Software Development Plan

For

Ecommerce website

Team:

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Under supervision: Dr. Mohamed Ramadan

Revision History

Date	Author	Distributed to	Version
15/03/2024	All	All	1.1
22/03/2024	All	All	1.2
01/04/2024	All	All	1.3
07/04/2024	All	All	1.4

1.Product Description:

The product is an e-commerce website named "Shopper". Shopper aims to solve the problem of limited access to diverse and trendy fashion choices in physical stores by providing a curated selection of clothing items conveniently accessible online.

Client Overview:

The client is a modern and innovative fashion retailer committed to providing customers with the latest trends. With a focus on customer satisfaction and a keen eye for fashion, the client developed Shopper to offer a seamless and enjoyable shopping experience for fashion enthusiasts.

Problem Solving:

Shopper addresses the challenge of limited diversity and accessibility in traditional brick-and-mortar clothing stores. By offering a wide range of stylish and high-quality clothing options online, the website provides customers with a convenient solution to explore and purchase trendy fashion items from the comfort of their homes.

Potential Audience:

The potential audience for Shopper includes fashion-conscious individuals of all ages and backgrounds who are seeking trendy and high-quality clothing options. Shopper caters to a broad spectrum of customers, ensuring that everyone can find clothing items that resonate with their personal style.

Goals to be Satisfied:

- Variety of Fashion Choices: Shopper offers a diverse selection of clothing styles, ensuring that customers can find options suitable for any occasion .
- Inclusive Sizing Options: The website provides clothing items in a wide range of sizes to accommodate diverse body types.
- Quality : Shopper provides high quality clothes.
- Seamless Shopping Experience: The website features intuitive navigation, detailed product descriptions, and high-quality images to facilitate a seamless and enjoyable shopping experience for customers.
- Responsive Customer Support: Shopper offers dedicated customer support to address any inquiries or concerns promptly, ensuring customer satisfaction and building trust with the brand.

Salient Features:

- Trendy and On-Trend Clothing: The platform features the latest fashion trends and must-have pieces, keeping customers updated with the newest styles.
- Inclusive Sizing Options: Clothing items are available in a wide range of sizes to accommodate diverse body types.
- High-Quality Materials: All clothing items are made from quality materials.
- User-Friendly Interface: The online platform is designed for easy navigation and seamless shopping.
- Responsive Customer Support: Our client offers dedicated customer support to address any inquiries or concerns promptly, ensuring customer satisfaction.

Major Product Functionalities

- Trendy Fashion Selection: Shopper offers a curated range of clothing items featuring the latest fashion trends.
- User-Friendly Navigation: The website features an intuitive interface with easy-to-use navigation, allowing customers to browse through the product catalog effortlessly.
- Detailed Product Descriptions: Each clothing item on Shopper is accompanied by detailed descriptions, enabling customers to make informed purchasing.
- High-Quality Imagery: Shopper showcases high-resolution images of each product , providing customers with a clear view of the clothing item's design and quality.
- Secure Checkout Process: Shopper ensures a secure checkout process, protecting customers' sensitive information.
- Customer Reviews and Ratings: Customers can leave reviews and ratings for purchased products, helping other shoppers make informed decisions.
- Responsive Customer Support: Shopper offers responsive customer support to address any inquiries or concerns promptly, ensuring a positive shopping experience for customers.
- Mobile Compatibility: Shopper is optimized for mobile devices, allowing customers to shop conveniently on-the-go using smartphones or tablets.

2. Team Description

	Esraa Ahmed	Tasneem Mostafa	Zeinab youssef
Documentation	✓	✓	✓
Front-end Development			✓
Back-end Development	✓	✓	
UX/UX Design			✓
Product Management	✓		
Data Analysis		✓	
Validation	✓	✓	✓

➢ Our team is a dedicated and multifaceted group working on a Ecommerce website.

➢ Esraa takes on the role of Product Manager, overseeing the overall vision and direction of the project, ensuring that it aligns with user needs and business goals.

➢ all team collectively contribute to the documentation efforts, ensuring that all aspects of the website are well-documented and easily accessible.

➢ zeinab leads our frontend web development, utilizing his expertise to create an engaging and user friendly interface.

➢ esraa and tasneem manage the backend web development, focusing on building a robust and efficient system to handle the website's functionalities.

➢ Furthermore, all team members actively participate in validatrion . Together, our team collaborates to create a top notch Ecommerce website that meets user expectations and delivers a seamless experience.

3. SOFTWARE PROCESS MODEL DESCRIPTION

The model chosen for this project is **Agile software development**.

Justification for Agile:

Agile methodology is well-suited for projects with evolving requirements and a need for flexibility, which aligns with the nature of our clothes e-commerce website development. Here are the reasons for choosing Agile:

- Adaptability: In the fashion industry, trends change rapidly. Agile methodology allows for quick adaptation to changing market demands and customer preferences. Teams can adjust priorities and features based on real-time feedback and market trends.

- Iterative Development: Agile emphasizes iterative development and continuous improvement. This approach allows for the frequent release of new features and updates, enabling the e-commerce platform to stay competitive and offer a better user experience.

- Cross-functional Teams: Agile encourages collaboration among cross-functional teams, including designers, developers, marketers, and customer service representatives. This collaborative approach ensures that all aspects of the business are considered during the development process, leading to a more holistic and customer-centric approach.

- Customer Feedback: Agile methodology places a strong emphasis on customer feedback and engagement. By regularly gathering feedback from customers, whether through surveys, reviews, or analytics, the e-commerce business can make data-driven decisions to enhance the shopping experience and meet customer needs more effectively.

- Shorter Time-to-Market: Agile practices such as sprints and frequent releases help reduce time-to-market for new features and products. This allows the e-commerce platform to respond quickly to market opportunities and stay ahead of competitors.

- Continuous Improvement: Agile promotes a culture of continuous improvement, where teams reflect on their processes and performance after each iteration. By identifying areas for improvement and implementing changes incrementally, the e-commerce business can optimize its operations and deliver better results over time.

To implement agile methodology effectively in a clothes e-commerce business, it's important to:

- Establish clear goals and priorities for each development iteration.

- Break down projects into smaller, manageable tasks that can be completed within a short timeframe (typically 1-4 weeks).

- Prioritize features and updates based on customer feedback, market trends, and business objectives. Foster a collaborative and transparent work environment where team members communicate openly and share knowledge.

- Embrace flexibility and be willing to adapt plans based on changing circumstances or feedback.

By adopting agile methodology, a clothes e-commerce business can become more responsive to customer needs, innovate more effectively, and maintain a competitive edge in the fast-paced fashion industry.

4. Product Definition

4.1 Context Diagram:
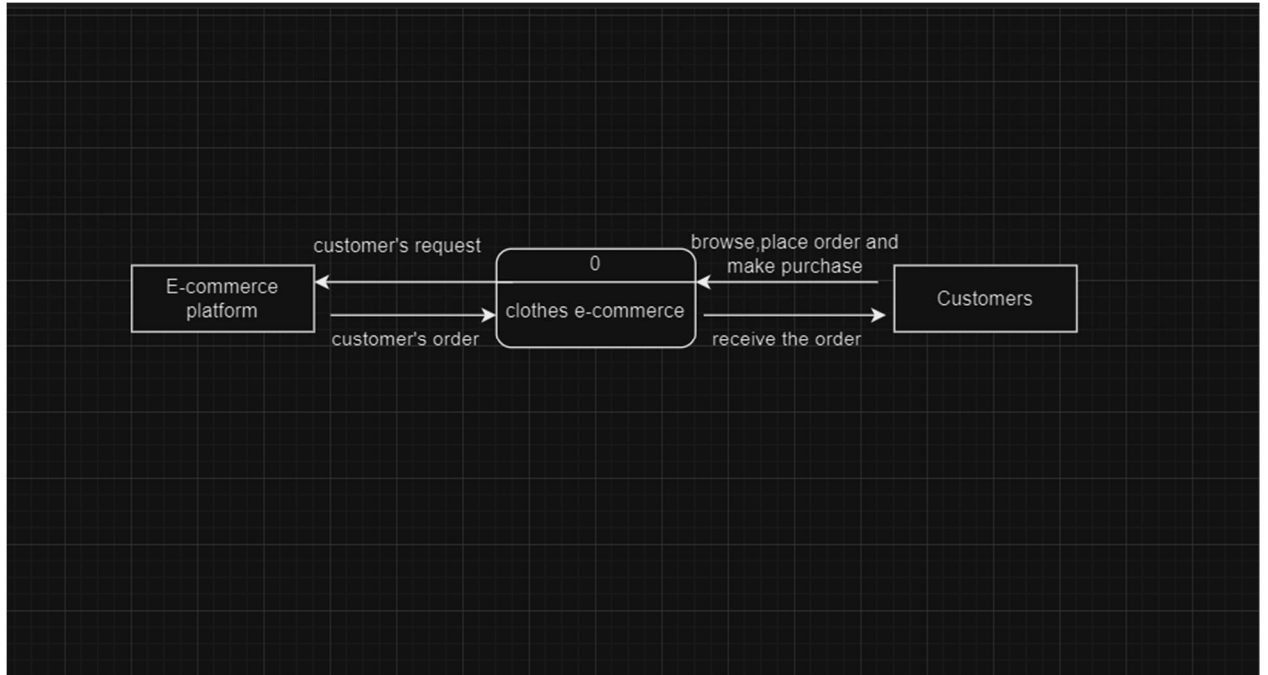
4.2 Personas:

Customers:

These are the end-users who visit your eCommerce website to browse products, make purchases, and interact with the platform. They are the primary audience and play a crucial role in driving sales and revenue.

Administrators/Website Managers:

These are individuals responsible for managing and maintaining the eCommerce website. They handle tasks such as adding new products, updating content, managing inventory, processing orders, and monitoring website performance.

Suppliers/Manufacturers:

These are entities that supply the clothing products sold on your eCommerce website. The system may interact with them for inventory management, product updates, and order fulfillment.

Shipping and Logistics Partners:

These are companies responsible for shipping and delivering orders placed on your eCommerce website. The system interfaces with them to generate shipping labels, track shipments, and manage delivery schedules.

Payment Gateway Providers:

These are third-party services that facilitate online payment processing for your eCommerce website. The system interacts with them to securely process customer payments and handle transactions.

Marketing and Advertising Agencies:

These agencies help promote your eCommerce website through various marketing channels such as social media, email campaigns, and online advertisements. The system may interface with them to track campaign performance and analyze customer engagement metrics.

Customer Service and Support Teams:

These teams handle customer inquiries, complaints, and support requests related to orders, products, or website functionality. The system interfaces with them to manage customer interactions, track support tickets, and provide timely assistance.

Third-Party Integrations :

These include any external services, platforms, or applications integrated with your eCommerce website to extend its functionality or enhance user experience. The system interfaces with them via APIs or other integration methods to exchange data and perform specific tasks.

4.3 User Stories:

User1:

I want to be able to browse through various categories of clothing (e.g., tops, bottoms, dresses) so that I can easily find what I'm looking for.

User2:

I want to be able to filter products by size, color, price range, and other relevant attributes to narrow down my search.

User3:

I want to view detailed product descriptions, including material, size charts, and care instructions, to make informed purchasing decisions.

User4:

I want to see high-quality images of each product from different angles and zoom in for closer inspection.

User5:

I want to add items to my shopping cart and have the option to continue shopping or proceed to checkout.

User6:

I want to be able to create an account and save my shipping and payment information for faster checkout in the future.

User7:

I want to receive recommendations for similar or related products based on my browsing and purchase history.

Usr8:

 I want to be notified about promotions, discounts, and new arrivals via email or push notifications.
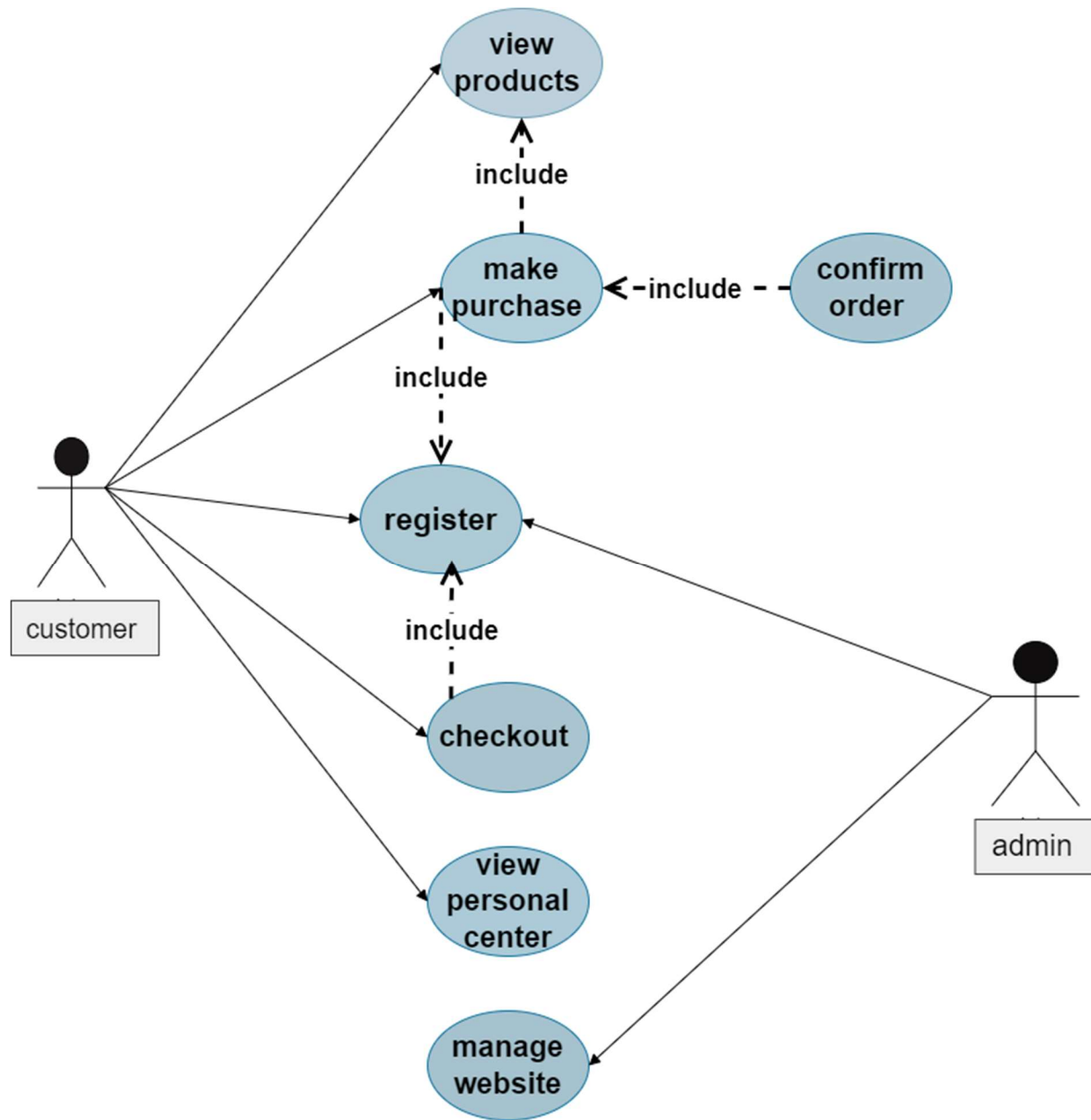
User9:

 I want to track the status of my orders, including shipping updates and delivery estimates.

User10:

 I want to be able to easily return or exchange items that don't fit or meet my expectations, with clear instructions and a hassle-free process.

4.4 Use Case Diagram:

4.5 Use Case Descriptions:

Unique name : view products	unique ID : UC-1
Actor(s): customer	
Trigger event: this process occurs when the customer opens the website	
Description: This use case lets the customer view the home page which has different categories when they first run the website.	
Entry condition: Run the website.	
Normal flow: 1. The customer opens the website. 2. After the customer opens the website, the home page appears to him, which contains several things, including a search for the products. 3. It also shows a number of different products that can be filtered according to his wishes. 4. For each product there are also qualifications in terms of color and size . 5. The customer can also add products to the shopping cart from this page. 6. And he can add the products to the wish list. 7. It can also identify recommended products.	
Exit condition: The customer successfully runs the website and is able to view the home page with the different categories.	

Unique name : Register	unique ID : UC-2

Actor(s): customer, admin

Trigger event: this process occurs When customer wants to buy a product if the customer is not registered before.

Description: This use case helps the customer to check out items in the shopping cart by register to the user-authentication form and helps the admin make all the modification he wants.

Entry condition: There is at least one item in the shopping cart to check out the items and to register to the user-authentication form.

Normal flow:
1. customer /Admin select the button " Register".
2. customer /Admin input their username and password into the system.
3. customer /Admin can register with a google email or a Facebook email.
4. System check if the user name is not already in use.
5. customer after register can buy products.
6. Admin after register can remove, add and modify products.

Exit condition: Customers have access to checking up the information of the order, paying for the bill.

Alternative flow:
1-Customers forget the password, then the system will offer a security code to customers, asking customers to reset the password.
2-The user name is already in use
    2.1.user is requested to select another username
3- invalid data
    3.1. if the "password " is less than 8 characters , an error message will be displayed
               "password should be at least 8 character **".**

Unique name: make purchase	unique ID: UC-3

Actor(s): customer

Trigger: when customer add items in the shopping cart.

Description: The customer chooses the items he wants to buy, puts them in the cart, and clicks the "buy now" button

Entry condition:
1-The customer has a registered account on the website.
2-The desired product is available and in stock.
3-There is at least one item in the shopping cart to complete the purchase.

Normal flow:
1-The customer browses the product catalog to find the desired item.
2-The customer selects the desired product and adds it to the shopping cart.
3-The customer reviews the items in the shopping cart.
4- After the customer reviews the products in the shopping cart, the purchase is confirmed by clicking the "Buy Now" button

Exit condition: The customer can fill out a set of data to confirm the order
and payment method

Alternative flow:
1-Out of Stock:
If the selected product is out of stock during the purchase process, the system notifies the customer "The customer can choose an alternative product or remove the out-of-stock item from the cart"
2- empty cart:
If the shopping cart is empty and the customer clicks the "Buy Now" button, a message appears
" Please select the products you wish to pay for"

Unique name: confirm order	unique ID:UC-4

Actor(s): customer

Trigger: this process occurs when customer makes purchase and click on the" buy now" button

Description: This use case ensures that the customer's intended purchase is finalized and that all details are accurate before the order is processed and shipped.

Entry condition: Buy products in the shopping cart by clicking on the Buy Now button

Normal flow:
1-After clicking on the Buy Now button, the customer goes to the order confirmation page which requires him to give some data to ensure a successful purchase
2-A confirmation message is displayed, clearly stating that the order is not finalized yet and requires confirmation.
3-Through this page, the customer is required to fill in some of the required data to complete the application process, including (address, name, telephone number, alternative telephone number, city, district, street, address details, main features, payment method)
4-The user is presented with options such as "Confirm Purchase" and "Edit Order" or "Go Back."
If the user notices any errors or wants to make changes, they can choose the "Edit Order" option to go back to the previous pages.

Exit condition: shows checkout page to enter card number

Alternative flow:
1-Address Validation Failure:
If there is an issue with the provided shipping address, the system prompts the customer to correct or verify the address.
2-invalid name
If the name consists of less than 2 letters or more than 40 letters the message "The name must contain 2-40 letters"
3-invalid number
3.1. If a wrong or invalid number is entered to the country where you live, the message "Please enter a valid telephone number" will appear.
3.2. In the alternative phone number field, please enter a phone number different from the first number

Unique name: **Checkout**	unique ID: UC-5

Actor(s): customer

Trigger: after clicks on the "Follow-up payment" button.

Description: The checkout process is initiated to complete the customer's confirm order, This use case helps the customer to check out items from the shopping cart.

Entry condition:
1-confirm order
2-Payment methods (credit card, CashU, Fawry) are configured and available.

Normal flow:

1-After pressing the "Follow-up payment" button show the checkout page.
2-Customer pays the price in the way preferred by card or fawry-cashU
3-The customer clicks on the "Checkout" button.
4-The customer receives an email with the order confirmation and tracking information.
5-The product is shipped to the customer shipping address.

Exit condition:
1-The customer is able to click on the checkout button After choosing the payment method and confirming the amount withdrawn
2-The order details are stored in the system's database.
3-The customer can track the order using the provided tracking information.
4-Payment is processed successfully.

Alternative flow:

1-if the customer decides to edit the cart during the checkout process, they can go back to the shopping cart page and make changes before proceeding.
2-Payment Failure:
If the payment fails, the system notifies the customer "The customer is redirected to the payment step to re-enter payment details or choose an alternative payment method"
3-invalid credit card details:
If the customer enters invalid credit card details (e.g., incorrect card number ,expired card) , the system displays an error message and prompts the customer to correct the information , the customer can update the credit card details and proceed with the payment.

Unique name: **view personal center**	unique ID: UC-6

Actor(s): customer

Trigger: The customer logs into their account on the website.

Description: The customer wants to access and manage their personal information, orders, and settings within their account.

Entry condition: The customer must be logged into their account.

Normal flow:
1-Once logged in, customers navigate to the "Personal Center" or a similar section, typically located in the user account or dashboard.
2-In the personal center, the customer sees options such as "My Profile," "Order History," "Settings," and other relevant sections.
3-The customer clicks on "My Profile" to view and potentially update their personal information such as name, address, and contact details.
4-They click on "Order History" to view a list of their past orders, including order details, status, and tracking information.
5-The customer explores other sections like "Settings" to manage preferences such as notification settings, password changes, or communication preferences**.**
6-After reviewing and updating their information, if necessary, the customer logs out or continues shopping on the website.

Exit condition: The customer has successfully viewed their personal center.

Alternative flow:
1-No Order History: If the customer has not made any purchases, the "Order History" section may be empty, and a message informs them of this.

2-Technical Issue: If there is a technical issue preventing access to the personal center, the customer receives an error message and is advised to try again later or contact customer support.

3-Password Reset: If the customer forgets their password, they can click on a "Forgot Password" link, receive a reset link via email, and create a new password.

Unique name: manage website	unique ID: UC-7

Actor(s): admin

Trigger: this process occurs when admin register.

Description: this use case give the admin all the permissions on the website.

Entry condition: The admin must have valid credentials and be logged in to access the admin portal.

Normal flow:
1. Admin register --> use case 2
2. Admin now has elevated privileges responsible for managing the website.
3. Admin can manage customer account (The admin can help new customer to create accounts, assigning appropriate roles and permissions/The admin can update user profiles, change passwords, or update access levels/The admin can deactivate or delete user accounts as needed.)
4. Admin can manage products (add products/remove products / modification of products)
5. Admin can tracking stock availability.

Exit condition: Changes made by the admin (user updates, content edits, etc.) are reflected on the live website.

Alternative flow:
-If an unauthorized attempt is made to access the admin functionalities, appropriate security measures are triggered, and the system logs the incident. In the case of errors or issues during content publication, the admin receives a notification and can take corrective actions.
-This use case ensures that the admin has comprehensive control over the website, contributing to its smooth operation, security, and adherence to organizational standards.

5.User Experience Wireframes
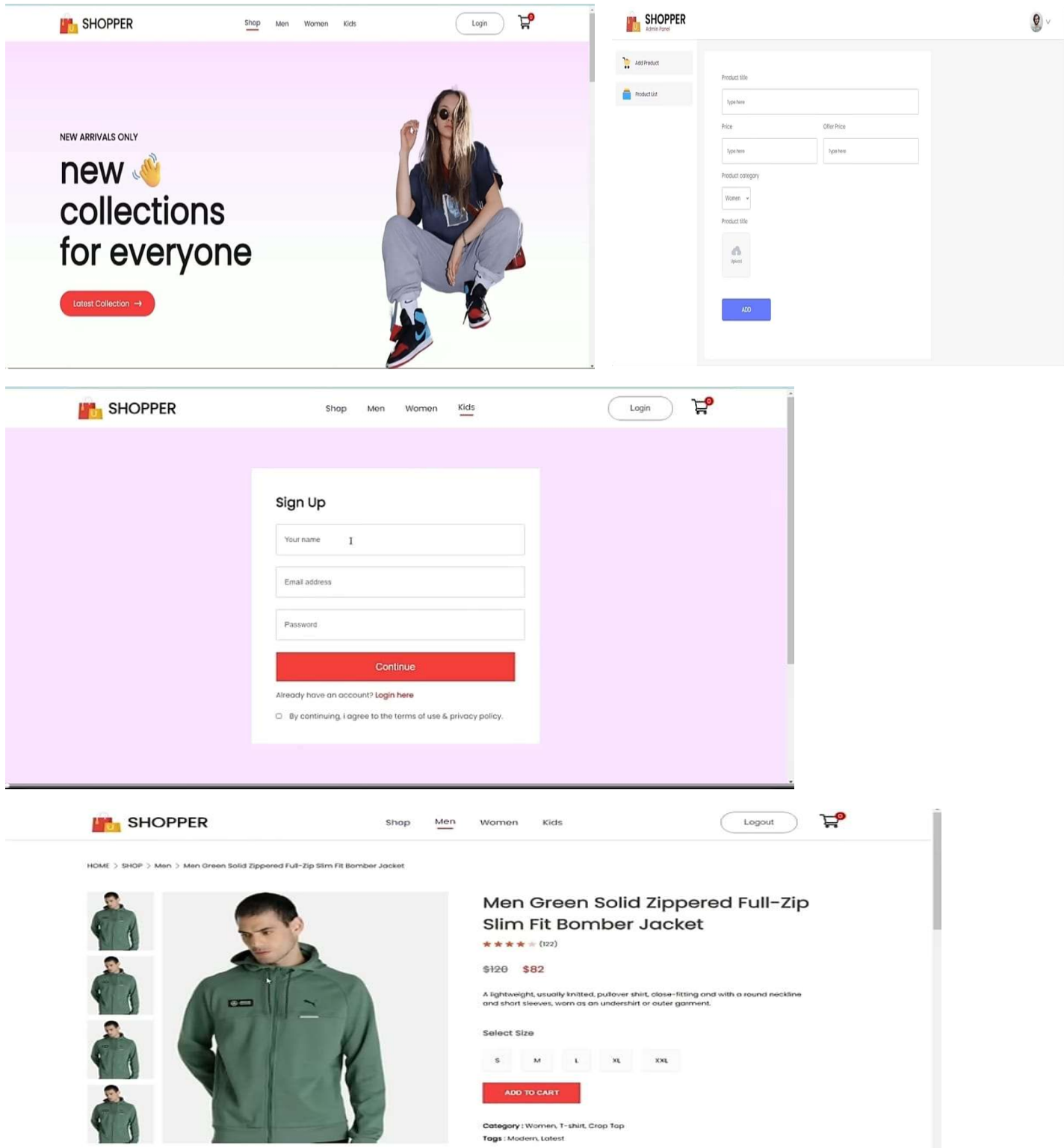
6.Project Organization

	Esraa Ahmed	Tasneem Mostafa	Zeinab youssef
Documentation	✓	✓	✓
Front-end Development			✓
Back-end Development	✓	✓	
UX/UX Design			✓
Product Management	✓		
Data Analysis		✓	
Validation	✓	✓	✓

Task Breakdown:

- Market Research: Analyze competitors, identify target audience, and research fashion trends.(1 week)
- Requirements Gathering: Define features and technical needs.(1 weak)
- Wireframe and Prototype Development: Design initial layouts and create interactive prototypes.(1 weak)
- Frontend Development: Implement user interface and ensure responsiveness.(2 weeks)
- Backend Development: Set up server infrastructure and develop backend logic.(3 weeks)
- Integration and Testing: Combine frontend and backend components and conduct testing.(2 weeks)

Gantt chart:
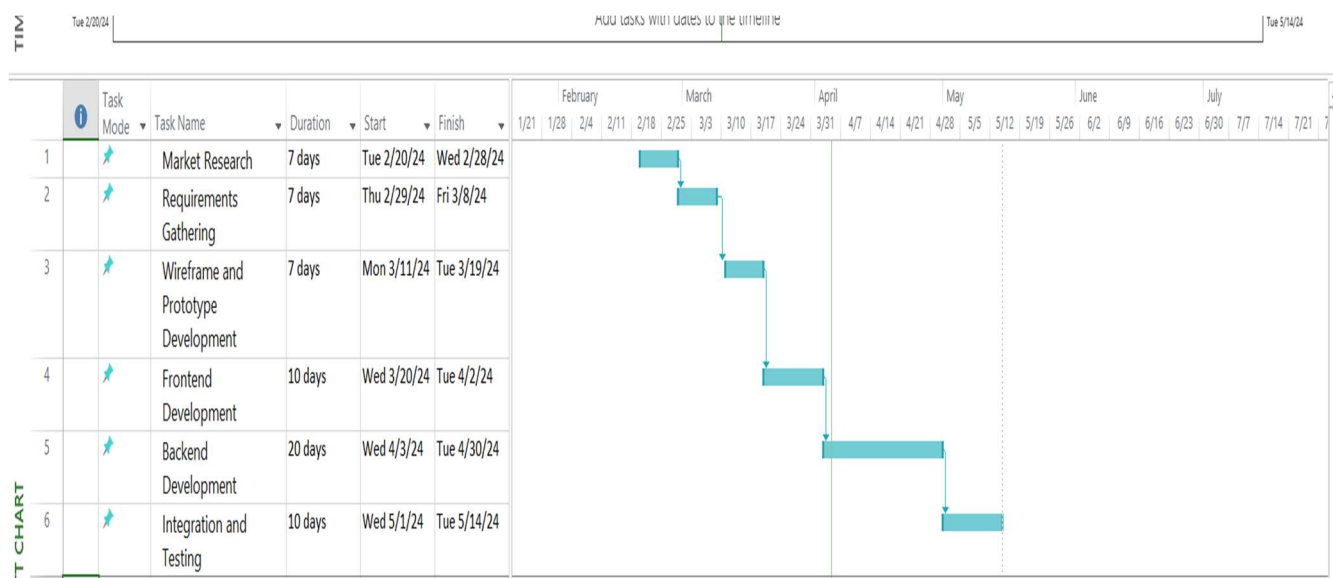
7. Validation Plan

Objective:

To ensure that the eCommerce website for clothes meets quality standards, functions as expected, and provides a satisfactory user experience.

Scope:

The validation will cover all aspects of the eCommerce website, including:

- ➢ User interface
- ➢ Functionality
- ➢ Performance
- ➢ Security
- ➢ Compatibility
- ➢ Content

Validation Strategy:

The validation will be conducted through a combination of manual and automated testing methods. The testing team will simulate real-life scenarios to validate the website's functionality, performance, security, and usability.

Testing Strategy:

Functional Testing: Verify that all functionalities such as user registration, product browsing, shopping cart management, checkout process, etc., work as expected.

Usability Testing: Assess the website's ease of use, navigation, and overall user experience.

Cross-Browser Testing: Test the website's compatibility across different browsers (e.g., Chrome, Firefox, Safari, Edge).

Mobile Responsiveness Testing: Ensure the website displays properly and functions well on various mobile devices.

Security Testing: Identify and address security vulnerabilities to protect user data and ensure secure transactions.

Performance Testing: Measure the website's performance metrics such as page load time, response time, and server resource usage under different scenarios.

Content Testing: Ensure that all content, including product descriptions, images, and pricing, is accurate and up-to-date.

Definition of Done:

All identified issues and bugs have been resolved.

The website has been thoroughly tested and meets predefined quality standards.

User feedback has been considered and incorporated into the website design where applicable.

The website is ready for deployment to production.

Success Criteria:

All critical functionalities are working without any errors.

The website is responsive and performs well across different devices and browsers.

User acceptance testing feedback is positive, indicating that users find the website easy to use and navigate.

Security vulnerabilities have been addressed, and the website is secure for transactions.

Performance testing results meet predefined benchmarks, ensuring a fast and reliable user experience.

8. Feasibility Study:

Risk Identification:

Payment Gateway Issues: There might be integration issues or downtime with the chosen payment gateway, leading to failed transactions.

Security Breaches: Hackers might exploit vulnerabilities in the website's code or server infrastructure, leading to data breaches or financial loss.

Scalability Issues: The website might not handle increased traffic during peak times (e.g., holiday seasons), leading to slow performance or crashes.

Compatibility Issues: The website may not display correctly or function properly on certain browsers or devices, causing a poor user experience.

Product Data Inaccuracy: Inaccurate product descriptions, images, or pricing could lead to customer dissatisfaction or legal issues.

Logistics and Shipping Problems: Delays or errors in the shipping process could result in late deliveries or lost packages, negatively impacting customer satisfaction.

Competitive Pricing: Inability to offer competitive prices compared to competitors might lead to loss of customers.

Risk Prioritization:

Payment Gateway Issues.

Security Breaches.

Scalability Issues.

Compatibility Issues.

Product Data Inaccuracy.

Logistics and Shipping Problems.

Competitive Pricing.

Risk Mitigation:

Security Breaches:

- Implement robust security measures such as HTTPS encryption, firewalls, and regular security audits.
- Keep software and plugins up to date to patch known vulnerabilities.
- Use secure coding practices and conduct regular code reviews.

Payment Gateway Issues:

- Choose a reputable payment gateway provider with reliable customer support.
- Implement failover mechanisms to switch to alternative payment gateways in case of downtime.
- Conduct thorough testing of payment transactions before launching.

Scalability Issues:

- Optimize website performance through caching, content delivery networks (CDNs), and server load balancing.
- Perform load testing to identify bottlenecks and optimize resources accordingly.
- Monitor website traffic and scale resources dynamically during peak times.

Compatibility Issues:

- Conduct cross-browser and cross-device testing during development.
- Use responsive design techniques to ensure the website adapts to different screen sizes and resolutions.
- Provide fallback options for unsupported browsers or devices.

Product Data Inaccuracy:

- Implement a robust product information management system (PIMS) to centralize and manage product data.
- Implement validation checks for user-generated content to prevent inaccuracies.
- Regularly audit product data for accuracy and consistency.

Logistics and Shipping Problems:

- Partner with reliable shipping carriers with a track record of on-time delivery.
- Provide real-time shipping updates and tracking information to customers.
- Have contingency plans in place for handling shipping delays or lost packages.

Competitive Pricing:

- Conduct market research to ensure pricing remains competitive.
- Offer value-added services such as free shipping or discounts for bulk purchases to attract customers.
- Regularly review pricing strategies to adapt to market changes and competitor actions.

9. CONFIGURATION AND VERSION CONTROL

- **Configuration Management**: In an e-commerce platform, configuration management involves managing the various configurations and settings that control how the website operates. This includes aspects such as pricing rules, shipping options, tax settings, payment gateways, and promotional campaigns. Effective configuration management ensures consistency across different environments (such as development, staging, and production) and helps prevent configuration drift, where settings diverge between environments, leading to unexpected behavior.

- **Version Control**: Version control, often implemented using systems like Git, is essential for tracking changes to the source code and other assets (such as images, CSS files, and database schemas) of the e-commerce platform. Version control allows multiple developers to collaborate on the same codebase simultaneously, while keeping track of who made which changes and when. It also facilitates the rollback of changes if needed and enables developers to work on features or fixes in isolation through branching and merging.

- **Maintaining Consistency**: With configuration management, you can ensure that all instances of the e-commerce platform (such as development, staging, and production environments) have consistent configurations. This is crucial for testing changes in a controlled environment before deploying them to production.

- **Tracking Changes**: Version control allows you to track changes to the codebase and other assets over time. This is essential for auditing purposes, understanding the evolution of the platform, and diagnosing issues that may arise from recent changes.

10. TOOLS

- Text Editor or IDE: such as Visual Studio Code.
- Version Control System (VCS): we use Git to track code changes and manage different versions of our project.
- Web Framework: we use React to streamline development tasks, handle routing, and manage data efficiently.
- Database Management System (DBMS): we use Firebase to store and retrieve data related to user profiles, orders, and delivery details.
- Social Media Management
- Analytics and Reporting
- Payment Gateways

11. ARCHITECTURE

- Server Infrastructure
- Networking Equipment
- Storage Devices
- Communication Tools
- Monitoring and Analytics Tools
- Backup and Disaster Recovery