Princess Sumaya جامعـــة
University الأميـــرة سميّـــة
for Technology للتكنولوجيا

مستودعـم

“Bridging the Gap between Retailers and Supermarkets”

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PHASE 1: PROJECT IDENTIFICATION AND SELECTION

Mostawdaakom is a cutting-edge mobile app that bridges the communication gap between retailers and supermarkets, streamlining inventory management and order placement. By providing real-time inventory updates and easy-to-use features, it empowers supermarket owners to make informed purchasing decisions. The app's scalable and secure design caters to a growing user base while ensuring data privacy. Seamless integration with existing systems enhances operational efficiency and optimizes retail-supply chain collaboration, leading to increased profitability for all parties involved.

Project Selection:

The Mostawdaakom project was selected based on its potential to resolve existing inefficiencies in the retail landscape. Key selection criteria include ease of use, real-time inventory updates, efficient order management, scalability, security and data privacy, and integration capabilities. By addressing these criteria, Mostawdaakom promises to improve inventory management, reduce stock-outs and overstocking, and increase profitability for both retailers and supermarkets.

PHASE 2: PROJECT INITIATION AND PLANNING

Table 1: Project initiation and planning:

Project team members:	**Rachel Samawi** **Zaid Mohammad** **Aya Ata** **Ibrahem Ajlouni** **Khalil Mohasen**
Project title:	مستودعكم
Start date and time:	23 January 2024
Initial cost and time:	$20,000 including primary costs such as mobile application, website application and salaries. Excluding marketing and social media leads and (advertisement) Overall budget: $35,000
Problem definition:	The current retail system is suffering from inefficient communication and lack of transparency between retailers and supermarkets; retailers often struggle to keep their inventory updated and visible to supermarket owners, on the other hand supermarkets face difficulties in reaching retailers in a timely and cost-effective manner which may lead to being out of stock, overstocking and reduce profitability for both parties. Mostawdaakom can potentially face a lot of weaknesses: Convincing retailers and supermarkets to adopt this new method and integrate it into their daily operations may be challenging, especially if they are accustomed to traditional methods of managing inventory. Also, the app may face a lot of technical difficulties such as bugs, crashes or slow performance which could impact the user experience and discourage retailers and supermarkets from relying on Mostawdaakom.

	Mostawdaakom may struggle from integration challenges, integrating the app with retailors and supermarkets may be challenging with all the existing inventory management and point of sale (POS) systems used by retailers and supermarkets.
Project objectives and scope:	Real-time inventory updates: Supermarket owners gain access to accurate and up-to-date inventory information, enabling them to make informed purchasing decisions and optimize stock levels. Efficient order management: Mostawdaakom streamlines the order placement and tracking process, reducing manual efforts and errors, and ensuring timely deliveries, providing an efficient and transparent platform for managing. product inventory and orders. Cost savings: By optimizing inventory levels and streamlining the order process, Mostawdaakom can help both retailers and supermarkets reduce operational costs and increase profitability. Enhanced communication: Connecting retailers with supermarkets in one software system that makes both updated at the same time. Addressing Late Deliveries: Solving the late time deliveries which may be cause by the company storehouse or drivers.

PHASE 3: ANALYSIS

Feasibly Analysis:

Technical feasibility:

Firstly, we must study the existing technical capabilities to analyze if it is feasible to develop a mobile application in this project or not.

Hardware and Software Components:

- If we aim to develop a mobile application, it is crucial to ensure that all users have the needed device to support our app/ website, and to make sure that it is installable on multiple operation systems such as Android and IOS.

An essential question to ask when evaluating technical feasibility is does the company have the financial means to allocate more technical resources?

Application Development Tools:

Sencha Ext JS is the most comprehensive JavaScript framework to build data-intensive, cross-platform web and mobile applications for any modern device. This software development tool supports IOS, Android and Windows.

HTML

JavaScript

C++

When developing a mobile application, to determine and study the type of application that will be created is the first step to make depending on the system requirements or criteria, in our case the decision has been made to develop a web-based application which combines elements of both a website and an application.

Why cloud-based applications?

1) Cost effective: it eliminates the need for maintenance costs and infrastructure.
2) Improved data Security and Backup: Storing data in the cloud can provide enhanced security and reliability compared to local storage options. It also provides encryption, access controls and regular data backups.
3) Improves collaboration and integration: cloud applications provide easy data sharing that helps in working more effectively and in real-time.
4) Accessibility: cloud-based applications can be accessed from anywhere with an internet connection.
5) Scalability: the cloud infrastructure allows seamless scaling up or down.

- It is important to ensure that the application is an affordable size that can be installed without taking a lot of space from the memory.

Study the analysis of different types of mobile phones, considering their variations and differences, to aim at developing both an efficient application and an affordable size at the same time.

Capabilities of your developer's team:

Do we have a team that has enough technical expertise and critical thinking skills to deal with developing a web-based application that fits all the requirements in an accurate efficient manner?

Findings:

- mobile phones are widely accessible to users of all age groups, indicating a broad potential user base.
- The company agrees on putting a budget to add the needed technical resources.

- The application will be installed in different operating systems because it is.
- compatible with them.
- The application/ website will be used using the internet, implying that users need to be connected to access its features and functionality.
- The local network is available in the company.
- Software tools are currently available.
- There is a current developer's team available.

Operational feasibility:

It is important to consider the existing infrastructure of the distributor and the seller. Will Masdar be able to integrate with its existing operations and systems? If not, would it be feasible to overhaul their systems to accommodate the new system?

Also, it is important to consider the training and support needed for the new system. Will the distributor and reseller have the resources to train their employees on how to use the Mostawdaakom system? Will they be able to provide ongoing support to ensure the system continues to function optimally?

Furthermore, it is important to consider the cost implications of the new system. Will the distributor and seller be able to bear the costs of the system, including any ongoing maintenance costs? Will the system provide enough value to justify the investment?

Thus, we will provide answers to all questions regarding the operational feasibility of our system.

a) User-friendly design: ease of use and understanding of our new system for all retail employees who are authorized to use the system, as our system will provide sufficient methods and quick time to train employees to use it through several methods that we offer, such as:

- Online training: through a short video explaining how to use the system.

- Training under the supervision of a teacher: when meeting employees face to face under the supervision of a specialized trainer

- Individual training: a visit to the owner of each store if he does not know how to handle the system.

b) Integration with existing systems: To deal with various parts of the company, the retail sector often uses several software systems. To reduce disruptions and streamline operations, Mostawdaakom system can interface with these systems already in place.

c)Scalability: Mostawdaakom is a technologically advanced system, so it will be able to evolve by expanding into many different areas.

d) Reliability: The retail industry operates on a tight schedule and cannot tolerate downtime. So Mostawdaakom system will be reliable and available 24/7 to avoid disruptions to operations.

e) Security: Mostawdaakom provides protection and security for customer data and information and the transactions that take place through it. It also has strong security measures in place to prevent unauthorized access and data breaches.

f) Technical Support: In case of any problems or malfunctions, technical support is readily available to ensure smooth operation.

Economic Feasibility:

No mobile project should be approved unless an inclusive economy is in place. feasibility analysis to determine whether the expenses will be outweighed by any potential benefits management, advancement, and development.

So, if you want to determine whether something is economically viable or not, you should compare the earnings to the amount of money that will be spent on this project.

Knowing that the sum of money will be determined of:

- The total project cost from a technical and operational perspective is required.
- As is common knowledge, the expense of the maintenance scope is substantial.
- Team effort and time spent working by employees.
- The time required to fulfill all requirements.

The cost of the development phase varies depending on how the development team is structured, for example, the hourly pay for experts, front-end and back-end developers, and QA personnel.

The cost of developing an application and web based relies on a number of factors, including the type of application (mobile games, business, social networking, lifestyle, etc.), the platform (iOS, Android, Windows phone, etc.), the design (basic, single, custom), the number of pages, the features, and the infrastructure.

Estimated cost: $20,000 including base costs such as mobile application, website application, and salary. Excluding marketing, social media, and (advertising). Total budget: $35,000.

Table 2: A workload analysis is provided comparing current and proposed system:

	Current System	Proposed System
Task	Products being ordered separately from each store's houses.	Products are ordered through webpage or application, Checking available quantity and tracking orders.
Method	involves manual communication, resource searching, and price negotiation. It lacks a centralized platform and relies on personal interactions and conventional methods.	utilizes a digital platform accessible through both a mobile application and a website. It provides a centralized hub for distributors and sellers to interact, search for resources, and conduct transactions efficiently.
Personnel	Customer service, inventory manager to check available quantity, account manager for managing relationship between supermarket and distributors	Operation manager, customer service for inquires, IT specialists and Data analyst for app improvements
Human Time Requirement	It can take up to 7-10 mins per order from distributor	It will take up to 7-10 mins for whole order from all distributers
Computer Time Requirement	A lot of time, it may take 13-18 minutes	The new system has improved speed and efficiency and better deals with technologies. Additionally, the new system has a more user-friendly interface and offers more advanced functionalities that were not available in the old system
When and how	The traditional order process between a hypermarket and a supplier can be quite complex and time-consuming. It often entails several phases, including order placement, invoicing, delivery, and payment processing, which, although effectively managed, can be prone to mistakes and delays. Additional difficulties may arise because of difficulties with inventory control, product availability, and price discussions. However, with Mostawdaakom, these difficulties can be reduced, resulting in a more effective and efficient order procedure for all parties.	Suppliers update the system with the available products. Customers choose from the system the demanded products. Customers provide the time and place desired to be delivered to. Mostawdaakom manage both the technical and logistics support.

Cost and benefit analysis:

Benefits:

- Increased Efficiency and Improved Productivity: The application can enhance the order and supply process between stores and factories.
- Error Reduction and Improved Order Accuracy: By centralizing the order and supply procedures through the application, human errors can be minimized, and order accuracy can be improved.
- Cost Savings: The application may help reduce costs associated with order and supply by optimizing inventory management, reducing waste, and minimizing delivery delays.
- Enhanced Customer Satisfaction: By providing a convenient and fast platform for ordering goods, customer satisfaction can be improved, enhancing their shopping experience.
- Innovation and Diversity: The application can empower stores and factories to offer a wider range of products and options to customers, fostering innovation and product diversification.

Costs:

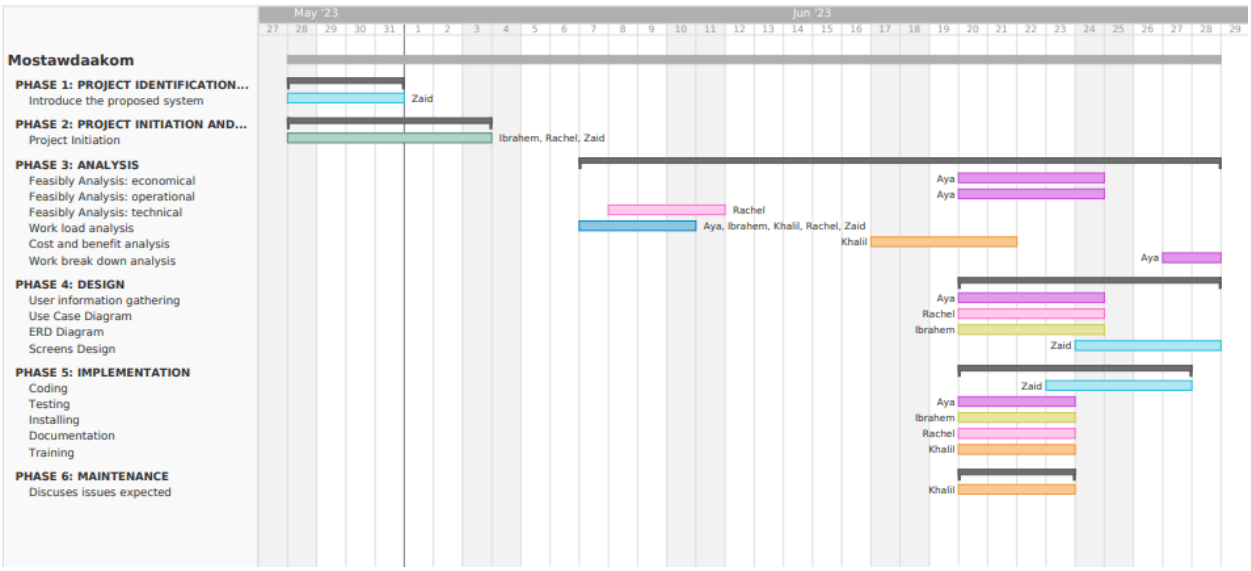
1. Tangible Costs:

- Software: Includes the cost of software licenses required for developing and operating the application, and any customization or updates.
- Hardware: Encompasses the necessary hardware components, such as servers, networks, and Scanning and Verification Devices).
- Domain: You may need to purchase a domain name for the application.
- Training: Includes the cost associated with training the staff at the stores and factories on how to use the application.

2. Intangible Costs:

- Time and Effort: Consider the cost associated with the time and effort of the development team, project management, and technical support.

Figure 1: Breakdown Gantt chart



PHASE 4: DESIGN

User information gathering (questionnaires):

By gathering information from users to use Mostawdaakom system, which serves the seller and distributor, there is some information that could be collected. These include:

Inventory data: Both the distributor and the seller may have better control over inventory levels and prevent stockouts or overstocks by tracking which products are being sold and how quickly they are moving.

Sales data: Knowing which products are popular and which are not can help the seller and distributor decide what to stock and how to deploy resources based on the data.

Shipping Information: By keeping track of shipping details such as carrier, delivery times, and tracking numbers, the seller and distributor can improve delivery accuracy and timeliness, which can lead to happier customers and more sales. date of purchase; Understanding what a user has purchased in the past can help retailers make recommendations for future purchases.

Customer Service Inquiries: We must know and keep track of frequently inquired products and demand for improvement and always provide the best services and products available.

Financial Transactions: including payments, invoices, and refunds, enables vendors and distributors to effectively monitor their financial records, ensuring timely and accurate payments. Payment information includes User credit card or other payment details needed to process orders and complete transactions.

Contact information: This includes things like your username, email address, phone number, and address. This information is important for things like order confirmations, shipping notices, and marketing communications.

We conducted an online survey with two types of questions: an open question and a closed question. Which can be included in a survey of Mostawdaakom system serving sellers and distributors. These questions will help them understand their own needs and design a system that meets those needs.

Explanation: We have asked users various key questions through our surveys about Mostawdaakom system, and the result is that Mostawdaakom will be easy and beneficial for the seller and distributor. They will also manage the purchasing and distribution system, easy communication, and quick response at the same time. And the consumer is satisfied with the presence and availability of the products he wants at any time without running out of stock.

Furthermore, the survey was that Mostawdaakom system will solve all the problems that occur in the ordering process, and when we asked about the most problems faced by the seller, there was an unstable time with the distributor, and the difficulty of ensuring the management of stock levels to make sure that the correct products are always available. As for the distributor, one of the problems was the cancellation of the order after it was processed, or the seller's failure to come to receive his order, as well as the lack of sufficient trucks for distribution, which makes the seller no longer deal with this distributor.

Survey result in percentage:

- 70% of sellers and distributors believe that Mostawdaakom is an easy and new way to order than the traditional method.
- 82% of the seller and distributor are satisfied that there are different payment procedures.
- 87% of sellers and distributors find tracking orders in your inventory an important and distinct feature.
- 72% of sellers and distributors find that Mostawdaakom system will be effective in providing real-time information about product availability and delivery.
- 81% of sellers and distributors are satisfied that the customer support team handles system issues or concerns at any time.
- 77% of sellers and distributors would recommend Mostawdaakom to other sellers or distributors.
- 75% of sellers and distributors found it easy to get access to Mostawdaakom, such as being able to use it on mobile devices or remotely.

Attach link bellow for the online survey :

https://docs.google.com/forms/d/e/1FAIpQLScOWOwFngLbj4S9Tkd0jlIw1oarVKvfNhP6cXBgvBJ_Lz8dlw/viewform?vc=0&c=0&w=1&flr=0

Figure 2: User Requirements (USE CASE DIAGRAMS):

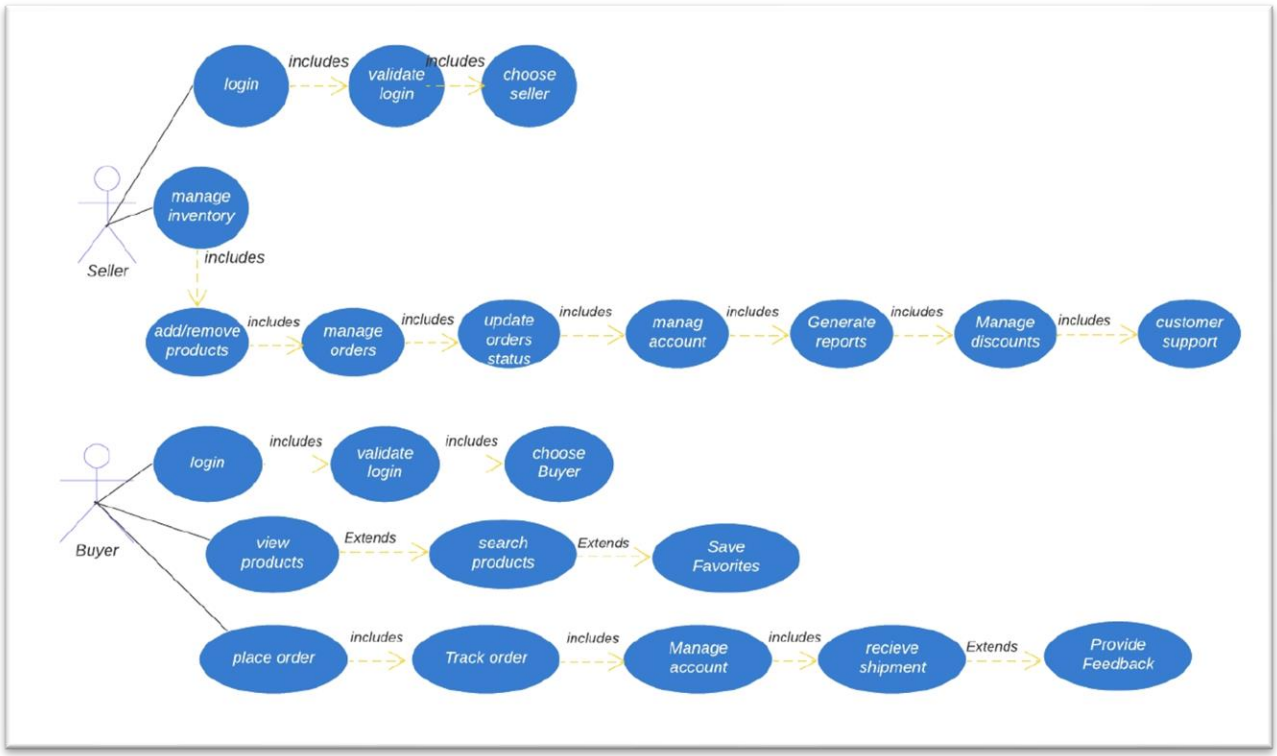


Figure 3: ERD Diagrams

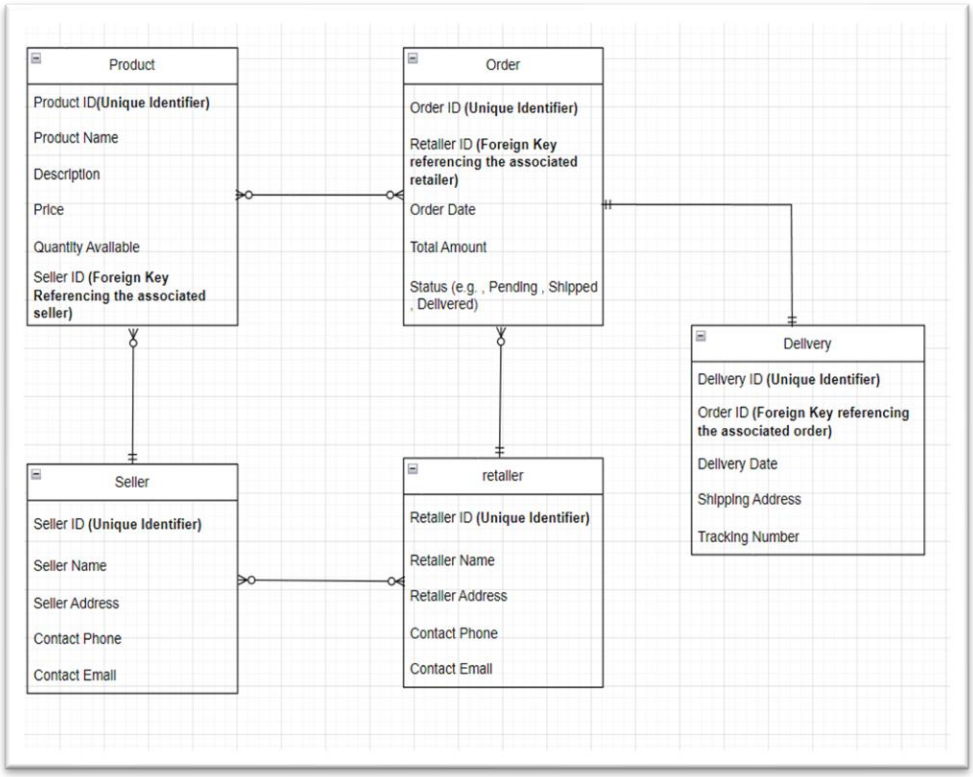
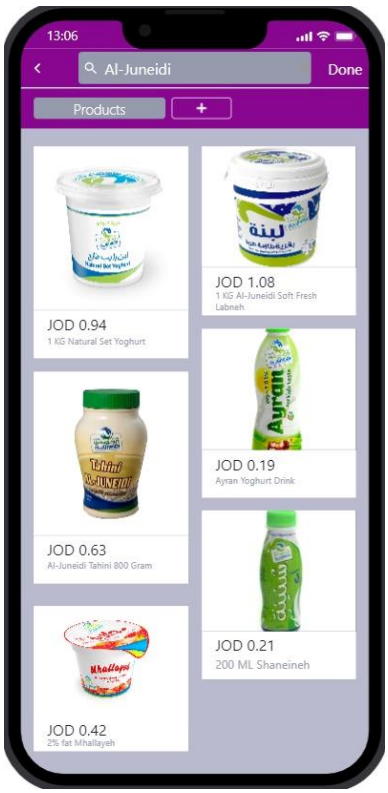


Figure 4: Screens Design for Mostawdaakom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Done
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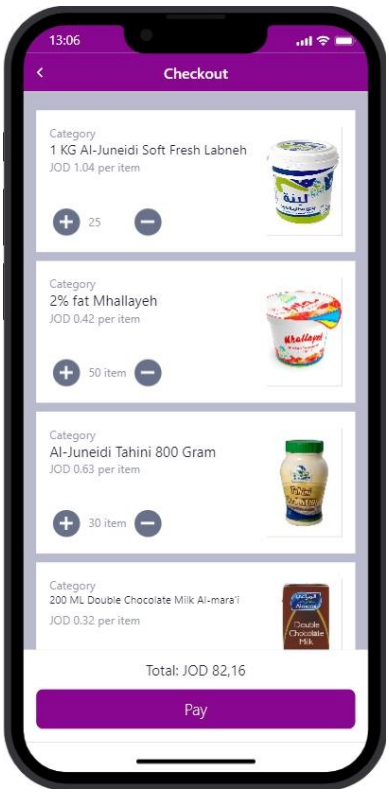
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JOD 1.04 per item
25
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2% fat Mhallayeh
JOD 0.42 per item
50 item
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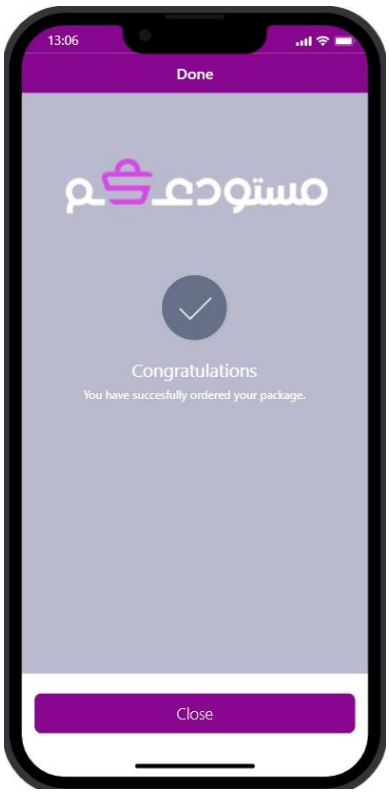
Total: JOD 82,16
Pay


13:06
Done
Congratulations
You have succesfully ordered your package.
Close

PHASE 5: IMPLEMENTATION

Coding:

1) Integrated Development Environment (IDE): An IDE is a software application that provides a comprehensive set of tools for coding, debugging, and testing. Examples include Visual Studio Code, IntelliJ IDEA, and Eclipse. IDEs often include features like code editors, syntax highlighting, debugging capabilities, and project management tools.

2) Text Editor: Some developers prefer using lightweight text editors for coding, such as Sublime Text, Atom, or Notepad++. These editors offer basic functionalities like syntax highlighting, code formatting, and customizable settings. However, they may lack the advanced features found in full-fledged IDEs.

3) Command Line Interface (CLI): The command line interface allows developers to interact with their coding environment using text-based commands. This is particularly useful for running scripts, compiling code, and managing project dependencies. Examples of popular CLI tools include Bash (Unix-based systems) and PowerShell (Windows).

4) Version Control System (VCS): A VCS is a tool that tracks changes to source code over time, allowing multiple developers to work on the same project concurrently. Git is a widely used VCS that enables collaboration, branching, merging, and reverting code changes.

A) Front End: The front end refers to the user-facing part of the system that users interact with directly. It typically involves the design and implementation of the user interface (UI) and user experience (UX). For web applications, front-end development often involves HTML, CSS, and JavaScript, with frameworks such as React, Angular, or Vue.js.

B) Back End: The back end is the behind-the-scenes part of the system that handles data processing, logic, and interactions with databases or external APIs. Back-end development usually involves server-side programming using languages such as

Python, Java, Node.js, or PHP, along with frameworks like Django, Spring Boot, Express.js, or Laravel.

Testing: The final phase before Mostwdaakom system launch & live, the QA team will test the version in order to validate that all the requirements and functions implemented are reflected correctly and smoothly (e.g., login flow, registration flow). In case the QA team finds any bugs or new requirements/improvements, they should share it with the relevant team (developer team - both back-end and front-end team) before launching the system in order to fix/develop them to enable us to launch a system without any bug and ready to use smoothly.

Installation: Once the system is fully developed and tested, it needs to be installed in the appropriate environment.

Installation activities involve deploying the system on servers, configuring the necessary hardware and software components, and setting up the required databases.

Deployment can be done on-premises, in the cloud, or a combination of both, depending on the organization's infrastructure and requirements.

System administrators and IT professionals handle the installation process, ensuring a smooth and error-free deployment.

Documentation: an essential aspect while working with users, various requirements related to user interactions will be documented in a comprehensive report. This report will be updated and completed at each phase to capture the necessary information accurately. The documentation process includes the following components:

1) Process documentation
2) The estimated project cost.
3) Product code documentation
4) Testing documents
5) User documentation for both end users and system administrators

6) Any FAQs and guidance catalogs will be documented to help the users navigate the application better.

Training: We will provide an informative video demonstrating the basics of navigating the application, along with training sessions for factory workers on how to handle orders and perform related operations.

In addition, we will ensure that the informative video includes step-by-step instructions on key features and functions of the application, allowing users to gain a comprehensive understanding of its capabilities.

Furthermore, the training sessions for factory workers will emphasize best practices, safety protocols, and efficient workflows to optimize order handling processes and maximize productivity.

PHASE 6: MAINTENANCE:

After the implementation of the application, regular maintenance procedures will be conducted to ensure its smooth functioning. The development team will actively monitor the system, proactively identifying and resolving any defects or shortcomings that may impact its performance. Moreover, they will continuously explore opportunities for improvement, seeking ways to optimize the application's efficiency and enhance the user experience.

In the end, the goal of the maintenance phase is to provide a reliable, secure, and user-friendly experience for all users.