Software Development Plan

For

Online Food Ordering And Delivery Platform

Submitted By:

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Presented To: Dr. Mohamed Ramadan

Revision History

Date	Author	Distributed to	Version
01/03/2023	All	All	1.0
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15/04/2023	All	All	1.3
01/05/2023	All	All	1.4
24/05/2023	All	All	1.5

1. PRODUCT DESCRIPTION

1.1 The Product:

Our food ordering and delivery website is a comprehensive platform designed to simplify the process of ordering food from various restaurants and delivering it to customers' desired locations. It serves as a user-friendly interface that connects users with a wide range of restaurants, allowing them to browse menus, place orders, and track deliveries in real-time. By providing a convenient and efficient solution, our product aims to enhance the overall food ordering and delivery experience for customers.

1.2 The Client:

Our client can be any individual or business entity that owns or manages a restaurant and wishes to expand their reach and streamline their ordering and delivery processes. We offer our product as a service to restaurants, enabling them to reach a larger customer base, improve operational efficiency, and provide a seamless online ordering experience to their customers.

1.3 Problem Solving:

Our product addresses several common challenges faced by both customers and restaurants in the food ordering and delivery industry. These challenges include:

- Limited reach: Customers often face limitations in accessing a wide variety of restaurants due to physical proximity or lack of awareness. Our platform solves this problem by providing a centralized hub where users can discover and order from a diverse range of restaurants.
- Inefficient ordering process: Traditional phone-based ordering systems can be time-consuming and prone to errors. Our product streamlines the ordering process by offering a user-friendly interface, allowing customers to conveniently browse menus, customize orders, and specify delivery preferences.

1.4 Potential Audience:

The potential audience for our product is broad and diverse. It includes individuals, families, and businesses who seek a convenient and efficient way to order food. Whether it's a busy professional ordering a quick lunch, a family looking for a hassle-free dinner option, or a company organizing a corporate event, our platform caters to the needs of various customer segments.

1.5 Goals to be satisfied:

The goals of our product are to provide a seamless and user-friendly food ordering and delivery experience while satisfying the following objectives:

- Convenience: The product aims to offer a convenient and time-saving solution for customers to browse menus, place orders, and track deliveries without the need for phone calls or manual processes.
- Accessibility: By aggregating a wide range of restaurants on a single platform, our product aims to provide customers with easy access to diverse culinary options and cater to different dietary preferences.
- Transparency: Real-time order tracking, review and rating systems, and responsive customer support contribute to a transparent and trustworthy ecosystem for customers, enhancing their overall satisfaction.
- Efficiency: For restaurants, our product aims to improve operational efficiency by digitizing and automating the ordering and delivery processes, resulting in smoother operations and increased customer satisfaction.

1.6 Key Features:

- User Registration and Authentication: The website allows users to create accounts, providing them with personalized profiles and order history. Secure authentication mechanisms ensure the privacy and security of user information.
- Restaurant Listings and Menus: Users can explore a comprehensive list of restaurants available for ordering. Each restaurant has a dedicated page showcasing its menu, prices, special offers, and reviews.
- Ordering System: The website provides an intuitive interface for users to select dishes, customize their orders, and specify delivery preferences such as address and payment method.
- Real-Time Order Tracking: Users can track the status of their orders in real-time, including updates on preparation, dispatch, and estimated delivery time. This feature enhances transparency and provides a seamless experience.
- Payment Integration: Our platform integrates with popular payment gateways, allowing users to securely complete transactions online using various payment methods.
- Review and Rating System: Users can provide feedback and ratings for restaurants and their ordered meals, contributing to a transparent and trustworthy ecosystem.
- Customer Support: The website offers a customer support system, allowing users to seek assistance, provide feedback, and resolve any issues they may encounter during the ordering and delivery process.

2. Team Description

	Sara	Jena	Manar	Ahmed Adel	Ahmed Shams	Abdelrahim
Front-end Development				✓		
Back-end Development					✓	
UX/UX Design	✓	✓	✓	✓	✓	✓
Product Management	✓					
Quality Assurance		✓				
Data Analysis			✓			
Integration & Validation						✓
Documentation	✓	✓	✓			✓

The skills needed for this project are:

- Project Management:
  - Project planning and organization
  - Task prioritization and scheduling
  - Budgeting and resource management
  - Stakeholder management and communication
  - Risk assessment and mitigation

- User Experience (UX) Design:
  - User research and usability testing
  - Information architecture and wireframing
  - Prototyping and visual design
  - Responsive design and accessibility considerations
  - Collaboration with development team for implementation

- Front-End Development:
  - HTML, CSS, and JavaScript
  - Front-end frameworks (e.g., React, Angular)
  - Responsive and mobile-first design implementation
  - Cross-browser compatibility and performance optimization
  - Version control systems (e.g., Git)

- Back-End Development:
    - Server-side programming languages (e.g., Java, Python)
    - Web frameworks (e.g., Django, Spring)
    - API design and development
    - Database management and optimization
    - Security best practices and integration with external services

- Quality Assurance (QA):
    - Software testing methodologies and best practices
    - Test planning, execution, and reporting
    - Test automation tools and frameworks
    - API testing and integration testing
    - Regression testing and bug tracking

- Subject Matter Expert (SME):
    - In-depth knowledge of the food ordering and delivery industry
    - Understanding of customer behavior and expectations
    - Familiarity with operational challenges and emerging trends
    - Guidance on industry standards and best practices

- Collaboration and Communication:
    - Strong teamwork and collaboration skills
    - Effective communication with team members and stakeholders
    - Active listening and understanding of requirements
    - Clear and concise documentation and reporting

Our team is a dedicated and multifaceted group working on a food ordering and delivery website. Sara 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.

Abdelrahim, Manar, Jena, and Sara collectively contribute to the documentation efforts, ensuring that all aspects of the website are well-documented and easily accessible. Abdelrahim specializes in integration and validation, guaranteeing seamless interactions between different components.

Manar leverages data analysis techniques to gain valuable insights, enabling data-driven decision-making and improving the overall user experience. Jena plays a critical role in quality assurance, meticulously testing and identifying any issues to deliver a high-quality, bug-free website.

Ahmed Adel leads our frontend web development, utilizing his expertise to create an engaging and user-friendly interface. Ahmed Shams manages 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 UX/UI design, combining their skills and creativity to craft an intuitive and visually appealing interface. Together, our team collaborates to create a top-notch food ordering and delivery website that meets user expectations and delivers a seamless experience.

There is a need for a Subject Matter Expert (SME) with expertise in the food ordering and delivery industry. This individual should possess in-depth knowledge of the industry's dynamics, customer expectations, operational challenges, and emerging trends. The SME can provide valuable insights, guide the team in making informed decisions, and ensure that the product aligns with industry standards and best practices.

3. Software Process Model

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 food ordering and delivery website development. Here are the reasons for choosing Agile:

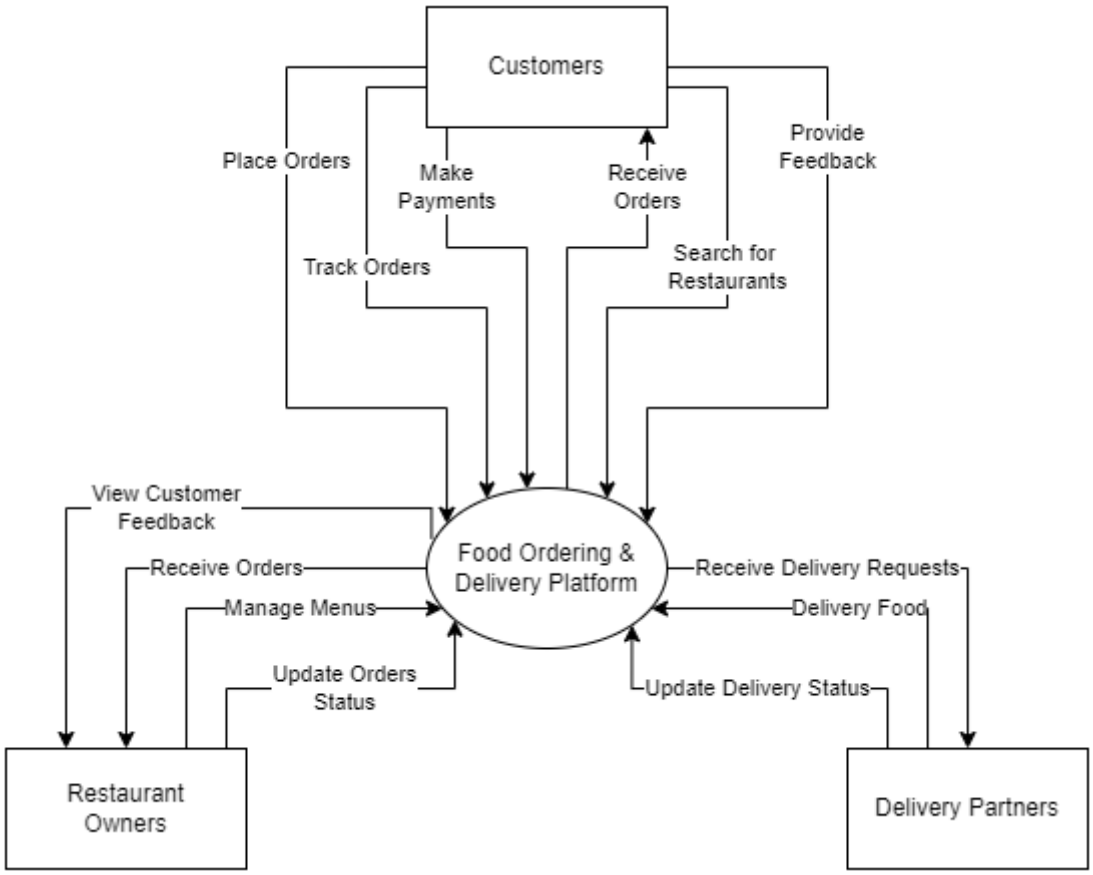
- Adaptability: Agile allows for frequent iterations and continuous feedback, enabling the development team to adapt and respond to changing customer needs, market dynamics, and emerging industry trends. This flexibility is crucial in the food industry, where customer preferences and market demands can evolve rapidly.
- Customer-Centric Approach: Agile emphasizes active collaboration and involvement of stakeholders, including customers and end-users, throughout the development process. Regular interactions and feedback cycles ensure that the product meets their expectations and addresses their specific requirements. This approach is valuable in delivering a food ordering and delivery platform tailored to the needs and preferences of both customers and restaurants.
- Iterative Development: Agile breaks down the project into smaller, manageable increments known as sprints. Each sprint delivers a functional portion of the product, allowing for early and continuous delivery of value. This iterative approach enables stakeholders to provide feedback early in the process, ensuring that the final product aligns with their expectations.
- Transparency and Communication: Agile promotes transparent communication and collaboration among team members, stakeholders, and the development team. Regular meetings, such as daily stand-ups and sprint reviews, facilitate clear communication, issue resolution, and alignment on project goals and priorities. This transparency ensures that everyone involved in the project has visibility into the progress, challenges, and achievements.

- Mitigating Risks: Agile's incremental and iterative nature enables early identification and mitigation of project risks. Regular feedback loops and frequent testing allow for timely detection and resolution of issues, reducing the chances of significant setbacks and ensuring the quality of the final product.
- Time-to-Market Advantage: Agile methodology enables faster time-to-market by focusing on delivering valuable features in shorter development cycles. This can be particularly advantageous in the competitive food ordering and delivery industry, where speed and responsiveness to market demands are crucial for success.

Considering these factors, Agile methodology aligns well with the dynamic nature of the food ordering and delivery website development, emphasizing adaptability, customer collaboration, iterative development, transparency, risk mitigation, and faster delivery of value.

4. Product Definition

4.1 Context Diagram:



As shown in the diagram, our platform is the central system that connects customers, restaurant owners, and delivery partners. Customers interact with the platform to place orders, view menus, track orders, and leave feedback. Restaurant owners use the platform to manage menus, receive orders, and update order statuses. Delivery partners use the platform to accept orders, update order statuses, and deliver food to customers.

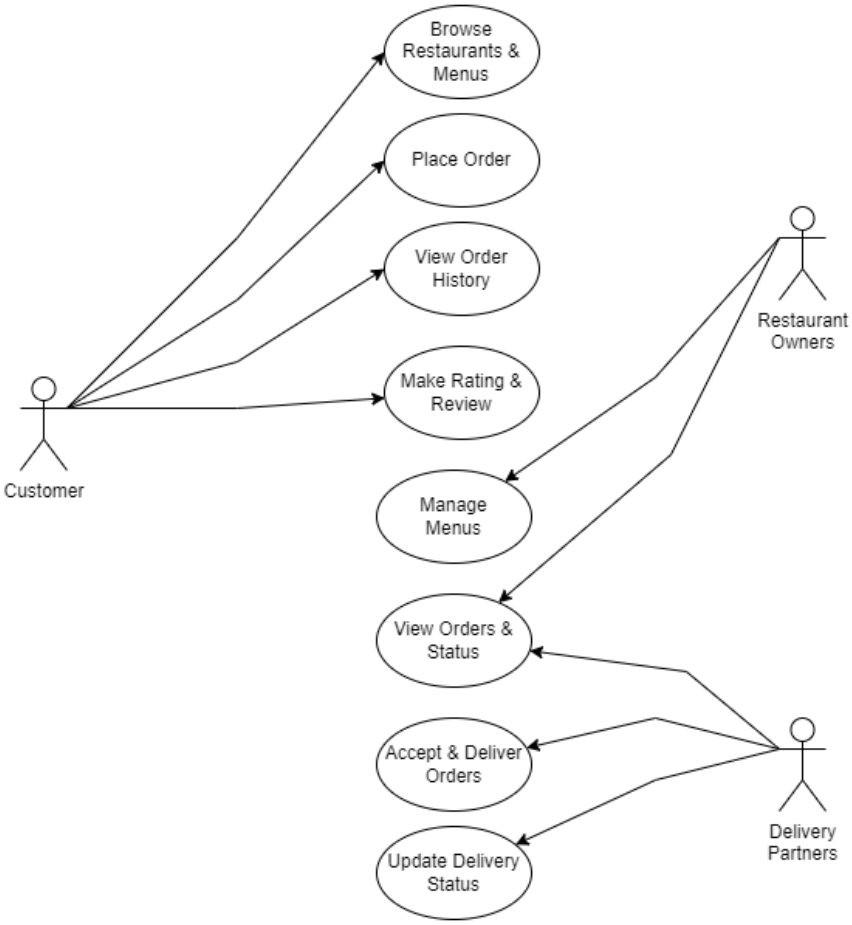
4.2 Personas:

- Customers: Customers are the primary users of the food ordering and delivery platform. They use the system to browse restaurant menus, place orders, track the status of their orders, and provide feedback on their experiences.
- Restaurant Owners: Restaurant owners use the food platform to manage their menus, receive orders, and update order statuses. They can also view customer feedback and ratings for their restaurants and respond to customer queries and complaints.
- Delivery Partners: Delivery partners use the platform to accept order requests, update the status of orders, and deliver food to customers. They can also view customer feedback and ratings for their delivery services and respond to customer queries and complaints.
- Payment Processors: The food platform interfaces with payment processors to facilitate secure and efficient payment transactions for orders placed on the platform. The payment processors are responsible for processing customer payments, verifying payment information, and ensuring that the transactions are secure and reliable.
- Third-Party Services: The food platform may interface with third-party services, such as mapping services, to provide location-based services for customers and delivery partners. These services help the platform to provide accurate and reliable delivery tracking and navigation services.
- Regulatory Bodies: The food platform may need to interface with regulatory bodies, such as health and safety authorities or tax authorities, to comply with relevant laws and regulations governing the food industry.

4.3 User Stories:

- As a customer, I want to be able to browse restaurant menus and place orders for delivery or pickup, so that I can order my favorite food quickly and easily.
- As a customer, I want to be able to create and save a profile with my personal information, delivery address, and payment preferences, so that I can easily place orders in the future without entering my details each time.
- As a customer, I want to be able to provide feedback and ratings on my food and delivery experience, so that I can help other customers make informed decisions.
- As a restaurant owner, I want to be able to manage my restaurant's menu and receive orders from customers, so that I can efficiently fulfill orders and provide great service to my customers.
- As a restaurant owner, I want to be able to set my restaurant's availability and delivery radius, so that I can efficiently manage orders and ensure timely delivery.
- As a restaurant owner, I want to be able to view customer feedback and ratings for my restaurant, so that I can improve my service and food quality.
- As a delivery partner, I want to be able to accept delivery requests, view order details, and deliver food to customers, so that I can efficiently complete deliveries and earn income.
- As a delivery partner, I want to be able to navigate to the customer's location efficiently, so that I can complete deliveries quickly and accurately.
- As a delivery partner, I want to be able to communicate with customers and restaurant owners in case of issues or delays, so that I can resolve any problems and maintain good relationships.

4.4 Use Case Diagram:



4.5 Use Case Descriptions:

Usecase #1

1. Unique name: Browse Restaurants and Menus
2. Participating actors: Customer
3. Entry conditions: Customer is logged in to their account or is using the platform as a guest.
4. Exit conditions: Customer has browsed and selected desired dishes from a restaurant's menu.
5. Flow of events:
    - 5.1 Customer opens the platform and selects "Browse Restaurants and Menus" option from the main menu.
    - 5.2 The platform displays a list of nearby restaurants with their logos and names.
    - 5.3 Customer selects a restaurant from the list.

5.4 The platform displays the restaurant's menu with available dishes, prices, and descriptions.
5.5 Customer scrolls through the menu and selects desired dishes.
5.6 The platform adds the selected dishes to the cart.

6. Special requirements: None

Usecase #2

1. Unique name: Place Order
2. Participating actors: Customer, Restaurant, Delivery Partner
3. Entry conditions: Customer has selected desired dishes from a restaurant's menu and has confirmed the order.
4. Exit conditions: Restaurant receives the order and prepares it for delivery. Delivery partner picks up the order and delivers it to the customer.
5. Flow of events:
   5.1 Customer selects "Place Order" option and selects desired restaurant and dishes.
   5.2 Customer adds dishes to the cart, reviews the order and confirms.
   5.3 The platform shows the total cost and estimated delivery time, and the customer confirms the order.
   5.4 The platform sends the order details to the restaurant.
   5.5 Restaurant receives the order and prepares it for delivery.
   5.6 Delivery partner picks up the order from the restaurant and delivers it to the customer.
6. Special requirements: None

3 Usecase #3

1. Unique name: Manage Restaurant Menu
2. Participating actors: Restaurant Owners
3. Entry conditions: Restaurant Owner has logged in to their account and has access to the menu management feature.
4. Exit conditions: Restaurant Owner has updated the menu and changes are visible to customers.
5. Flow of events:

5.1 Restaurant Owner logs in to their account and selects "Manage Restaurant Menu" option.
5.2 The platform displays the current menu with options to add, edit or delete items.
5.3 Restaurant Owner selects an item to add, enters its name, description, price and adds it to the menu.
5.4 Restaurant Owner selects an existing item to edit, changes the name, description, price or image and saves the changes.
5.5 Restaurant Owner selects an item to delete and confirms the action.
5.6 The platform updates the menu and makes the changes visible to customers.

6. Special requirements: Restaurant Owners must have the necessary permissions to manage the menu.

Usecase #4

1. Unique name: Track Delivery Status
2. Participating actors: Customer, Delivery Partner
3. Entry conditions: Delivery partner has picked up the order and is in route to deliver it to the customer.
4. Exit conditions: Customer has tracked the delivery status and received the order.
5. Flow of events:
   5.1 Customer selects "Track Delivery Status" option from their order details page.
   5.2 The platform displays the current delivery status, estimated arrival time and delivery partner details.
   5.3 Delivery partner updates their status and location on the platform, and the customer sees the updates in real time.
   5.4 Delivery partner arrives at the customer's location and confirms the delivery.
   5.5 The platform updates the delivery status to "Delivered".
   5.6 Customer receives the order and confirms the delivery.
6. Special requirements: Delivery partner must have access to the platform and update their status regularly.

4.6 Functional Requirements:

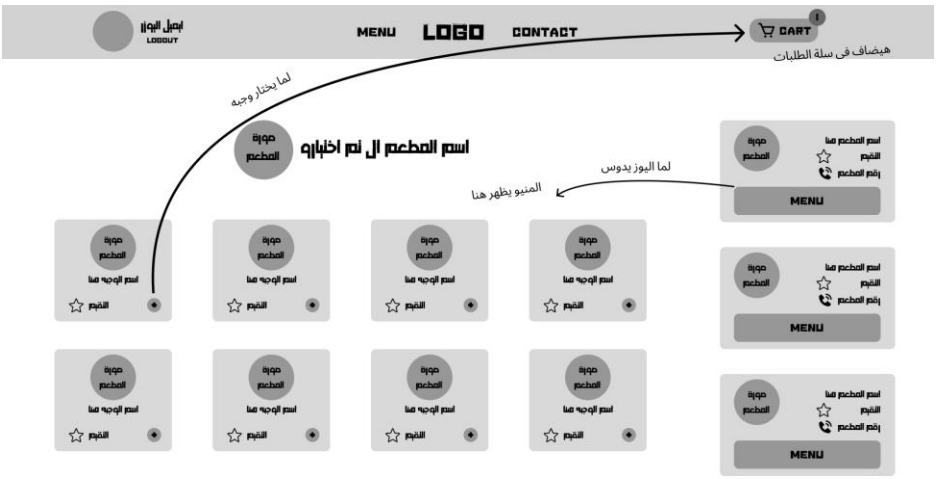
- User Registration: Users can create their account and register as a customer, restaurant owner, or delivery partner.
- Menu Management: Restaurant owners can manage their menus, add, edit or delete items, set prices, descriptions, and images.
- Integration with Delivery Services: Integration with third-party delivery services such as Uber Eats to provide more delivery options for customers.
- Search and Filter: Customers can search for restaurants and food items based on location, cuisine, price range, rating.
- Ordering: Customers can place orders from restaurants, add items to their cart, modify quantities, and select payment options.
- Order Tracking: Customers can track their orders in real-time and receive notifications on the status of their orders.
- Delivery Partner Management: Delivery partners can register, view available orders, accept or reject them, and update the status of the delivery.
- Ratings and Reviews: Customers can rate and review restaurants and food items, and also delivery partners based on their experience.
- Admin Panel: An admin panel for system administrators to manage and monitor the entire system, review user feedback, manage payment disputes, and generate reports.
- Mobile App: Android and iOS mobile apps for customers, restaurants, and delivery partners with a similar set of features as the website.
- Order History: Customers can view their order history, reorder previous orders, and track the status of their previous orders.
- Promo Codes: The platform should support the ability to enter promo codes and discounts for customers during the checkout process.
- Multi-language support: The platform should support multiple languages to cater to customers who speak different languages.
- Social Media Integration: The platform should have integration with social media platforms to allow customers to share their experience and order details.
- Order Scheduling: Customers can schedule orders for a later time or date, and restaurants can accept or reject them based on their availability.
- Delivery Time Estimation: The platform should estimate delivery times based on the distance between the restaurant and customer's location and the delivery partner's availability.

4.7 Non-Functional Requirements:

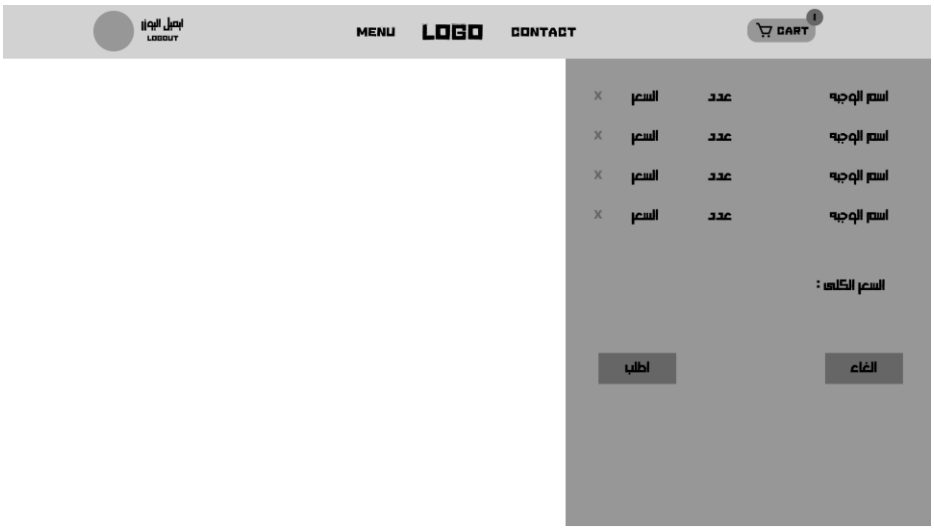
- Performance: The platform should be able to handle a high volume of concurrent users without experiencing any significant performance issues or slowdowns.
- Scalability: The platform should be designed to scale easily to accommodate increasing user demand as the user base grows.
- Security: The platform should be designed with strong security measures to protect user data, payment information, and other sensitive information.
- Reliability: The platform should be highly reliable, with minimal downtime or disruptions to the service.
- Usability: The platform should be easy to use and navigate, with a user-friendly interface that is accessible to all users, regardless of their technical abilities.
- Accessibility: The platform should be accessible to users with disabilities, with features such as screen readers, text-to-speech capabilities, and other accessibility tools.
- Compatibility: The platform should be compatible with a wide range of devices, browsers, and operating systems, to ensure that it can be accessed by as many users as possible.
- Availability: The platform should be available 24/7, with minimal maintenance downtime, to ensure that users can access it whenever they need to.
- Localization: The platform should support multiple languages and currencies, to make it accessible to users in different regions and countries.
- Performance under stress: The platform should be able to handle unexpected traffic spikes and load, ensuring it doesn't crash or experience performance issues under such conditions.

5. User Experience Wireframes

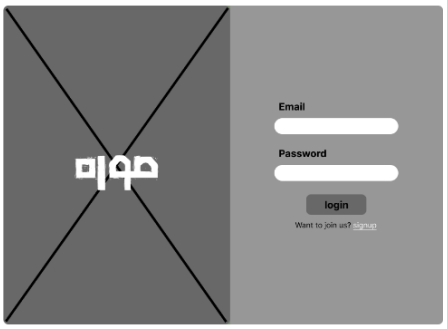
The landing page serves as the entry point to the website. It includes the logo, branding elements, and a visually appealing layout. It provides an overview of the platform's features and benefits, along with a search bar or location-based filtering option to help users find restaurants in their area.

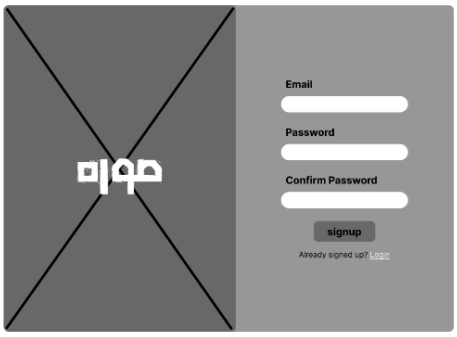


When a user selects a restaurant from the listing, this screen displays detailed information about the restaurant. It includes the restaurant name, address, contact information, opening hours, menu categories, and customer reviews. Users can browse the menu or filter dishes by category.



This screen shows the user's cart and order summary. It lists the selected dishes, quantities, and prices. Users can modify quantities, remove items, and view the subtotal. It also provides options for applying coupons or discounts.



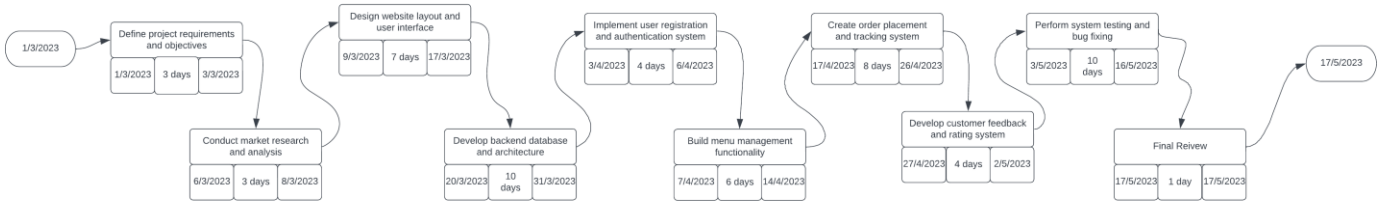


6. Project Organization

	Sara	Jena	Manar	Ahmed Adel	Ahmed Shams	Abdelrahim
Front-end Development				✓		
Back-end Development					✓	
UX/UX Design	✓	✓	✓	✓	✓	✓
Product Management	✓					
Quality Assurance		✓				
Data Analysis			✓			
Integration & Validation						✓
Documentation	✓	✓	✓			✓

Note: Underlined ✓ represent leader on subject.

PERT chart:



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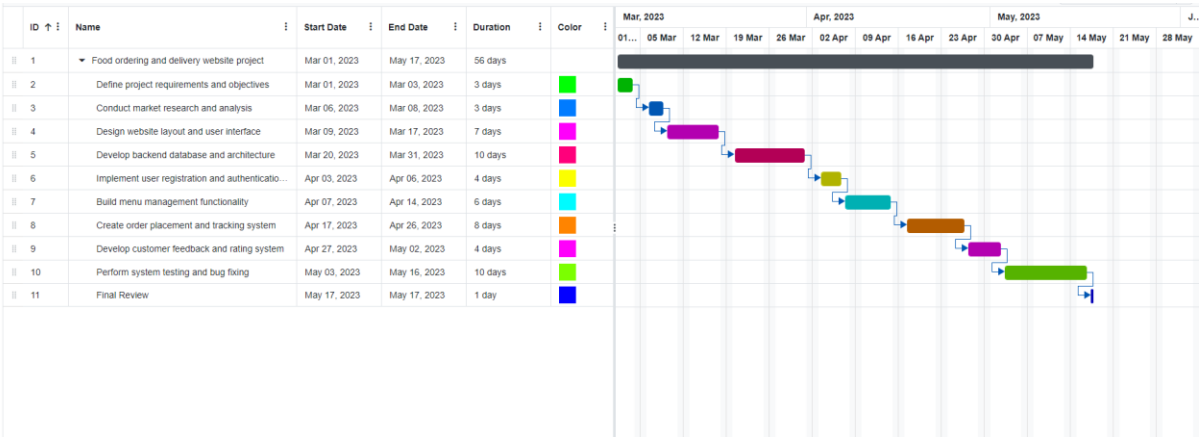
Gantt chart:



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7. Validation Plan

7.1 Objective:

The objective of this validation plan is to ensure that our website meets the specified requirements and functions correctly before its launch.

7.2 Scope:

The validation activities will cover the following aspects of the website:

- User registration and authentication
- Menu browsing and selection
- Order placement and payment processing
- Order tracking and delivery status updates
- Customer feedback and ratings
- Administrative functionalities

7.3 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.

7.4 Testing Strategy:

- Verify successful user registration and login process
- Test menu browsing and selection for different food categories
- Validate order placement and payment processing functionality
- Test order tracking feature for accuracy and real-time updates
- Validate customer feedback and ratings submission
- Test administrative functionalities like menu management and user management

7.5 Definition of Done:

The definition of done for the validation plan of our project is when all the specified functional and non-functional requirements have been thoroughly tested, and any identified defects or issues have been addressed and resolved. It includes the completion of all test cases, validation of all features and functionalities, and the generation of a comprehensive validation report.

7.6 Success Criteria:

- All functional requirements are validated and functioning correctly without any critical defects.
- All non-functional requirements are met, including performance, scalability, security, reliability, usability, accessibility, compatibility, availability, localization, and performance under stress.
- The website is compatible with different devices, browsers, and operating systems.
- The website's user interface is intuitive, user-friendly, and accessible to all users.
- The website performs well under varying user loads, with no significant performance issues or slowdowns.
- The integration with third-party delivery services is tested and functioning smoothly.
- The validation report provides a comprehensive overview of the testing activities, results, and any identified issues, along with recommendations for improvement if necessary.
- The validation team has provided their sign-off, indicating that the website is ready for deployment.
- The website is ready to be launched, providing a seamless and error-free user experience for customers, restaurant owners, delivery partners, and system administrators.

8. Feasibility Study:

8.1 Risk Identification:

- Technical Issues: Potential challenges with website development, integration with payment gateways, or order management systems.
- Competition: Facing strong competition from existing food delivery services in the market.
- Operational Challenges: Difficulties in managing food quality, delivery logistics, and customer support.
- Regulatory Compliance: Ensuring compliance with local food safety regulations and licensing requirements.
- Financial Risks: Uncertain profitability and sustainability in a competitive market.

8.2 Risk Prioritization:

- Competition
- Technical Issues
- Operational Challenges
- Financial Risks

8.3 Risk Mitigation:

- Competition: Conduct thorough market research to identify unique selling points and differentiate our service. Offer competitive pricing, exclusive deals, or a diverse range of cuisine options.
- Technical Issues: Work with experienced developers, perform rigorous testing, and have contingency plans in place for potential system failures or bugs. Regularly update and maintain the website to address any technical issues promptly.
- Operational Challenges: Implement robust quality control measures for food preparation and delivery. Build a reliable logistics network, establish effective communication channels, and provide efficient customer support. Continuously improve operations based on customer feedback.

- Financial Risks: Develop a sound business model, perform a comprehensive financial analysis, and set realistic revenue targets. Monitor expenses closely and adjust pricing strategies if necessary. Seek investment or secure adequate funding to sustain initial growth phases.
- Regulatory Compliance: Stay updated on local food safety regulations and obtain the necessary licenses and permits. Train staff on proper food handling and ensure compliance with hygiene standards.

9. CONFIGURATION AND VERSION CONTROL

9.1 Introduction:

Version control plays a crucial role in managing our food ordering and delivery website's project and product artifacts. It ensures consistent tracking of changes, facilitates collaboration among team members, and helps maintain the integrity of our codebase.

9.2 Version Control System (VCS) Selection:

We have chosen Git as our preferred version control system due to its widespread adoption, distributed nature, and robust features for branching, merging, and tracking changes.

9.3 Repository Structure:

Our repository is structured as follows:

- "src" directory: Contains the source code files for our website.
- "docs" directory: Houses project documentation and user manuals.
- "config" directory: Stores configuration files for various environments.
- "data" directory: Includes sample data files for testing purposes.

9.4 Artifact Management:

All project and product artifacts are to be version controlled, including:

- Source code files for the website's frontend and backend.
- Configuration files for various environments
- Database scripts and schema definitions.
- Documentation files, such as user manuals and design specifications.

10. Tools

- Text Editor or IDE: such as Visual Studio Code, Sublime Text, or Atom
- Version Control System (VCS): we use Git to track code changes and manage different versions of your 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 menus, user profiles, orders, and delivery details.
- Web Server
- UI/UX Design Tools: we use Adobe XD and Figma to create visually appealing and intuitive user interfaces for our website.
- Testing Frameworks

11. Architecture

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