U-STYLE: Customized Shopping Website

Senior Project

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DEDICATION

We dedicate our project to our families, our doctors and everyone who cooperated with us to achieve this work.

ACKNOWLEDGMENT

ABSTRACT

Spending hours to search for a certain shirt is undesirable. U-Style is a men clothes website that serves both complexity and simplicity in this domain. Complexity is represented in the user interface with the large amount of stickers to create any design from, in addition to the several detailed options about the shirt that will arrive at the customer's door, where there's no need to go outside and search with a low probability to find what can be done in few moments. Simplicity is also a key for the customer's satisfaction, however the process is easy: register an account, drag a design, order it and track the order. The admin's interface is a group of coworkers that manage to manufacture and deliver the order with the help of subadmins and supervisors who work on reducing anomalies.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1
INTRODUCTION

1.1 Background

Normally, people were used to do their own shopping by going to specific stores, taking a look, and choosing what they prefer to wear. Online shopping came as an alternative for normal shopping, where people started choosing clothes through online pages and getting it by delivery. However, there is always a place for mistakes in sizes or similar issues, so the customer isn't always satisfied. From this manner, people were categorized in two different groups; the ones who kept on normal shopping and others who preferred the new alternative. Lately, COVID-19 was the cause for many regulations and laws to be enforced in almost all countries. These regulations came in line with the lockdown, which prevented people from going outside. In this case, even the ones who prefer normal shopping and tend to get their clothes by themselves, became obliged to refer to online shopping. Therefore, in such a situation, people will care much for what they will get from the delivery service, since they're not able to buy by themselves.

The idea of the website came not only to provide people with their needs, but also to satisfy them to avoid any small detail that leads to rejection. In other words, people will be allowed to customize their own design for their clothes in all details. So, on the contrary of the typical online shopping, people will have the ability to create their own t-shirt instead of being obliged with the offered and ready clothes. This step will help in meeting customers' needs and providing them a lasting impression. Furthermore, this process will boost the customer's creativity when designing his or her own clothes. The whole operation is so simple, and the most important it is an inexpensive marketing process. This would be considered as a factor that triggers the customers to use the website. So basically, people

won't feel worried whether they'll get what they ordered or not. This website will be the platform for people to customize their own design and include every single detail they prefer in it, so literally people will get what they ordered. This new theme of online shopping will provide customers with a variety of options to have a satisfying end result.

1.2   Problem Statement

It's obvious nowadays that every kind of projects has to meet the daily changes in our life, concerning technology, lifestyles or any environment that people are interacting with. From this point, the website's topology is designed to ease the process for every customer, hence, there will be a free chance to choose or design his own shirt at his convenience, without being forced to visit a certain shop where there is risk of wasting time, or even not finding what he planned for. Moreover, the delivery of the order is rapid, as the customer will receive his request in less than a week with a high quality. Furthermore, Covid-19 has been a daily crisis that is preventing people from getting their needs by themselves, or even going outside [1]. So, our website avoids the mingling of people by providing them with what they desire without the need to go outside.

1.3   General Overview of the Project

In this website, and at the intro page that is designed with attractive information, the customer is urged to create his own account, by entering his personal information that is distinguished by a unique username. Moreover, there exists an admin account that has the ability to create sub-admin, supervisor, delivery and factory accounts.

Concerning the ordering process, the customer should login with his username and password, as he'll be taken to another page to start customizing and designing his own shirt, where he has the choice to choose between different types of shirts, sizes and several types of stickers to add. The customer can view and edit his account details, moreover, order his customized shirt simply by confirming his order. This order in common, is sent to the factory that is going to manufacture all orders with a quality and time that suits every customer. When the t-shirt is ready, the manufacturer knowledges the delivery man, by confirming the order from his own account. In the same manner, the delivery man also confirms that he has delivered the order. However, all reports, comments, orders, are viewed by the admin.

1.4   Report Outline

In fact, there exist many types of websites with such similar idea, so our next chapter will discuss the different methods used in every project, as it will be compared to this website to indicate the benefits and the new topology used. Later, we'll represent the architecture of the website, by mentioning the different designs used, its credentials and requirements. Then, a simulation is processed to identify risks or errors that may occur to overcome it, as we'll state the different tools used, with the implementation of a case study of the project. Finally, we'll draw down a final conclusion, and spectate the different usages of the website in the future.

CHAPTER 2
SURVEY OF EXISTING METHODS AND SIMILAR SYSTEMS

2.1   Introduction

In this chapter and after researching, we are going to state three different methods with our same topic that are used. These methods are websites found in Lebanon where each has its own criteria, unique design, and several choices for the customer to rely on while purchasing. We tend to discuss every website's main details, and then list its advantages and disadvantages. Later, we'll draw conclusions about these methods, and specify our plan in our website to overcome the unsolved problems.

2.2   H-shirt.com

The website "H-shirt.com", contains a group of different shirt designs and accessories. The customer can sign up or start shopping by searching with a limited number of designs. Moreover, he can create his own design by explaining his choice in a comment or upload a similar file of his request, followed by inserting personal info to complete the order. All orders are added to a cart with the ability to discard unwanted material. Also, the customer has the option to pay in dollars or Lebanese lira.
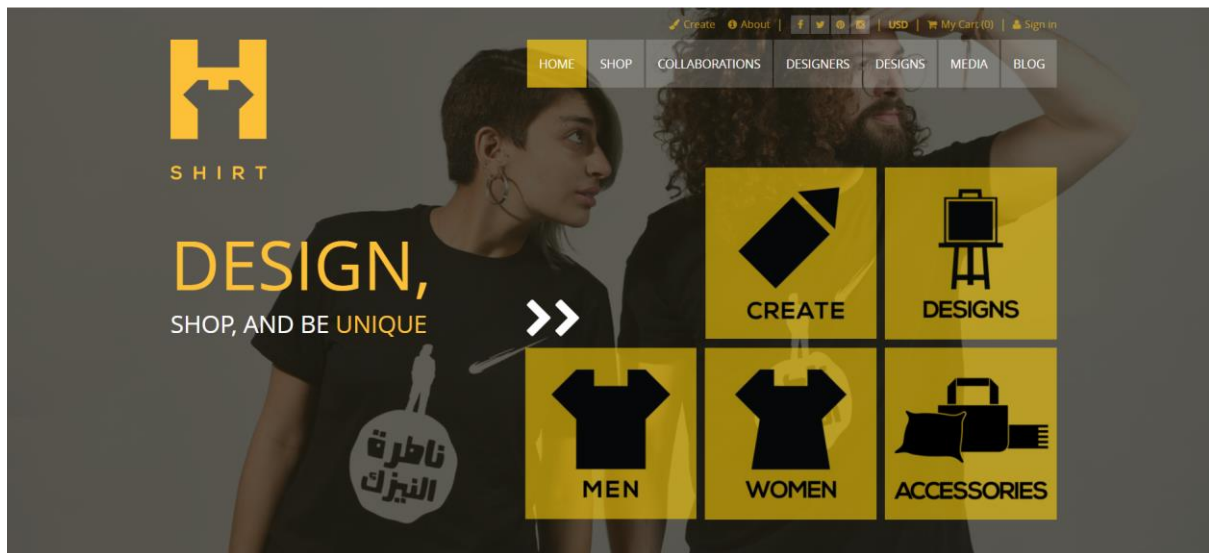
Figure 2-1: H-shirt website [2]

2.3 Printplus.me

The website "printplus.me", with a larger quantity of categories for the customer to choose from, has also a registration system where the user can't purchase unless he signs up. Concerning the shirts side, there exists a number of customized shirts of all categories and types. Also, there are some colors as an option to be chosen by the customer. All orders are placed in a cart, and payments are only in LBP. The website offers a free delivery for orders that cost 100k LBP and above.

Figure 2-2: Printplus website [3]

2.4 Spreadshirt.com

The website "spreadshirt.com", is mostly featured by a huge variety of t-shirts with different categories, in addition to the gifts and accessories side. The customer can shop and choose, or customize his own chosen shirt with the ability to write a text, to choose stickers, or to specify the size that fits him. Moreover, the customer can upload a custom photo or design that is not found on the site to add. The ordering process is done by adding to a cart, also the customer can create his own account and save more designs.
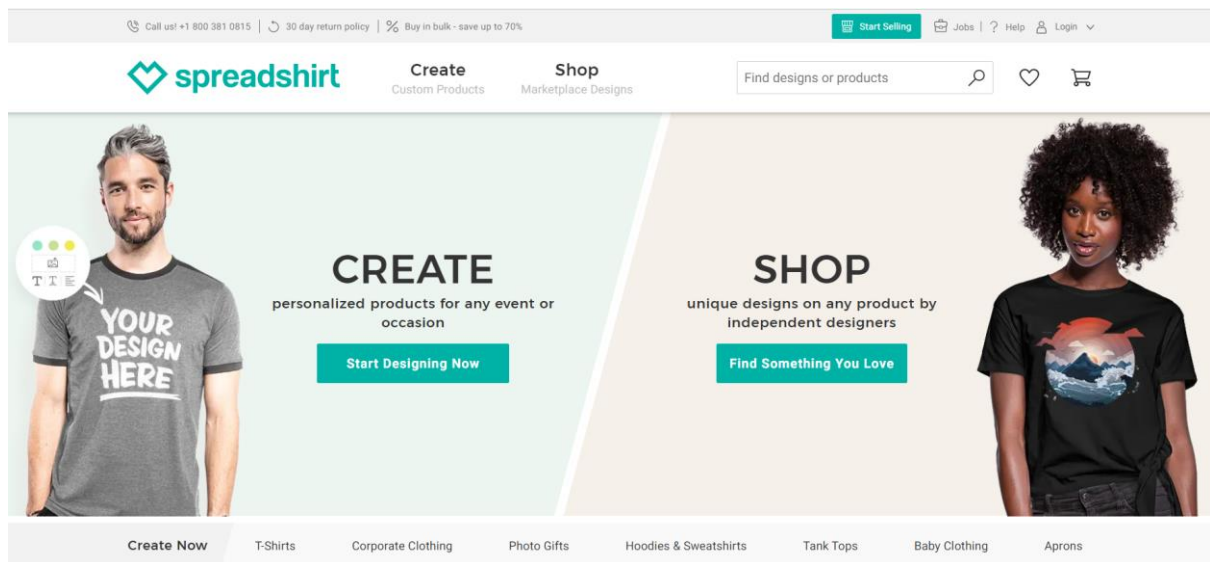

Figure 2-3: Spreadshirt website [4]

Method	Advantages	Disadvantages
H-shirt.com	Attractive and easy process for the customer to purchase.	The customer doesn't have the option to design by himself.
Printplus.me	The customer has more options with more categories to choose from.	There is only the option to choose from already customized shirts.
Spreadshirt.com	Detailed customizing process.	Unstable quality of the delivered material

Table 1-2: Comparison table

2.5 Conclusion and Motivation

The idea behind such a project is to provide a comfortable and developed online shopping through a website which has some special features. This concept is found and applied in Lebanon through different websites. In the previous part, we discussed 3 different methods that use a similar idea of our website. The whole 3 methods are done through signing up online and adding your orders into a cart then delivering it. However, each method is specified by its own purchase process, the features that it provides, and the way of paying. Despite the fact that these methods hold the same idea, each one is still differentiated in the way it works. The first method, "H-shirt.com" website, provides the option of choosing your own design through typing a comment or uploading a picture which shows your request. The second method, "printplus.me" website, allows the customer to choose his preferred type and color of a shirt from a wide available collection. However, these shirts are already designed, so the customer doesn't have the option of customizing his own order, and the payment is limited with a specific currency (Lebanese Lira). The third method, "spreadshirt.com"

website, provides the customer with a variety of t-shirts categories and he has the choice of shopping his order or customizing a shirt and adding new changes to it.

Our website came to compensate for the deficiencies in the previous explained methods, and as a remedy for the unsolved problems in this type of online shopping. Through this step, people will be provided with a new theme of online shopping which has every important feature that provides the customer with a successful purchase process and a feeling of satisfaction. As we'll be dealing with one of the best factories that serves a great quality for the customer, moreover, there will be a vast quantity of options that the customer may choose since it's dedicated only with the different types of t-shirts. In addition, the customer will have the option to return his order with a small delivery charge, as the item will be placed in the website shop.

CHAPTER 3
SYSTEM DESIGN

3.1   Introduction

In this chapter we are going to describe the system design by implementing charts, diagrams and tables that show the different requirements and analysis of the website, and the overall process of interfacing. Moreover, we'll specify the website's risks and its effect against our society whether on the users, or every worker in this field. It also includes the scope about the project and the architecture of the website and its database.

3.2 Requirements and Specification Analysis

This use-case below shows the different roles/abilities of every user in the website concerning the customer, the admin or his workers.
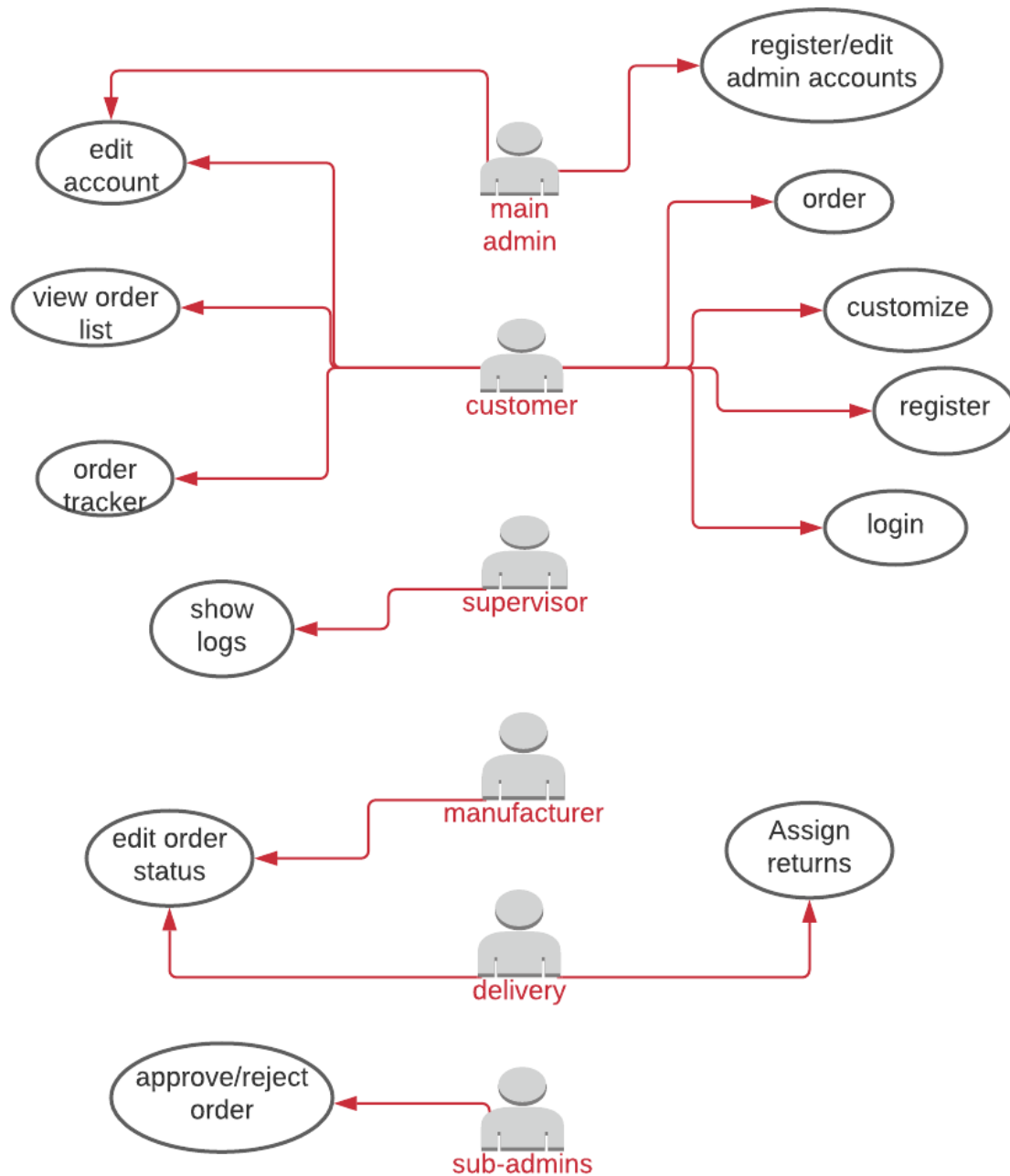

Figure 3-1: Use case diagram

3.3 Financial Viability

Compared to different projects, designing and implementing this website is basically free. However, if the user decided to share it online, he would need to rent a host for it. That could cost anywhere between 80-600 per year [5].

3.4 Project Management Aspects

We are going to deal with the user-interface that will be on two phases, the customer-server side and the admin-server side. Concerning the website's design, it will be also of two phases, the customer design and admin design. The database is designed before interface, and testing is done when needed. The below Gantt chart represents the different periods for every process.

	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15
Interface				■	■	■	■	■	■	■	■	■	■		
Customer-server side				■	■	■	■	■	■	■	■				
Admin-server side							■	■	■	■	■	■	■	■	
Design		■	■	■	■	■	■	■	■	■	■				
Customer design		■	■	■	■										
Admin design						■	■	■	■	■	■				
Database			■	■											
Testing		■	■	■	■	■		■	■	■	■	■	■	■	

Table 2-3: Gantt chart

3.4.1 Stakeholders

It's clear that this kind of websites would attract different age groups but specifically adults and teenagers. In the same hand, such process needs factories to produce these shirts which reinforces its working activity.

Although it has advantages, but most of the cloth stores are affected negatively. The customer will be satisfied to order at home and not attending shops, moreover, customizing his own shirt at his convenience.

3.4.2 Scope

This website is built locally in Lebanon and not worldwide, it contains several and different types of men t-shirt's customization with the option to return it for a small refund. The payment options are on-delivery (no visa card), and there will not be accessories or other types of products. Customer's feedback is prevented due to the option of returning the product.

3.4.3 Risks

With all the advantages mentioned, we may mention some risks that may affect our website's goal. But these risks are at a low percentage. However, the factory may face some problems while finishing a certain order which distracts the rapid delivery status. On the other hand, the website should get populated in a short time to avoid financial losses.

3.5 Ethical and Social Considerations

Considering our daily aspects in Lebanon, and with every profit from our website, an amount of 10% is sent to certain organizations that take care of disabled or orphans.

3.6 Environmental and Sustainability Considerations

From another perspective, our website has no environmental impact. It helps customers to enhance their creativity while designing.

3.7 System Architecture

Request-Response protocol is running between the client server and the web server passing by the internet gateway. The ordered request sent by the URL gets all info needed from the database with an access to the different web-pages.
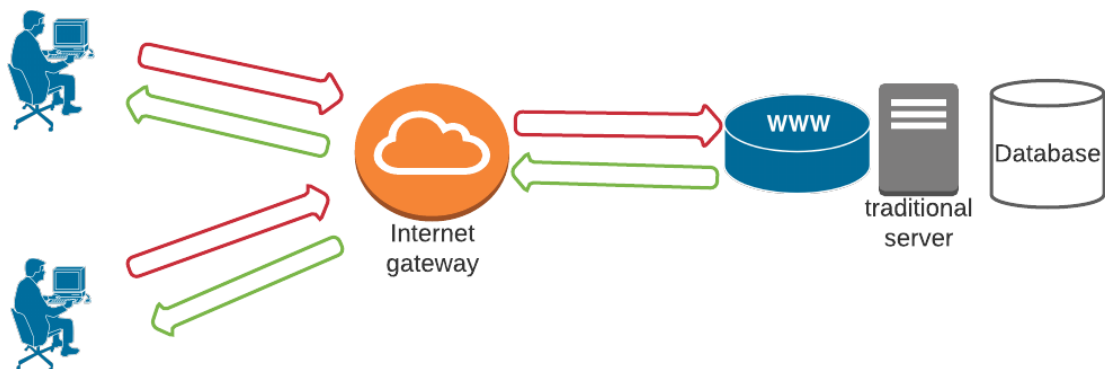

Figure 3-2: System architecture.

3.8 Relevant Standards

WiFi is the main standard used in this website to connect the customer to the server side and attain his order, moreover, the connection between the admin and his workers.

3.9   Page Transition Diagram

The website starts by the firstweb page that prompts the user to enter login page where he can register an account. There exists and admin account that is able to create accounts for subadmins, supervisor, delivery men, and manufacturer. After the customer logs in, he is directed to the main webpage to start the ordering process.
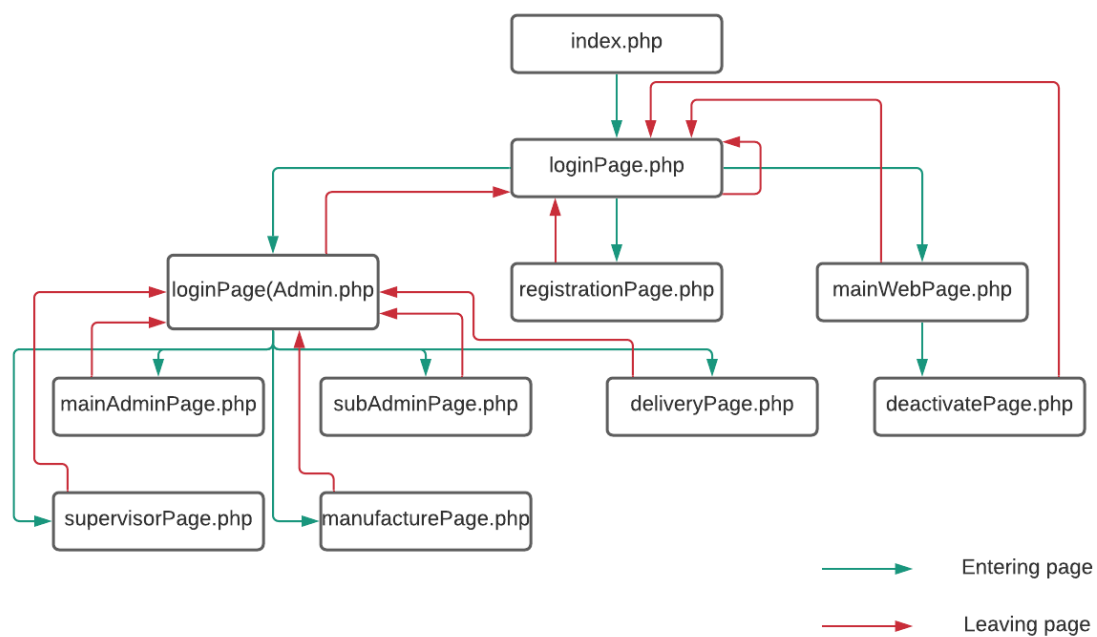

Figure 3-3: Page transition diagram.

3.10 ER Diagram

The database consists of 6 tables connected (one to many) accordingly. The table "customer" is the user information, the "order" table for the specification of every order. It is linked to the table "products" by another table "orderproducts" that contains the primary key from both tables to allow more products in one order. The table "admin" with the information of the admin specified by his position, having access to the table logs that contains the daily progress.
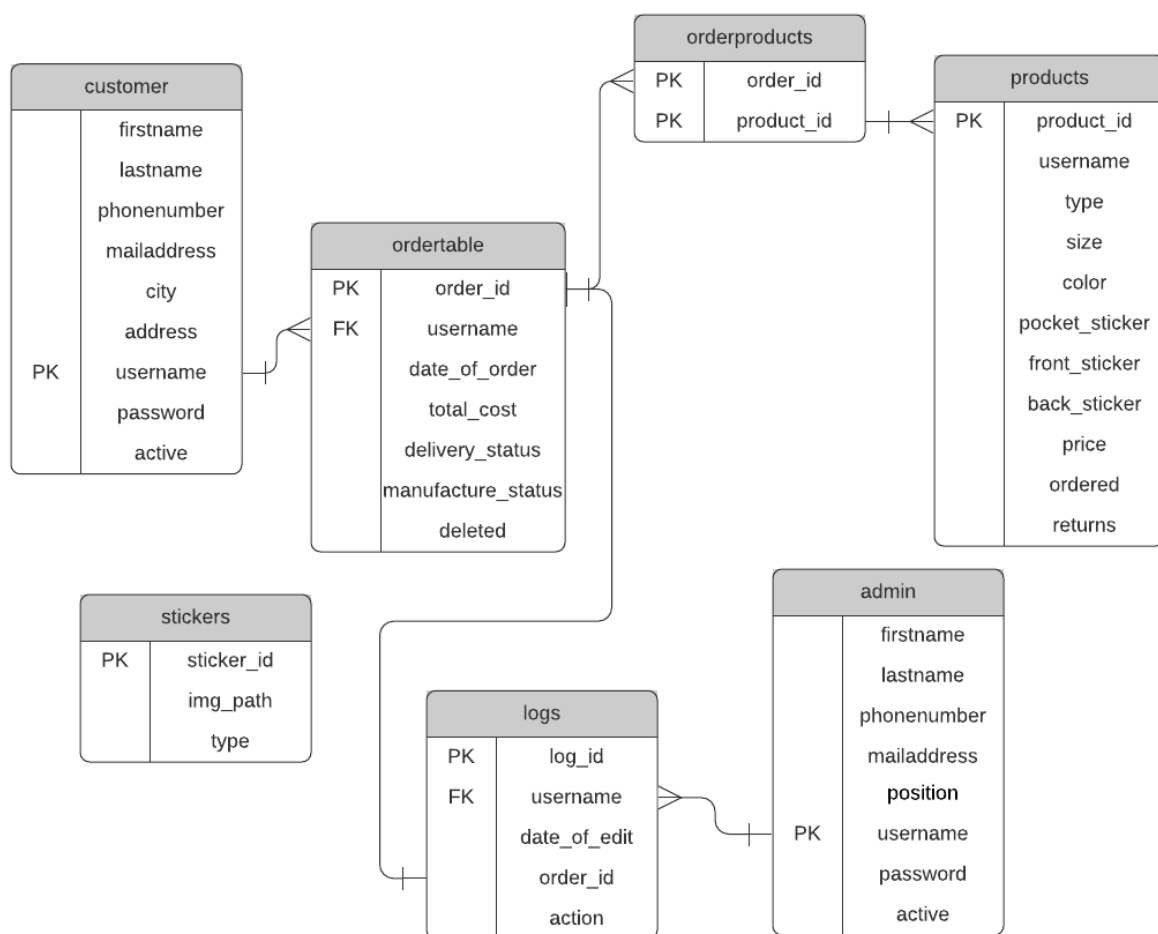

Figure 3-4: E/R diagram.

15

3.11 Conclusion

In this website every user is differentiated by his ability to access the features in the site. Giving example about the main admin who controls all his sub-admin accounts, while the delivery man edits orders and checks returns. And to shed the light on the project management aspect, the lifetime of the whole process is estimated for about 220 hours. On the other hand, the system architecture works on a main protocol which serves the request-response side between the user and the server, that enables the connection between customers and the different web pages, to complete the shirt ordering. This interface creates a positive environment despite the fact that it may affect some shops economically.

CHAPTER 4
IMPLEMENTATION/SIMULATION AND TESTING

4.1   Introduction

After presenting the thoughts, outlines and schemes behind this website, it is time to show the implementation process and testing that enhanced the completion of this project. In this chapter, the different used tools for implementation and finalization of this website, will be presented followed by their test cases and their acceptance criteria, and ending up with a conclusion to sum the work up.

4.2   Implementation Tools

The implementation tools used for this website are the following:

1. Visual studio code: it is a code editor used for debugging and building modern websites and different cloud applications [6].

2. Web (local hosting): Wamp server, it is a software package used to ensure the running web programs and developing it either linked to the internet or a local network.

3. Web hosting: 000webhost.com, it allows to experiment, code, and create a site without spending [7].

4. Framework: Bootstrap: it's a CSS framework used to develop responsive websites [8].

5. Server-side: PHP: it's a scripting language used to develop websites.

6. JavaScript: used Ajax to communicate with the backend (PHP and database) without refreshing or reloading the webpage. To use it we should link jQeury to our project.

7. Debugging: Chrome, "launch.json"

8. Database: MySQL: Structure query language, includes data warehousing and mostly used for a web database [9].

9. Basic: Html, css: to create webpages and design their layouts.

10. Report tools: Lucidchart: to create diagrams and flowcharts [10].

11. Basic tools:

    1. Notepad++.

    2. Google site: to find and download stickers and pictures.

4.3 Implementation Summary

Here we are going to describe the implementations of the website. As mentioned before, the website is formed of two sections, the customer and the admin interfaces. We'll pass by every process through each section.

4.3.1 Customer Interface

The website starts with an opening page that introduces the customer to some information about the topic and the main concept behind the project, and it urges him to start designing by clicking a button to move to the next page.

Figure 4-1: Index.php

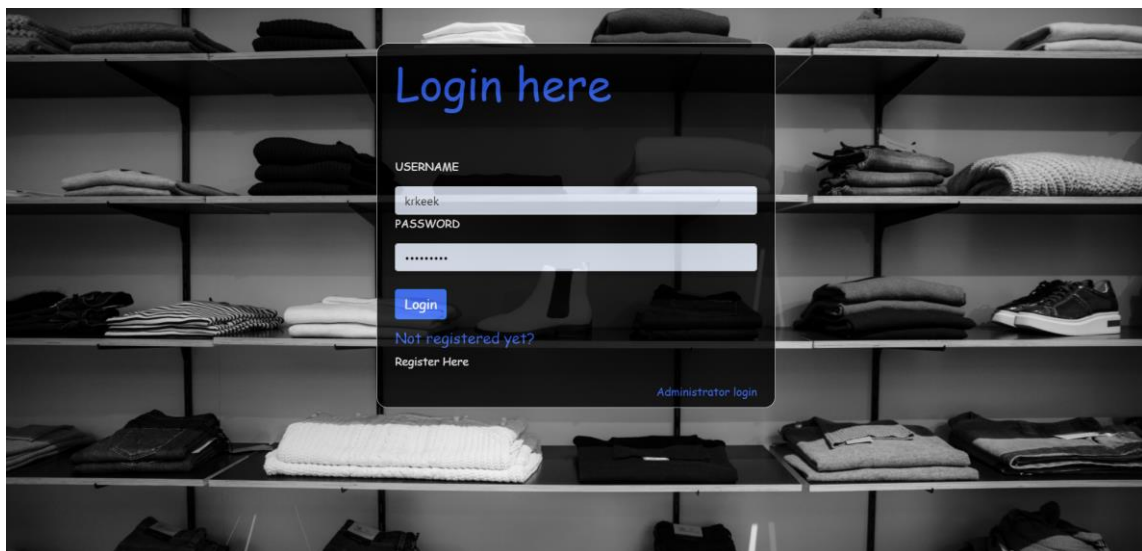After clicking the button, the customer is ready to login or register his new account.

Figure 4-2: LoginPage.php

Figure 4-3: RegistrationPage.php

The customer is now able to start designing and choosing his own type of shirt and apply his custom details on it.

Figure 4-4: MainWebpage.php#design

The ordered products can be tracked and viewed by the customer to get an approval from the

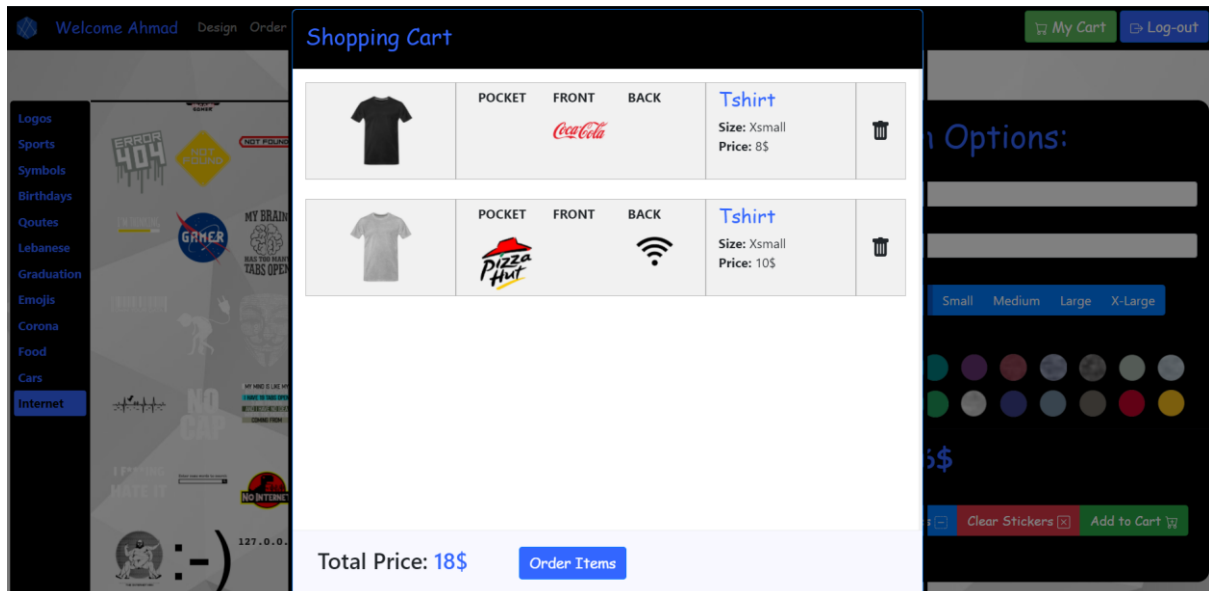subadmin, and to know the manufacturer and delivery status.
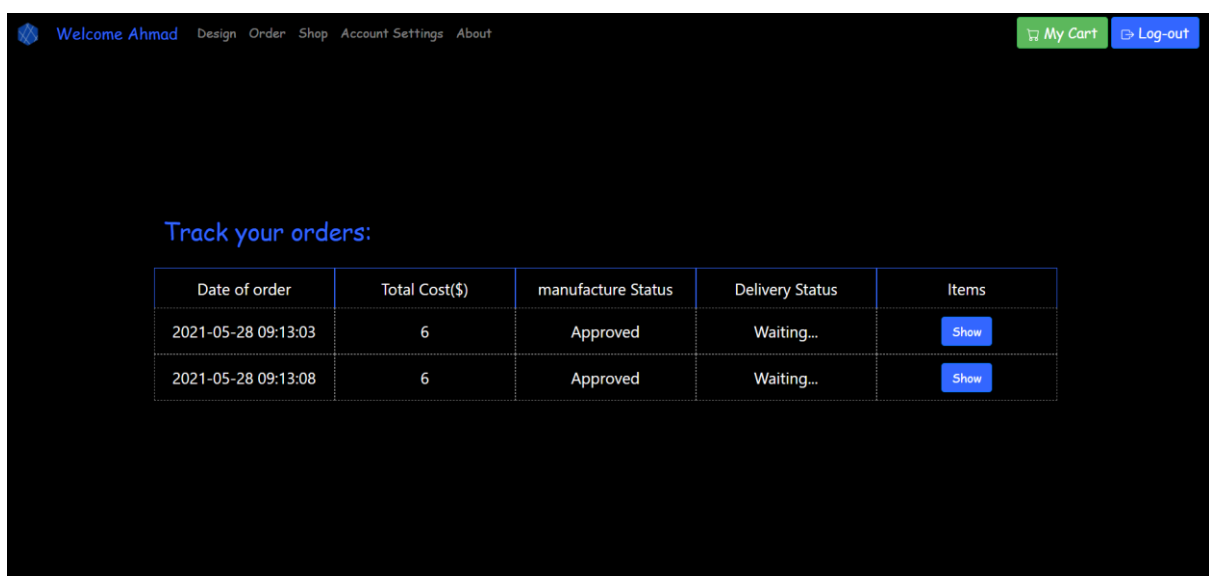

Figure 4-5: Ordering

Figure 4-6: MainWebpage.php#orders

Any returned product by the delivery-man from the customer are placed in the shop as "returns", where any other customer can view the product with the ability to order it as an already customized product.
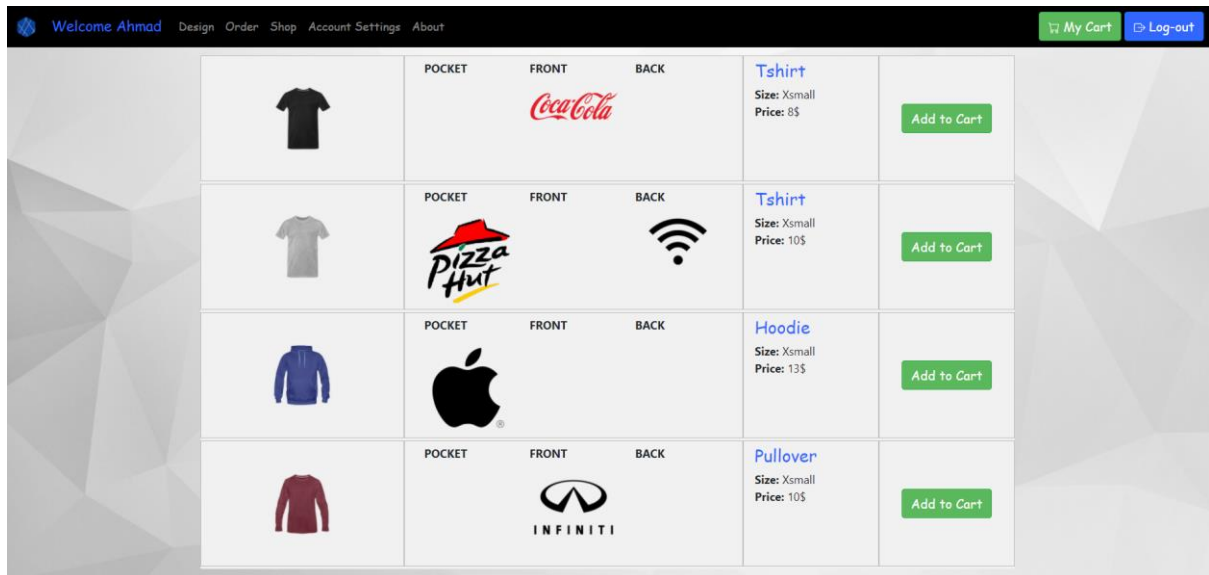

Figure 4-7: MainWebpage.php#returns

Any account is open to be managed by the customer, to edit, deactivate or add more info.
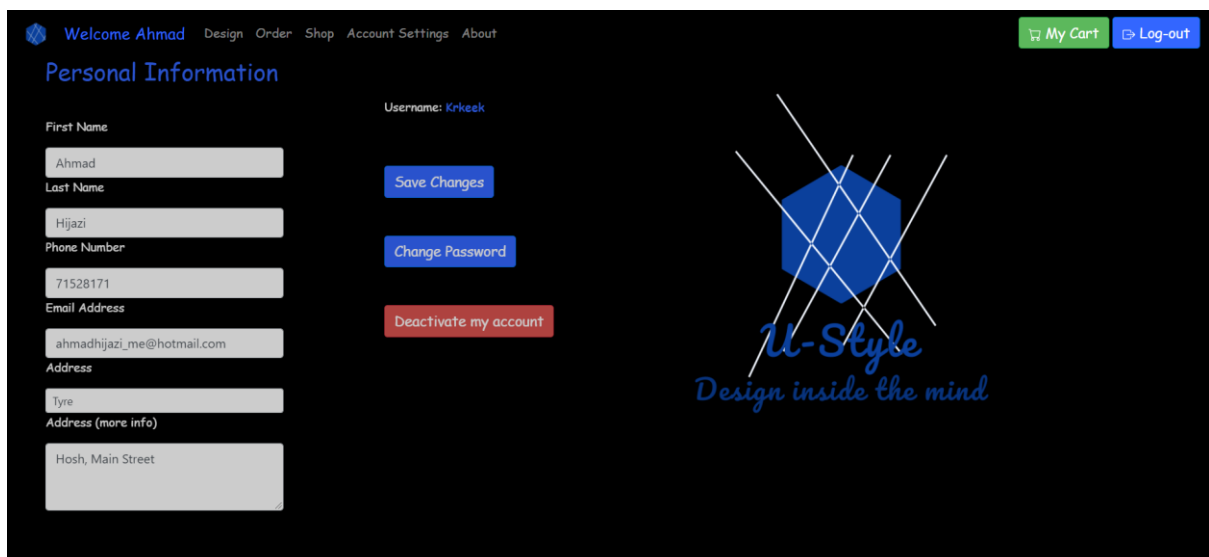

Figure 4-8: MainWebpage.php#accountSettings

22

4.3.2 Admin Interface

Main admin:

There exists an admin account, the admin has his own login page to enter his field.
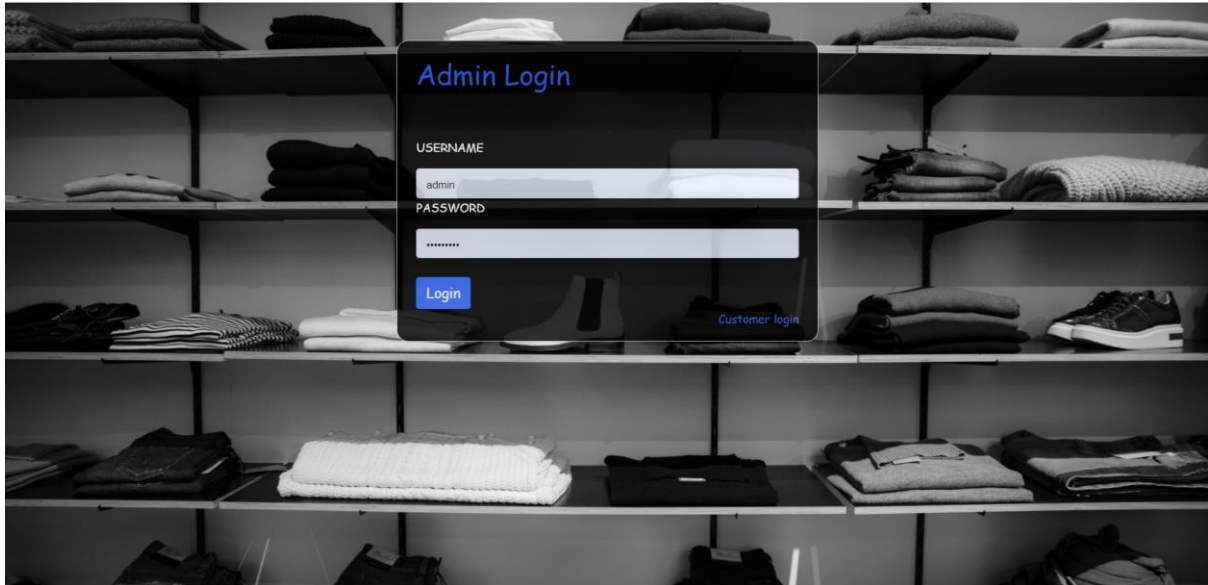

Figure 4-9: LoginPge(Admin).php

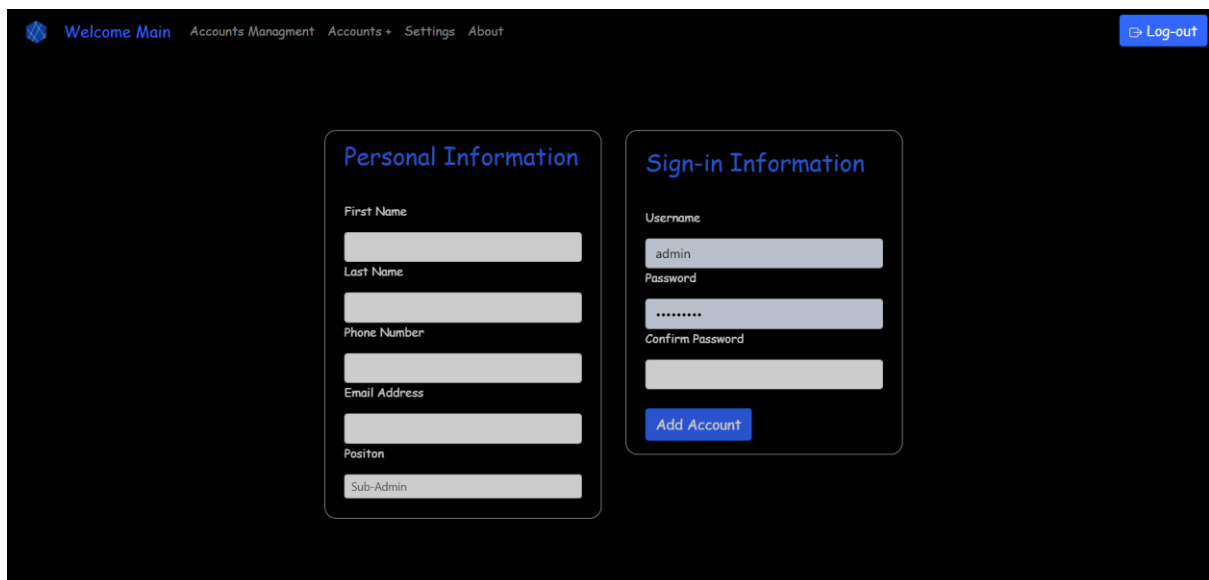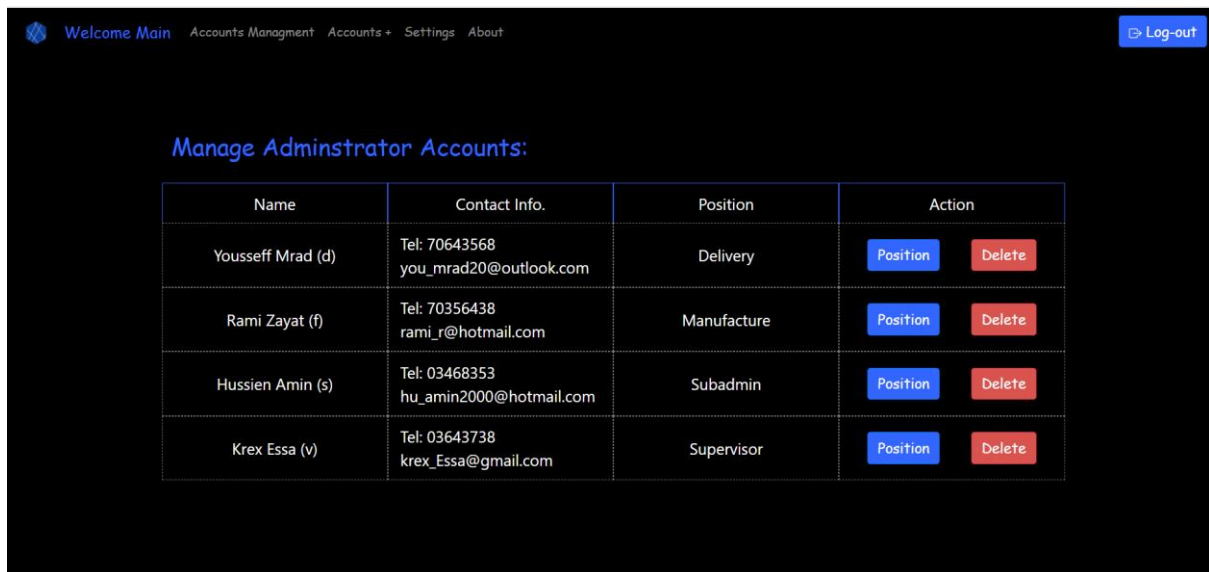The admin can create and add more accounts like subadmin, supervisor, manufacturer, delivery-man, etc.

Figure 4-10: MainAdminPage.php#addAccount
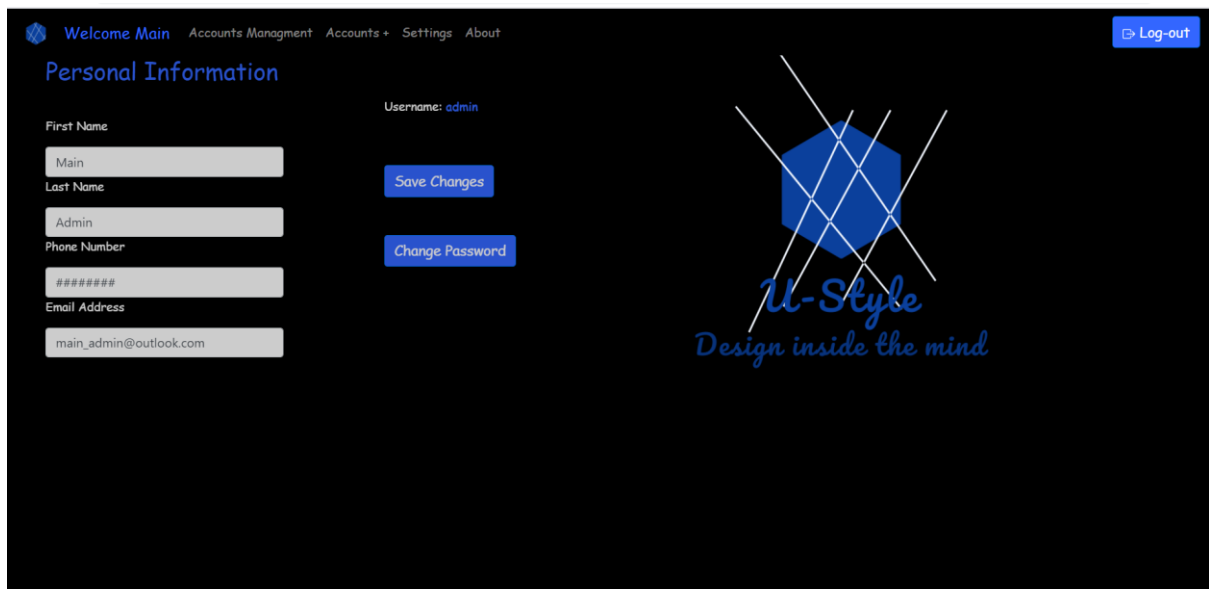
These added accounts can be managed by the admin, whether changing their positions or removing it.

Figure 4-11: MainAdminPage.php#accountsManagement

The admin also can edit his own account and update the changes.

Figure 4-12: MainAdminPage.php#accountsSettings

Subadmin:

The subadmin can login with his unique account and his role is to approve or reject the orders according to the number of uncomplete orders by the manufacturer, to prevent congestion. Similarly, he can edit and update changes to his account.
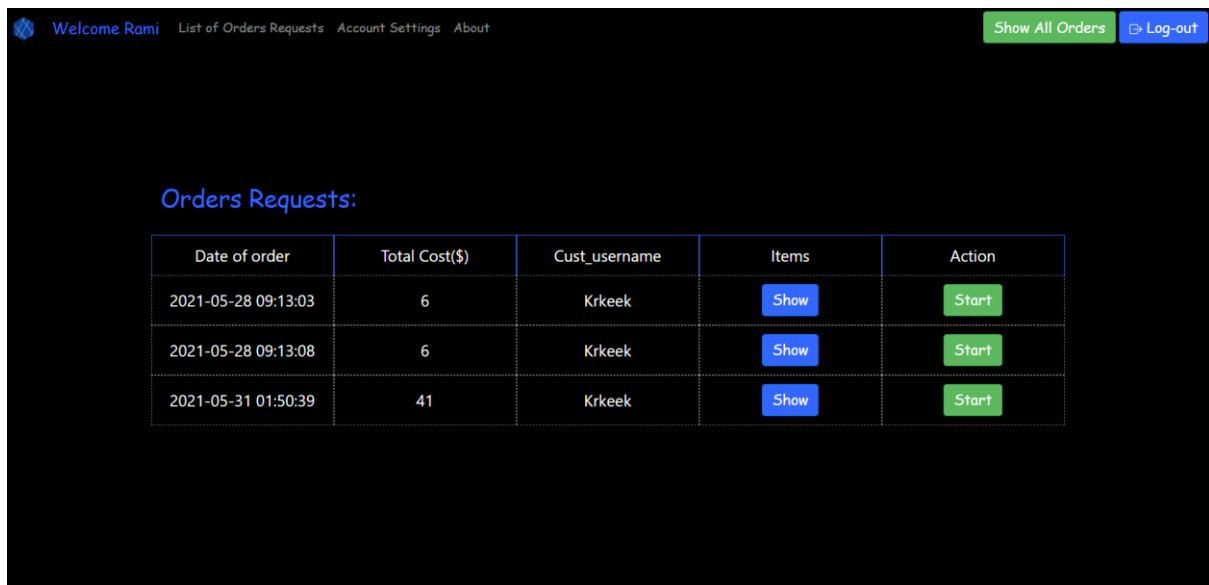
Figure 4-13: SubadminPage.php#pendingOrders

Manufacturer:

All approved orders are started to be designed by the manufacturer (start), also he informs the delivery man when he finishes manufacturing (finished). Similarly, he can edit and update changes to his account.

Figure 4-14: ManufacturePage.php

Delivery-man:

The delivery man gets the number of orders that he can start delivering upon choosing the location, as his role is separated into two parts:

- Delivering the order successfully.

- Check "returned" if the order is returned by the customer as it will be presented in the shop.

Note: He can view the order. Similarly, he can edit and update changes to his account.

26

Figure 4-15: DeliveryPage.php

Supervisor:

The whole process is saved as logs that are filtered by the supervisor to provide any information about any issue. Similarly, he can edit and update changes to his account.
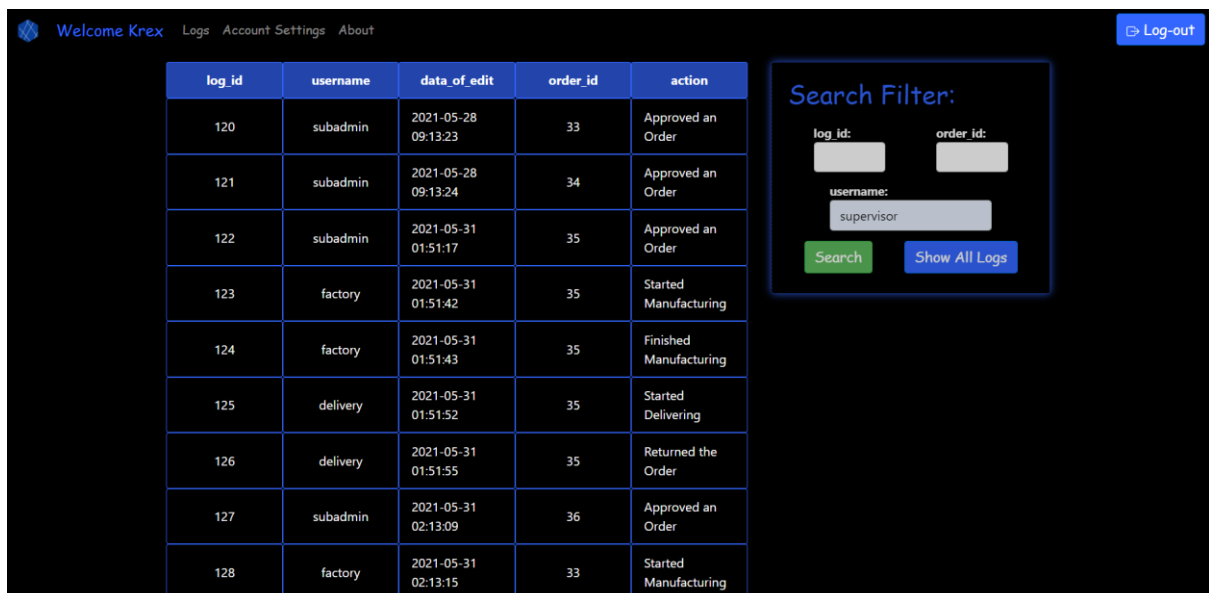
Figure 4-16: SupervisorPage.php#logs

4.4 Test Cases and Acceptance Criteria

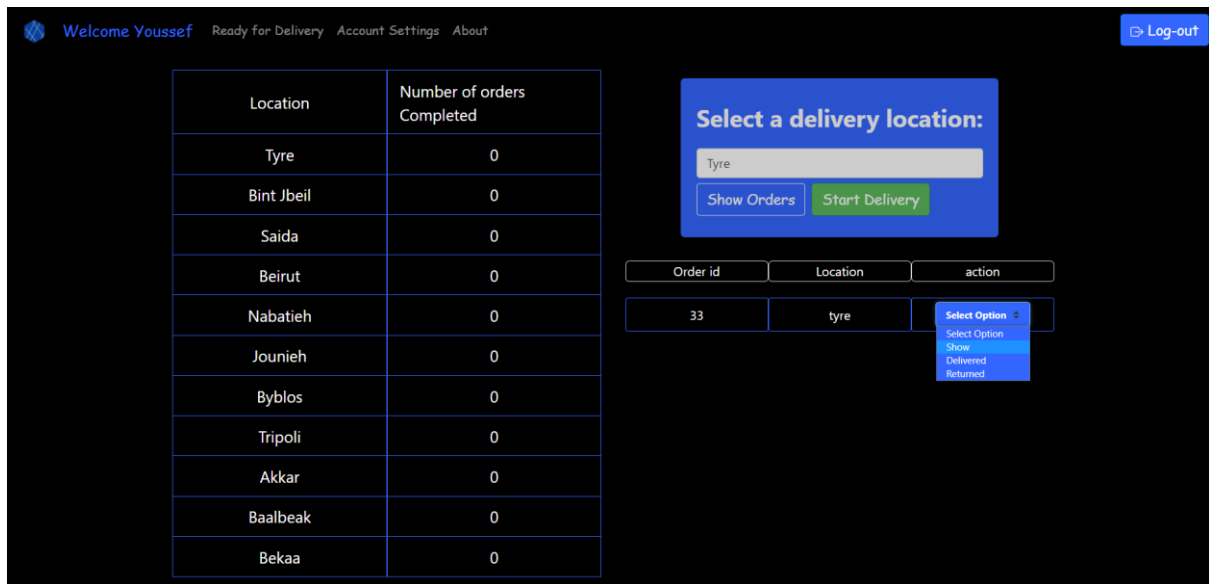There are many test cases that should be considered during the development of any website, so that it ensures the correct and safe flow of information, along with satisfaction of the customer's needs.

In this website, the most important test cases to implement starts by the customer's interface, where he should login or register a new account, then he'll be adding his order to a cart, and then ordering it. This process awaits the approval from the admin's interface where the subadmin whose account is created by the main admin, is obliged to confirm orders and sends an approval to the manufacturer. In return, when the product is done, the manufacturer informs the delivery-man to take the order and hence the process is done. All the information given by the customer or admins are saved in the database as logs where it is filtered by the supervisor.

The tables below shows the mentioned test cases and the acceptance criteria of each in different sections.

4.4.1 Register/Login

For both interfaces, we tested registering and logging in with different accounts.

Action	Insert personal information and create a unique account.
Expected result	Register successfully and login with the account.
Database connectivity	Information added successfully.
Test result	Passed.

Table 3-4: Registration and login

4.4.2 Cart Orders

For the customer, we tested if he's able to order his designed shirt after placing it in the cart.

Action	Add shirts to the cart through a button and order it.
Expected result	Customer can view his orders, able to order it or remove it from cart.
Database connectivity	All orders including added stickers are saved successfully.
Test result	Passed.

Table 4-4: Cart side

4.4.3 Main Admin

For the admin's interface, we start by the main admin whose role is verified.

Action	Add new accounts and change position if necessary or delete it.
Expected result	A new subadmin account created and ready to use. The position is changed according to admin's choice.
Database connectivity	Every added account is saved successfully and the position is updated.
Test result	Passed.

Table 5-4: Main admin role

4.4.4 Subadmin

The subadmin as well, is able to accept the customers' orders and send it to the manufacturer.

Action	Approve/reject orders through two buttons
Expected result	Approved orders are sent to the manufacturer and the rejected ones are removed.
Database connectivity	The order's status is updated accordingly and info is saved.
Test result	Passed.

Table 6-4: Subadmin role

4.4.5 Manufacture

After receiving the order from the subadmin, the manufacturer can start making the order.

Action	Start manufacturing and inform when done
Expected result	Customer can track manufacturing process and the delivery man is informed when done.
Database connectivity	The order's status is updated accordingly and info is saved.(started/finished)
Test result	Passed.

Table 7-4: Manufacturer role

4.4.6 Deliver-Man

Every manufactured order is ready to be delivered, according to the location.

Action	Deliver orders on chosen location and inform about the order status.
Expected result	Customer receives the order or returns it.
Database connectivity	The order's status is updated accordingly and info is saved.
Test result	Passed.

Table 8-4: Delivery-man role

4.4.7 Supervisor

All actions done, are recorded by the supervisor as logs.

Action	Filter logs on the requested attribute.
Expected result	Get all info about the filtered order.
Database connectivity	Retrieving orders as requested is done successfully.
Test result	Passed.

Table 9-4: Supervisor role

4.5 Conclusion

User experience and satisfaction is a must for any kind of websites. For this purpose to be achieved, one must pay attention to small details and perform several tests on the website to be sure that the performance meets the customer's relief in customizing and ordering. Moreover, testing is important in distinguishing missing points and fixing uncomplete coding issues. In this chapter, a summary has been presented about the delicate process of the website's development, along with the implementation tools that serves the completion of the project.

CHAPTER 5
CONCLUSION AND FUTURE WORK

5.1   Conclusion

It is necessary to catch up with our world's development, whether in technology, lifestyles, or any field that attracts people's interest. Also, a person should be eager to knowledge in order to be able to convoy our daily changes, so learning such programming languages and working on this project, is one of the direct ways to participate in fulfilling our point of view.

In this website, our goal was to create an online shop not just to serve the customer's needs, but also to avoid any discomforts that he may face while trying to reach a shop in a certain place, and wondering if he may find his request. Simply, anyone can customize his favorite kind of shirts and receive it directly within days.

For the effort and hard work done in this project, which is a must for knowledge-seeking, and for our society to reach this advancement and prosperity, we would like to shed the light and thank all our instructors and deans for their ambitious career that kept pushing us to the top of this ladder.

5.2   Future Work

Keeping an open mind for updates especially in this project, is important to stay on track. This website can be updated by the developer, upon the request of the owner. And any update will be done on the unsupported points or small fields that were dismissed.

One of the updates can be done on the shop part, where the customer can order already designed shirts returned by others, there would be more types of shirts for different genders (females, kids) instead of just men collection.

On the other hand, the payment method is also updatable, although it is on-delivery payment, some owners may apply online payments that prompts the customer to pay before receiving his order. Simply the customer takes his order with a receipt contacting the details of the payment.

Although this website contains just men t-shirts, there could be another accessories like shoes, pants, etc. This extends its options and features.

All changes or updates are in the same region, which serves a comfortable and satisfied site for the customer.

APPENDIX A:
CD DETAILS

The CD contains a folder named 'VS.SENIOR', it consists of a root file with this respective order:

- CSS:

    - StyleA.css // admin style sheet.

    - StyleC.css // customer's style sheet.

    - StyleT.css //style sheet for both.

- datamanagement:

    - connection.php

    - server.php

    - upload.php

- images:

    - colors

    - cssPhotos

    - shirts

    - stickers

- pages:

  A-pages:

  - deliveryPage.php

  - mainAdminPage.php

  - manufacturePage.php

  - subadminPage.php

  - supervisorPage.php

  C-Pages:

  - deactivatePage.php

  - mainWebPage.php

  Intro_Pages:

  - loginPage.php

  - loginPage(Admin).php

  - registrationPage.php

  Scripts

  - jScriptA.js

  - jScriptC.js

  - jScriptT.js

  index.php

Also an SQL file "outfitcustomizer".

APPENDIX B:
USER MANUAL

This part will show a demo about the user's interface, any customer will have to do the following:

- Register an account with some unique information.

- Login and start designing.

- Drag and drop your favorite stickers to the boxes shown on the shirt.

- Choose the type, size and the color of your shirt.

- Check the price and add your order to the cart.

- Delete or submit your order and start tracking it.

- You have an option to choose from the shop the returned orders.
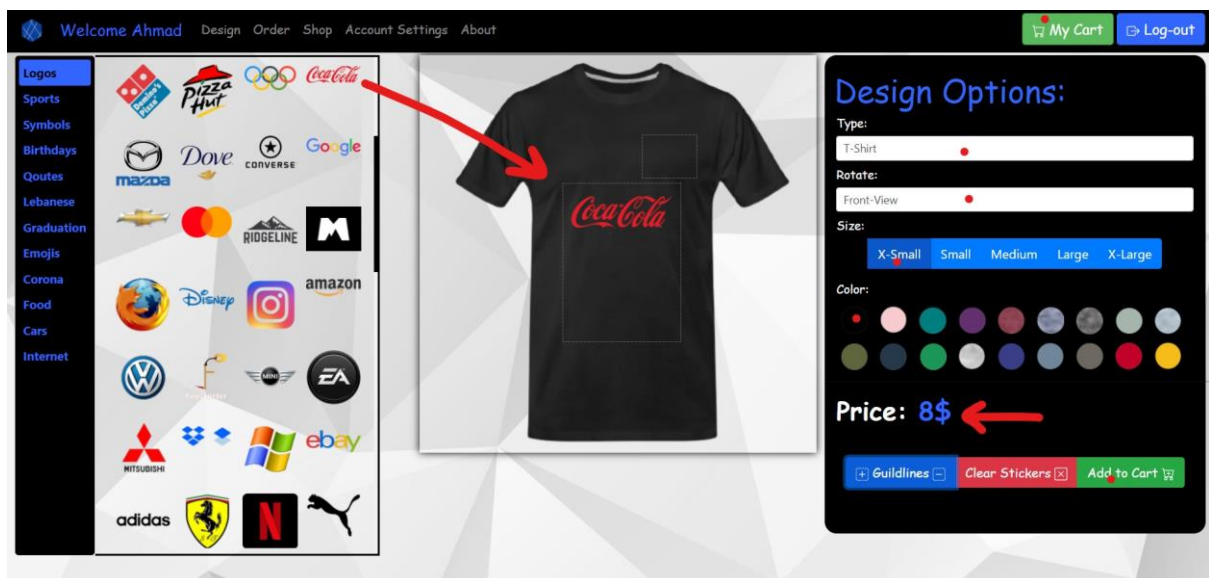
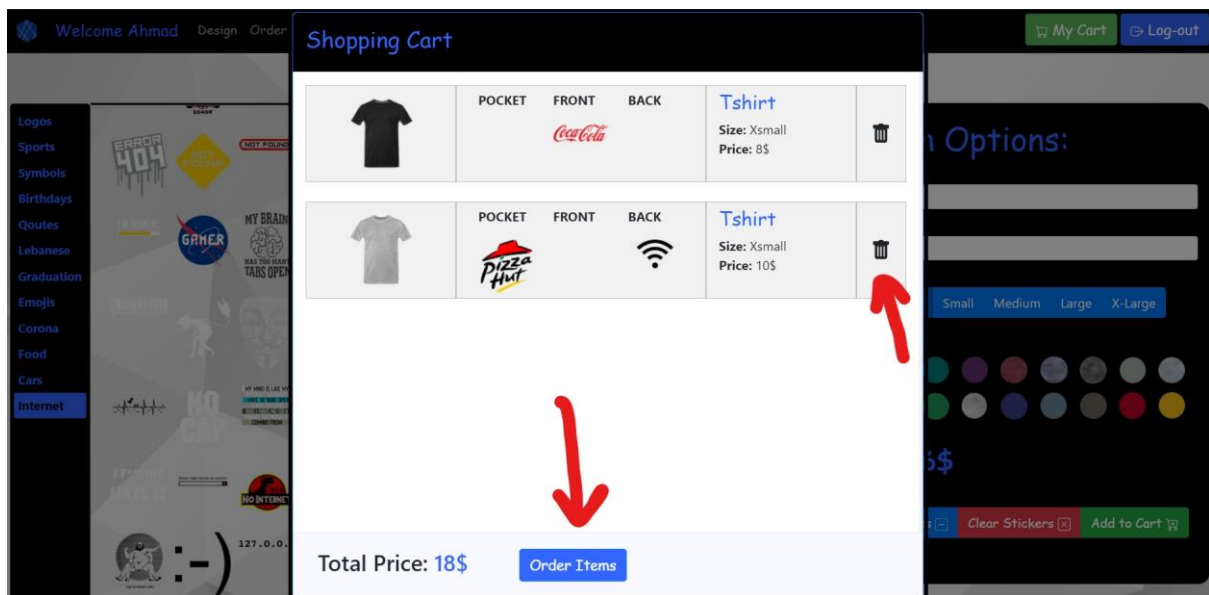These steps are shown in the figures below:

Figure B-1: Demo designing
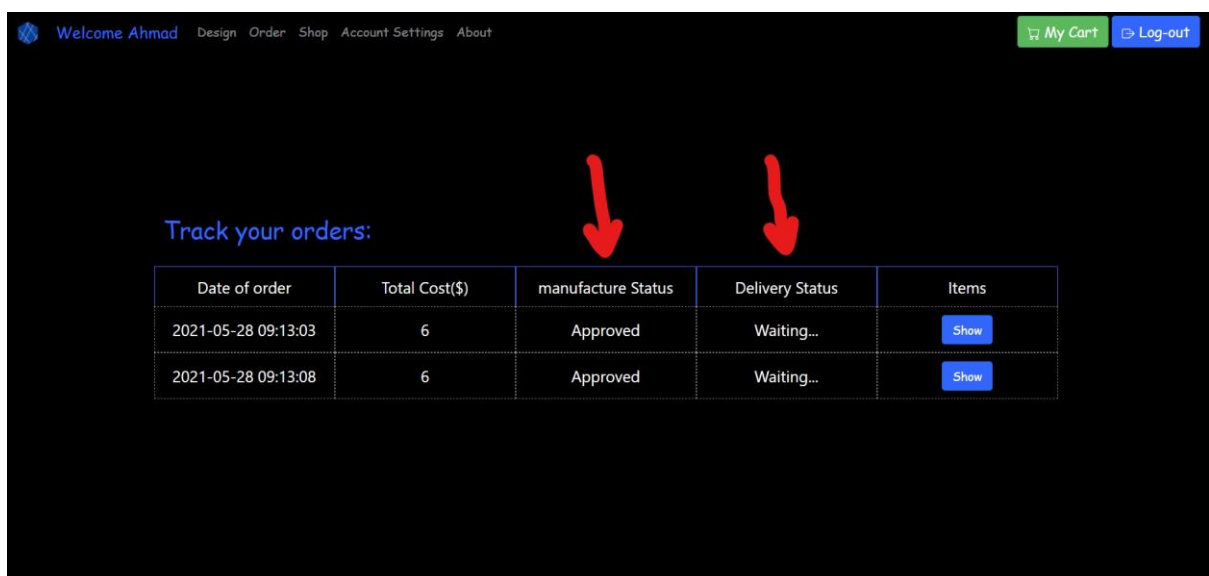
Figure B-2: Demo ordering

Figure B-3: Demo tracking

APPENDIX C:
DEPLOYMENT AND CONFIGURATION MANUAL

This part will show the steps of deploying the website, as it requires the following:

- Download/open wamp server from https://sourceforge.net/projects/wampserver/ and run it.

- Open the database from http://localhost/phpmyadmin/index.php

- Create a new database and name it 'outfitcustomizer'.

- Import the SQL file in found in the cd.

- Download/open Visual studio code and open folder 'VS.SENIOR'.

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