects, we can further optimize processes, maximize efficiency, and deliver exceptional results.