



# Hadhramaut University College of Computers & Information Technology Department of Information Technology

## Online Medicine Ordering System Business to Business

A graduation project report submitted to the Department of Information Technology as partial fulfillment for the Requirements for the Degree of Bachelor of Science in Information Technology

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#### **Abstract**

Pharmaceutical practices have evolved over time to become fully encompassed in all aspects of pharmacy itself. Such practices include: dispensing of drugs, consultation, drug regulation, and the sale of these drugs. The community pharmacies and hospital pharmacies have key roles to play in the pharmaceutical practices.

For the community pharmacies in Mukalla, a strict approach to the sale and dispensation of drugs is not normally the case. There is a need for these practices to be fully enforced, and a management system introduced to the fray. With software such as the Online Pharmaceutical Management System, which provides a platform has been provided to help with drug regulation, as well as providing ease to all parties involved. Creating an Online Pharmaceutical Management System would help in pharmaceutical practices for all parties involved. It is eminent that the system provides a safe, secure and verified platform for all parties which help to bridge the communication gap and provide legitimate drugs.

#### الخلاصة

تطورت الممارسات الصيدلانية بمرور الوقت لتصبح مشمولة بالكامل في جميع جوانب الصيدلة نفسها، وتشمل هذه الممارسات: الاستغناء عن الأدوية، الاستشارة وتنظيم البيع.

تلعب صيدليات المجتمع وصيدليات المستشفيات أدوارًا رئيسية في ف الممارسات الصيدلانية فبالنسبة لصيدليات المجتمع بالمكلا، لا يوجد نهج صارم للبيع وصرف الأدوية عادة وهناك حاجة لتطبيق هذه الممارسات بشكل كامل، وادخال نظام إدارة لهذه المعركة.

استخدام برنامج مثل نظام إدارة المستحضرات الصيدلانية عبر الإنترنت، يوفر نظامًا أساسيًا للمساعدة في تنظيم الأدوية، فضلاً عن تيسير العمل لجميع الأطراف المعنية.

من شأن إنشاء نظام إدارة صيدلانية عبر الإنترنت أن يساعد في الممارسات الصيدلانية لجميع الأطراف المعنية ومن الجدير بالذكر أن النظام يوفر منصة آمنة وموثوقة لجميع الأطراف مما يساعد على سد فجوة الاتصال وتوفير الأدوبة المشروعة.

#### **Dedication**

We students provide dedication to our parents who helped us in our educational journey, and urged us to continue education, and they were supporting us financially and morally, and also, we offer to dedicate this work to the teachers and doctors to support us and their keenness to communicate information to us, as well as we offer the dedication of this work to colleagues and all those who stood with us and supported us during the educational process.

#### Acknowledgment

After this great effort which combined with blessing of Allah we would like firstly to thank so much our supervisor: Dr. Engineer\ Ibrahim Eskandar Ibrahim Fadhel for his great efforts, advices and guidance.

Thank you to those who contributed and give the hand of help to us during the project time. Glory be to Allah for his blessing in our project by allowing us to cooperate professionally, participating effectively together to successfully accomplish the project.

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#### **List of Abbreviations**

**Symbol** Meaning

B2B business to business

MVC Model-View-Controller

ASP Application Service Provider

SQL Structured Query Language

HTML Hyper Text Markup Language

CSS Cascading Style Sheets

## Chapter 1

Introduction

#### 1.1 Introduction

Average Mukalla people spend a significant amount of income on medicine. A reliable and fast online medicine system is not ubiquitous. Most people specially the pharmacists buy medicine from the local Pharmacies. They need to go to medicine stores to buy the specific medicine prescribed. Sometimes all medicines are not available in local Pharmacies (store) therefore people need to go to other areas to buy the medicines. This project presents the development of a web based online medicine system (business to business). A reliable, fast, safe and user friendly online based e-commerce web application will be developed in this project.

#### 1.2 Problem Statement

Taking a look at Mukalla in general, the online pharmaceutical field is relatively underdeveloped and an untapped one. The available systems have not fully captured the essence of a pharmaceutical inventory system. In view of the foregoing, this research work aims to rectify this problem by providing the platform for the ever-growing pharmaceutical industry in the country, and region as a whole.

### 1.3 Project Objectives

The proposed system aims to connect and serve as an intermediary between pharmacists (B2B) and drug manufacturers, through a platform that allows the order of drugs with the click of a button, and simultaneously keeps track of what drugs have been ordered and in what quantity and is short in tow:

- The system is achieved B2B system for deal of that.
- Facilitate Pharmaceutical Purchase on system from manufacturing

#### 1.4 Project Scope

This project is about a grouping company targeting pharmacies in terms of purchasing operations, which distances them from the traditional way of purchasing. So that makes them order products easier and faster. It does not include arithmetic operations such as ledger, posting and dealing with different currencies, and does not include credit, debit, depreciation and other aspects. This project will be implemented geographically in Mukalla, Yemen. It takes four months - six months to complete.

#### 1.5 Project Methodology

This project categorized as a quantitative approach, an agile approach was used to complete this project. As this is a complete online website the approach that was used in the design of the system is Incremental Model of System Development Life Cycle where the product being designed is implemented and tested incrementally. It is relatively cheap and is used for small projects. This methodology is most suitable for the project due to the project's future requirements which would require changes in the system [1].

#### **1.6 Tools & Programing Languages**

The system services that used in our project that started working with building the database, linking the Relationships and management by SQL Server and to create the interfaces of the project using adobe XD.

Finally, we finished the work by building Back-End using C# programming language with its framework ASP.NET Framework MVC for the Client side and Server side by Visual Studio Code.

#### 1.7 Organization of the Project

In the chapter "Background & Related Works" we will talk about a brief overview of pharmacology and its importance and what is to be done in the side of medicine, we talked about some of the related works similar to our project and we mentioned the advantages and disadvantages of each.

In the System Analysis chapter, we have drawn the analytical and engineering drawings of the databases and processes in our project using UML (Use Case, **ERD** with Diagram) explanation Database, an of those graphics. Store and project dashboard. In the "final chapter" discussed the results and compared them with the goals we mentioned to what extent those goals were achieved, then we mentioned their shortcomings, we mentioned our suggestions in the future work part, and what are the suggestions that would improve the project

## Chapter 2

**Background & Related Works** 

#### 2.1 Introduction

The practice of pharmacy involves the general implementation of medical orders which entail the evaluation and the interpretation of the medical orders, the administration of drugs, dispensation of prescribed drugs from qualified medical practitioners, the review of prescribed drug regimen, and the correct storage of drugs [2].

The American Pharmacists Association has described pharmacy as having a mission which is the responsibility of ensuring the use of medication in the right way and manner, and enjoying the services of drugs to ensure the achievement of optimized results in therapeutic applications.

In addition, the birth of modern pharmacy has brought with it some positive effects in the society; like the increase in life expectancy globally from 45 years to 50 years, which some argue is as a result of the number of breakthroughs recorded in pharmacy over the last century. These breakthroughs such as: the discovery of new compounds in battling existing ailments and the invention of methods and devices to accurately dispense drugs have been welcomed with open arms by the society.[3].

#### 2.2 Background

#### **2.2.1** Main Concepts of the Project:

The growing popularity of computers and gadgets in general has in no way slowed down the birth of new innovative ways in the pharmaceutical management system. These days, computers have become an essential part of many people's lives due to the versatility of the devices, and how much they can do with so little effort. Performing tasks which would have taken hours and maybe days in the past, have become possible in seconds. The invention of the Internet and other utilities such as search engines (Google being a prime example), have made searching for the most remote things possible in very little time. Also, the portability of the computer systems

has helped the cause in making information more portable than it was in the past. In the same vein, the management of inventory and taking stock of goods and services in different organizations have become so much easier with the growth of the computer system (Goldberg et al, 1991). These days, even phones and tablets have faster processing power than the early generation computers, which has made it easier to perform tasks. Our economy has been referred to as the "learning economy", because of the rate at which new innovations come to light [1]. In China, a text message system was developed to help in general patient pharmaceutical care, and promote mobile [4].

#### **2.2.2** Application Work Procedures:

Medicine system this platform is a dynamic web application built in C# based on ASP.NET MVC frame-work. This system is lightning fast and optimized very well for searching engines. With the help of the developed platform, drugs will be available at one's doorstep very fast, safely and reliably. In this system, users can choose a medicine section of their choices and go through all the items that the system provides. Users can then select the desired drug items, add them to cart and then proceed to payment. Due to the huge demand of online medicine delivery system there are very few companies that have recently started e-commerce based online medicine delivery services. Our system is one of the online aggregation company in Mukalla that provides medicine and generic products. It is very simple and easy as well to use this web application. The first important advantage is the ability to quickly find the necessary medical products, using a search bar. The search menu option has been integrated with our platform to make the products searching very fast. Price of Products will be competitive on our platform. Our system will have a huge customer database and in future we can apply big data analysis and machine learning algorithms based on customers review to attract more new customers and retain older customers. An online medicine system is an online based web application that operates over the Internet and reserves orders to customers. People can buy and sell their products sitting at home. It is getting popular day by day all over the region even in domestic market space. The aim is to make the ordering process systems of medicines much easier and customer-friendly. It's very important to make a user-friendly environment.

#### 2.3 Related Works

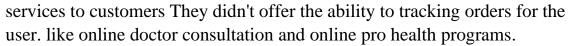
#### 2.3.1 apollopharmacy.in [5]

Apollo pharmacy is an Indian e-pharmacy that help Indian

people to buy medicines and healthcare products also many

other medical products, they describe a helpful information

of products. It's a huge web application that also provides many



#### Advantages:

- Provide a wide list of products to users
- Use excellent categories of products.
- Provide helpful information about products.
- Provides an online doctor consultation.

#### Disadvantage:

- They didn't offer the ability to tracking orders for the user
- A limited number of products for some packages.

### Interfaces:

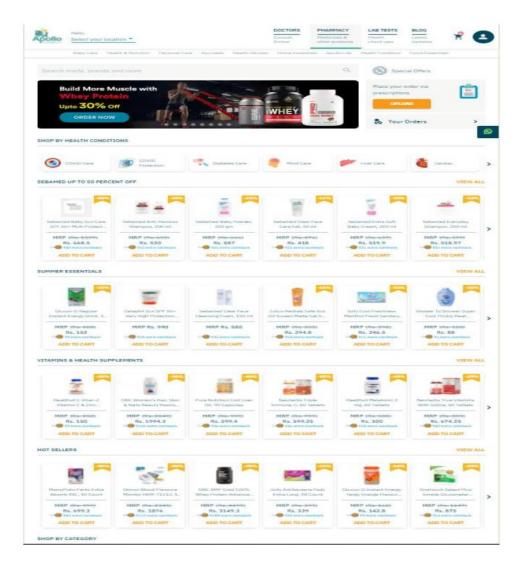


Figure 2.1: Dashboard of apollopharmacy.

So, in our project, we are focus to build an easy tool for local and small enterprises

to provide the tracking orders which is used to manage the enterprise and provide

the enterprise with an electronic store in order to keep pace with technical development

## Chapter 3

**Analysis & Design** 

#### 3.1 Introduction:

This chapter explains the data collection & design processes from how the data was collected to the final system designs along with the system design methodology and information needs that produces functional requirements i.e., collection of tools methods and practices for achieving a task; the requirement specification states the expectation of the system analysis, and design which is the blueprint of what the system would carry out.

#### 3.2 System Analysis:

#### **3.2.1** Requirements Gathering:

The process starts with good sources by Identify the relevant stakeholders' (pharmacists) users by Face-to-face individual interviews to make an effort to understand and experience the user's problem to describe it clearly and correctly. And we about their jobs and the problems to understanding of the work environment We also Study analogous systems as apollopharmacy.in to get of good ideas for solving user problems and we Conduct a brainstorming session More than one to Make sure the requirements clearly capture what was intended.

#### **3.2.2** System Users:

- 1- Admin: has access for all functionality of the system from managing items to managing orders and so on.
- **2-** Registered customer: can search for items, get details and make an order.
- **3-** Unregistered customer: can search for items and get details only.

## 3.2.3 System Requirements:

## **3.2.3.1** functional requirements:

Table 1: functional requirements

Function	Input	Output	Constraint
Sign Up	Enters information (Full Name –Licenses - Username -Password -Email -Address -Phone Number)	-Receive an email containing code number	-User Name must be start with capital letter -Password should be at least of 6 length -Ensure password are matching in both fields -Ensure email entered correctly -Phone number must be only of 9 digits
Verification	-Enters code number	-Sign up successfully -Access to home page for customer	
Login	-Enter Username and Password	- Access to home page for customer or Control page for Admin and employee	-Validation of all fields
Forget password	-Enter your email -Enter code number -Enter new password	-Receive an email containing code number - Redirect to new password page -Save new password	-Ensure email entered correctly -Password should be at least of 6 length

View Item	-Clicks any product that will open an information page of that item.	-Show all items that added by adminShow and obtain the more information about item	-
Search for Item	-Search for Specific item by its name	-Obtain the items stored as you write	-
Add to cart	-Select an item that you need bay it.	-Add and store all selected item s in your cart	-Username must be login
Track Order	-Click on Track order button	-Show the detail about receive order such as date of access	-Username must be login
Display Cart	-	Show all items in your cart	-Username must be login
Send to bay	-After Confirm the item that he needs for a purchase	-Send to bay	-Username must be login
Remove Item	-Click on Remove button to Remove item from website.	-The item was deleted and decrease the list of items	-Username must be login
Manage Products (Add products)	-Click to add item and its details	-Add and store all items and its details	-Username must be login
Manage Products (Update details products)	-Change and update new details or info of item	-Save and store new details or info of item successfully	-Username must be login
Display Orders (Manage Orders)	-	-	-Username must be login
Accept Order	-Check the orders	-Send a message to the customer informing when his order will be delivered	-Username must be login

#### **3.2.3.2** Nonfunctional requirements:

- 1-The website's load time should not be more than one second for users.
- 2-Applicants can access their resume 98% of the time without failure.
- 3-Admin can post items on the website throughout the week at any time during the day. In the case of unplanned system downtime, all features will be available again after one working day.
- 4-Up to 500 applicants can request for a resume review. Up to
- 1,000,000 resumes can be stored.
- -Security: Only the users with the role "site admin" can view the applicant's verified phone number.
- -Manageability: When editing the code for applicants' profile pages, the rest of the site stays up and running.
- -Usability: The website's interface has to be user-friendly and easy to use

#### 3.2.4 Use Case Diagram & Scenario

A use case diagram at its simplest is a representation of a user's interaction with the system

Basic Use Case Diagram Symbols and Notations:

#### 1- System

Draw your system's boundaries using a rectangle that contains use cases.

Place actors outside the system's boundaries.

System

#### 2- Use Case

represent the system's functions.



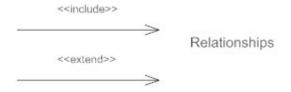
#### 3- Actors

Actors are the users of a system.



## 4- Relationships

The relationships between an actor and a use case with a simple line.



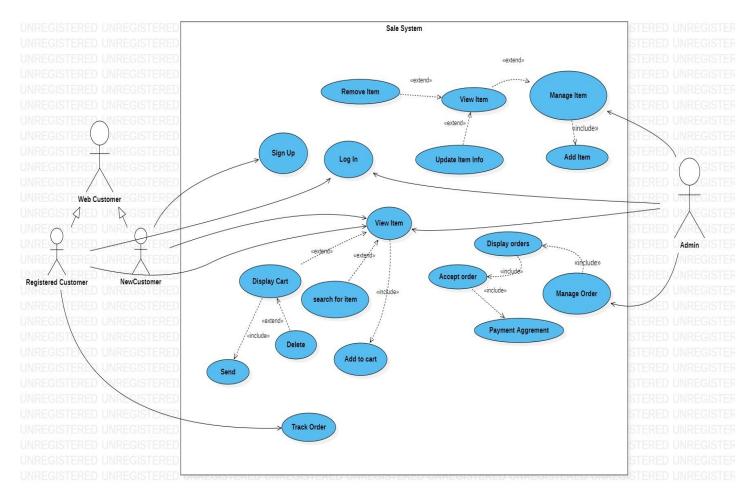


Figure 3.1: Use Case Diagram

Table 2: Sign Up

Use case Number:	UC-01
Use Case Name:	Sign Up
Overview:	Customer register as new Account in system
Actor(s):	New Customer
Normal Flow:	<ol> <li>Open Browser and enter our site</li> <li>Customer Clicks Sign Up</li> <li>The Customer Enters information like:         <ul> <li>Username, Password, Email, mobile</li> </ul> </li> <li>The Customer Clicks Sign Up button</li> <li>If the information is correct, a Home page appears and he is logging</li> </ol>
Alternate Flow	5.1. Error Message(s) appear(s) in same page (Sign Up)

Table 3: Login

Use case Number:	UC-02
Use Case Name:	Login
Overview:	Login to the system
Actor(s):	1-Registerd Customer
	2-Admin
	1. Open Browser and enter our site
	2. Actors Click login
	3. The Actors Enter Password and Email
Normal Flow:	4. The Actors Click login button
	5. If the information is correct the Home page
	appears for customer or Control page for
	Admin and employee
Alternate Flow	5.1. Error Message(s) appear(s) in same
	page(login)

Table 4: View Items

Use case Number:	UC-03
Use Case Name:	View Item
Overview:	Show list of products
Actor(s):	1-Registerd Customer 2-Admin 3-New Customer
Normal Flow:	<ol> <li>The Actor will see list of products (picture, title, cost).</li> <li>The actors can search for any specific item by name then he can display its information.</li> <li>When Actor clicks any product that will open an information page of that product, and he will be able to add it to cart if he's logged in to his account.</li> <li>The actor can display his cart by press cart button if he logged in, also he can increase quantity of items of the cart and delete it from the same place.</li> </ol>
Alternate Flow	3.1. If actor not logged in, he will not be able to display or add product to cart and the system will redirect him to login page.  a. If actor not logged in, he will not be able to display the cart and the system will redirect him to login page

Table 5: Manage Item

Use case Number:	UC-04
Use Case Name:	Manage Products
Overview:	Admin mange product
Actor(s):	Admin
Normal Flow:	<ol> <li>Admin must be logged in.</li> <li>Admin clicks "products" in Control page.</li> <li>In this page the admin will see list of products.</li> <li>Admin can add, delete, edit product.</li> </ol>
Alternate Flow	1.1. If customer not logged the system will redirect him to login page 4.1. Error Message(s) appear(s) in same page

Table 6: Track Order

Use case Number:	UC-05
Use Case Name:	Tracking Order
Overview:	Customer tracking his order
Actor(s):	Customer
	1. Customer must be logged in.
	2. In <b>My cart page</b> The Customer clicks.
Normal Flow:	"Tracking My Orders" Button, The <b>Tracking</b>
	Order Page appears.
Normai Piow.	3. Customer can check the status of his order and
	where it become at ordering cycle, he can see if
	the order confirms or if delivered or not, also
	what time need to get the order.
	1.1. If customer not logged the system will
Alternate Flow	redirect him to login page
	3.1. Error Message(s) appear(s) in same page

Table 7: Manage Orders

Use case Number:	UC-06
Use Case Name:	Manage Order
Overview:	Admin manage submitted orders
Actor(s):	Admin
Normal Flow:	<ol> <li>Admin must be logged in</li> <li>Admin clicks "Orders" in Control page</li> <li>In this page the admin will see list of orders.</li> <li>Admin can display order by click on it.</li> <li>In this page Admin can accept any order from users after checks payment voucher.</li> <li>Admin can report orders.</li> </ol>
Alternate Flow	1.1 If Admin not logged the system will redirect him to login page

#### 3.2.5 Class Diagram

A class diagram is one of the most common types of systems used to illustrate, clarify and describe the structure of a system by clarifying classes, features and relationships between classes and their properties.

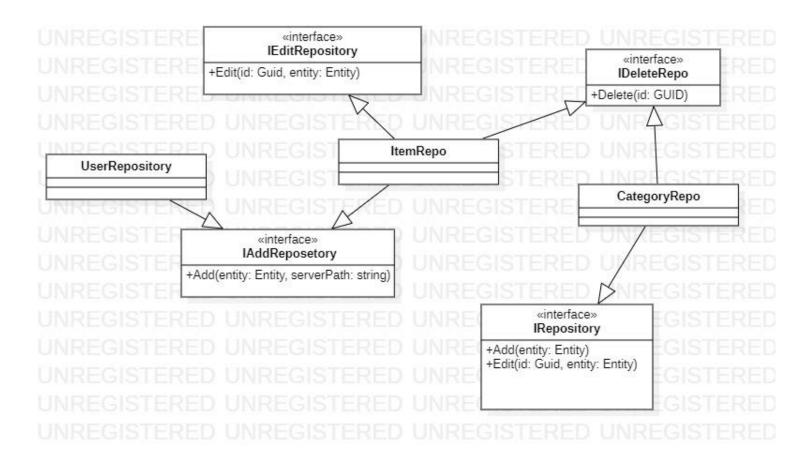


Figure 3.2: Class Diagram (Repository)

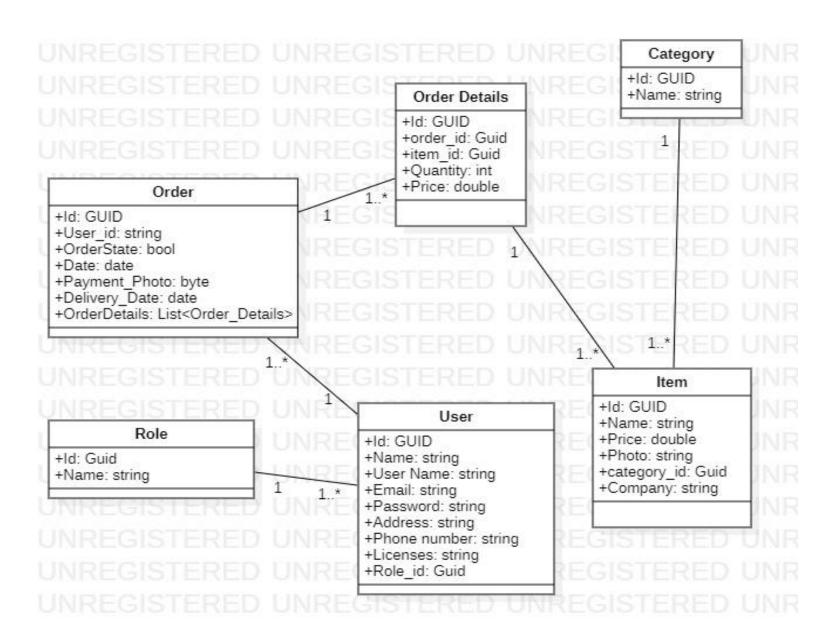


Figure 3.3: Class Diagram (Models)

## 3.2 System Design

## 3.3.1 ERD Diagram

Table 8: ERD Description

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database.[6]

Symbols	Name	Description
Entity	Strong entity	is the one whose existence does not depend on the existence of any other entity in a schema.
Weak Entity	Weak entity	Weak Relationships are connections between a weak entity and its owner.
Relationship	Relationship	Relationships are associations between or among entities.
Weak Relationship	Weak relationship	Weak Relationships are connections between a weak entity and its owner.

Attribute	Attribute	Attributes are characteristics of an entity, a many-to-many relationship, or a one-to-one relationship.
Multivalued Attribute	Multivalued attribute	Multivalued attributes are those that are can take on more than one value.
	Derived attribute	Derived attributes are attributes whose value can be calculated from related attribute values
	composite attribute	is an <i>attribute</i> where the values of that <i>attribute</i> can be further subdivided into meaningful sub-parts

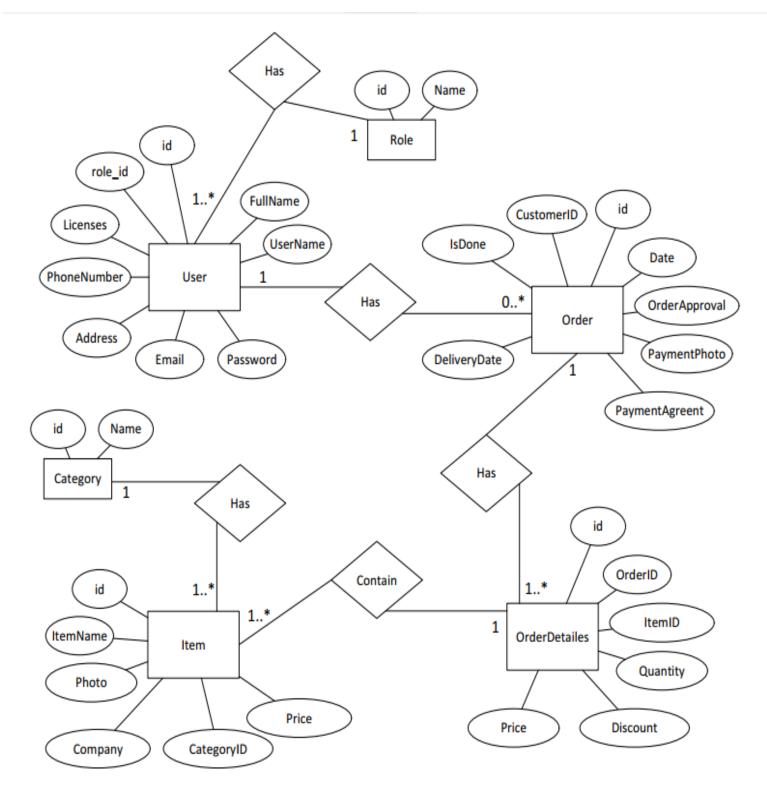


Figure 3.4: Entity Relationship Diagram

#### 3.3.2 Database Diagram

Database diagrams graphically show the structure of the database and relations between database objects. You can generate a diagram for a data source, a schema, or a table. To create relations between database objects, consider using primary and foreign keys

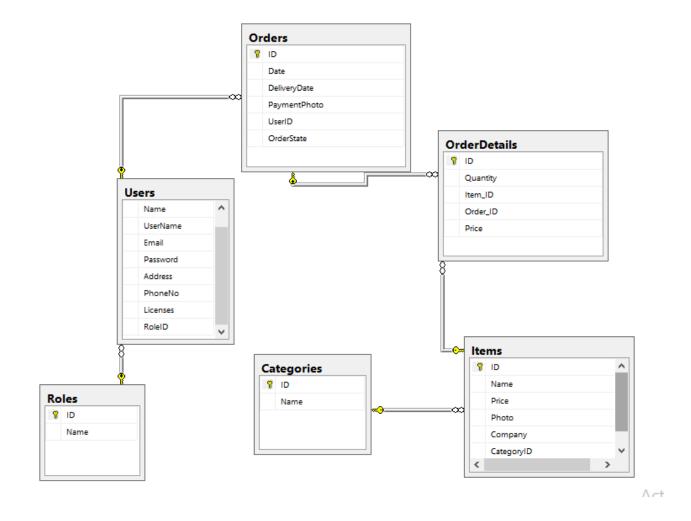


Figure 3.5: Database Diagram

### 3.3.3 Details of the Database Tables

Database Tables is to show the details of tables in database and data elements of every table and the data type of it with clear details.

Table 9: User Tables

NO.	Filed Name	Data Type	Description
1.	User_Id	nvarchar (50)	This is the primary key of customer (each user only has unique number)
2.	FullName	nvarchar (50)	This is the full name of user
3.	RoleId	Guid	This is the Role of user
3.	Licenses	nvarchar (50)	This is the licenses of user that must be owned when open its pharmacy
4.	UserName	nvarchar (50)	This is the user name of user that will enter to our website
5.	Password	nvarchar (50)	This is the user password of user that will enter to our website
6.	Email	nvarchar (50)	This is the email of user
7.	Address	nvarchar (50)	This is the address of user
8.	PhoneNumber	int	This is the phone number of users

Table 10: Category Tables

NO.	Filed Name	Data Type	Description
1.	Category_Id	nvarchar (5)	This is the primary key of category) each category only number) has unique
2.	Name	nvarchar (50)	This is the category name of items

Table 11: Items Tables

NO.	Filed Name	Data Type	Description
1.	Item_Id	nvarchar (5)	This is the primary key of item (each item only has unique number)
2.	ItemeName	nvarchar (50)	This is the name of item
3.	ItemPrice	double	This is the final price of item
4.	Company	nvarchar (50)	This is the category name of items
5.	Category_Id	nvarchar (5)	This is the primary key of category table (it called foreign key and this shows the relationship between item and category tables
6.	ItemPhoto	nvarchar (50)	This is the picture of item

Table 12: Order Tables

NO.	Filed Name	Data Type	Description
1.	Order_Id	nvarchar (5)	This is the primary key of order (each order only has unique number)
2.	Date	datetime	This is the date and time of order
3.	Order_approval	bit	This is the approval that do by admin
4.	payment_photo	nvarchar (50)	This is the picture of payment process (transfer or deposit)
5.	DeliveryData	nvarchar (50)	This is the data of the delivery
6.	is_done	bit	This is the receipt confirmation by customer
7.	Customer_Id	nvarchar (5)	This is the primary key of customer table (it called foreign key and this shows the relationship between order and customer tables)

Table 13: Order Details Tables

NO.	Filed Name	Data Type	Description
1.	Id	nvarchar (5)	This is the primary key of order detail (each order detail only has unique number)
2.	Order_Id	nvarchar (5)	This is the primary key of order table (it called foreign key and this shows the relationship between order and item tables)
3.	Item_Id	nvarchar (5)	. This is the primary key of order table (it called foreign key and this shows the relationship between item and order tables)
4.	Quantity	int	This is the quantity of items that customer needs them.
5.	Discount	nvarchar (50)	This is the discount on price of item
6.	Price	double	This is the final price of item

## Chapter 4

**Implementation & Findings** 

#### 4.1 Introduction:

The Translate of design that have the thing that is Implementation of it from the final project from the specification of where the project is run and need and the development tool and langue that is used to findings and the job is complete and consider and compare between the analysis and design for objectives and result.

#### **4.2 Hardware and Software Specifications:**

The hardware is specific on used internet connection by laptop or desktop devises or smart phone the point is can access internet also about software in any platform must be have browser at it to open website.

#### 4.3 Development Tools and Languages:

- C# language using Asp.Net Framework.
- Html, CSS and java script
- SQL database
- Visual Studio 2019
- SQL Server 2017
- Adobe XD

#### 4.4 Interfaces:

### - Admin Dashboard Page:

In this page the admin or employee have full control and see the statistics of our system, and can see the Users is registered and manage it and items for add new items and edit and categories for mange it and orders to ,ack acceptable of it.

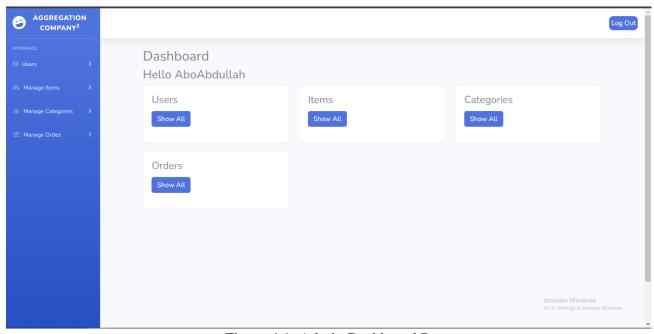


Figure 4.1: Admin Dashboard Page

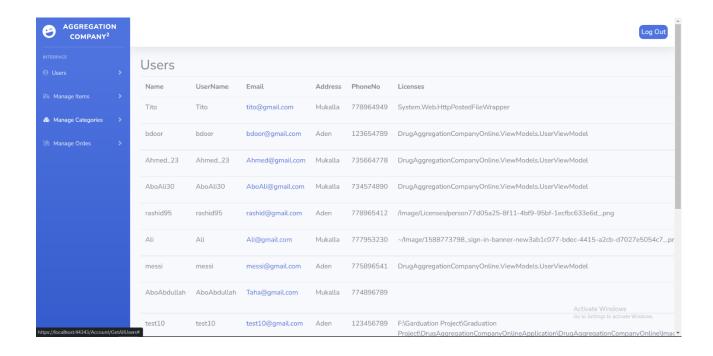


Figure 4.2: Admin User page

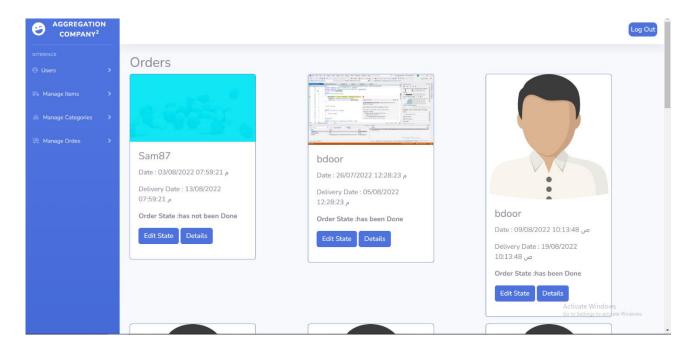


Figure 4.3: Admin Orders Page

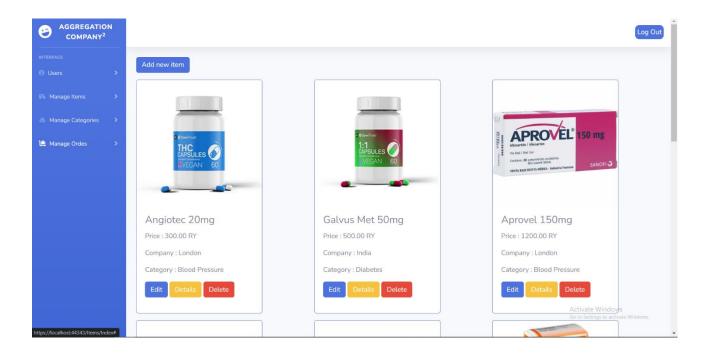


Figure 4.4: Admin Item Page



Figure 4.5: Admin Add Item Page

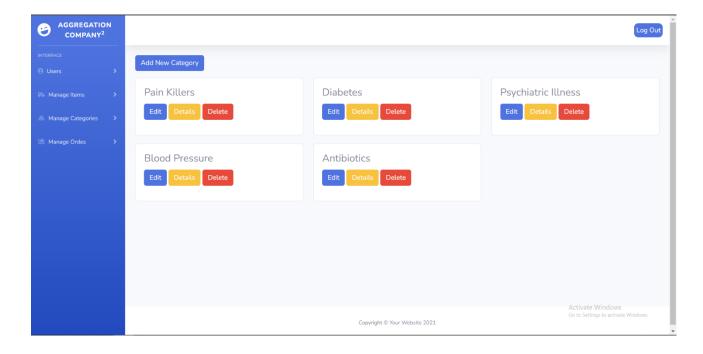


Figure 4.6: Admin Category Page

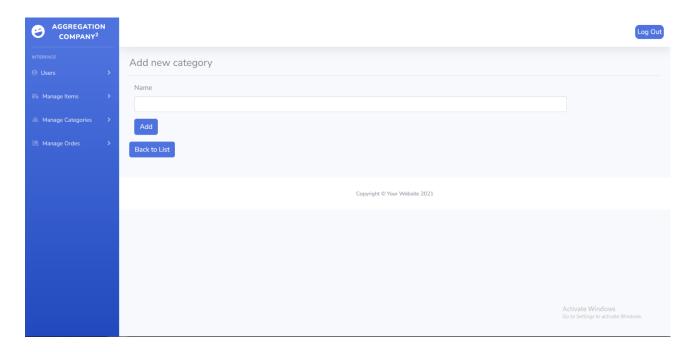


Figure 4.7: Admin Add Category Page

### - Registration & Login Page:

The registering page for be a new user in the system but they some role of that and the login page with username and password that made it.

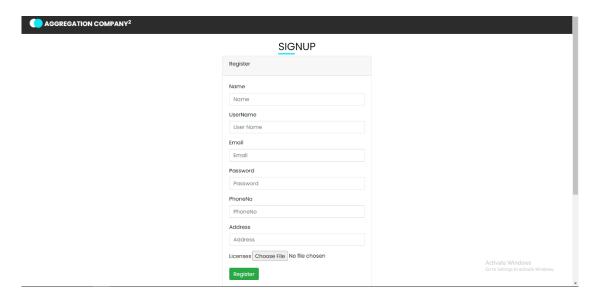


Figure 4.8: Registration Page

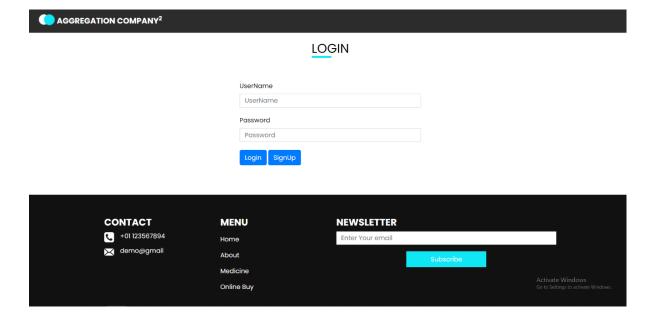


Figure 4.9: Log in Page

## - Home Page

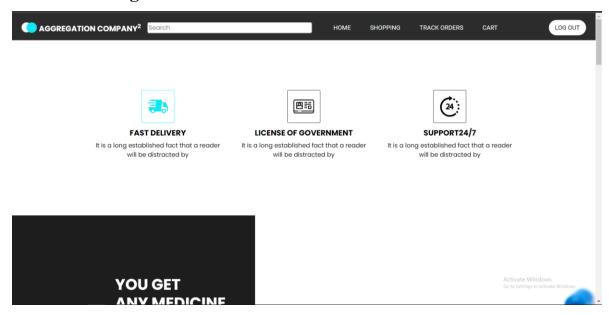


Figure 4.10: Home Page

### - Item Details

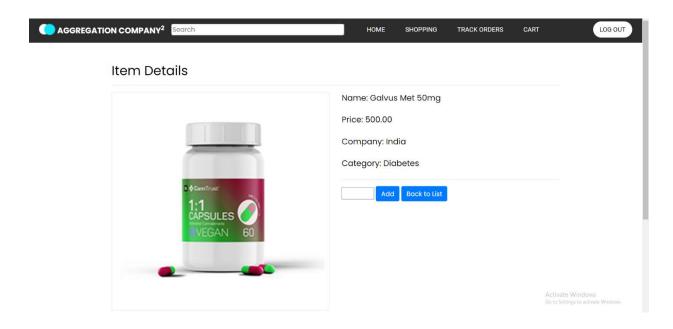


Figure 4.11: Item Details Page

## - Cart Page

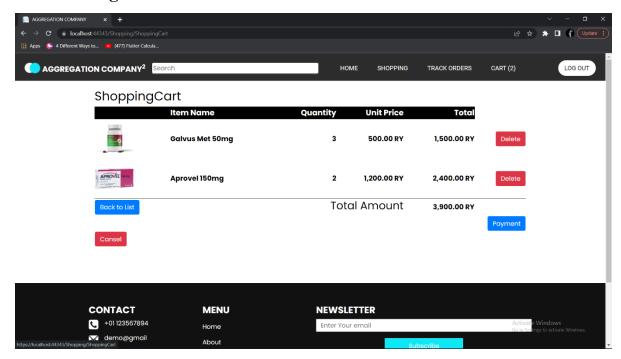


Figure 4.12: Cart Page

## - Shopping Page

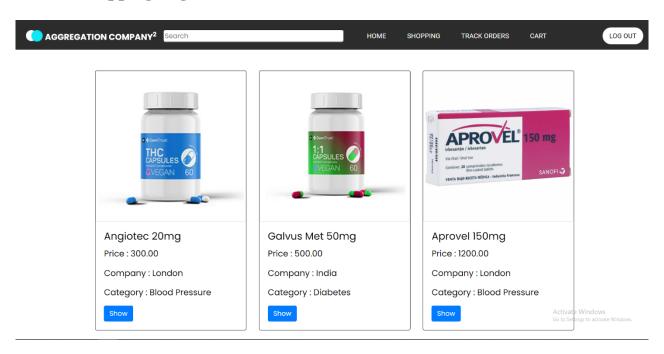


Figure 4.13: Shopping Page

## - Track Order Page:

The have details of order and the all order by the date that is apply and the deliverable data they will be done and the state is change to done is be successful.

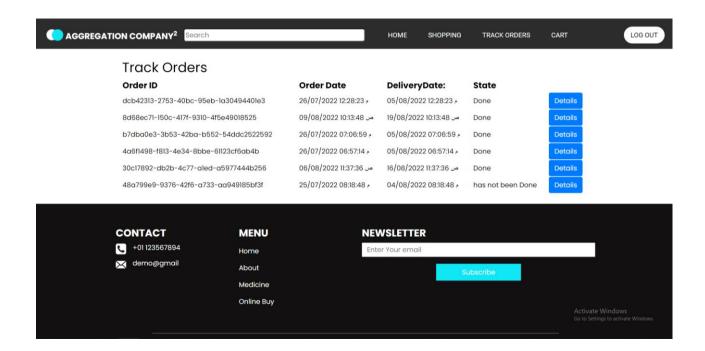


Figure 4.14: Track Order Page

# Chapter 5

**Conclusion & Future Work** 

#### **5.1Introduction:**

The system is having more one step to be development and the conclusion of the system begin of what the objective that is hope to reach of it and the methodology of project is used and interconnecting of how objective into what extent is achieved and the result that we reached and the suggest solution future work for the system.

#### **5.2Conclusion:**

In our project, we focused on a set of goals to achieve them the main goal of our project is to develop a website for Assemble Companies that will be used by them to promote their products and to manage their work online, and other goals like Recording daily operation such as (Invoices (Sales – Order), The ability of tracking the orders by the customers to keep tracking about their orders whether if it's delivered or not. Launch an online store to promote the products of the company, Grow the company's community by targeting online customers.

#### **5.3Future Work:**

- Develop a mobile application version of the same system.
- Adding inventory brushing features.
- Financial and extra report features will be developed.

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