Al-Hussain Technical University

The National ICT Up skilling program

Programming in PHP

Eshop

A Multi-Vendor Listing Providers

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Abstract

In today's competitive marketplace, e-commerce for businesses is a necessity. No longer is it considered nice to have. E-commerce has become an important part of our daily life just like our need for other basic necessities of life such as food and air.

E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace.

To develop an e-commerce website (Eshop), some technologies must be studied and understood. These include server and client side scripting techniques, programming language (such as PHP) and relational databases. This is a project with the objective to develop a basic Multi-Vendor Listing provider's website where a consumer is provided with a shopping cart and the vendor able to register and sell his products on the website [1], [2].

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1. Introduction

1.1   Background

Ecommerce, also known as electronic commerce or internet commerce, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions. Ecommerce is often used to refer to the sale of physical products online, but it can also describe any kind of commercial transaction that is facilitated through the internet. The history of ecommerce begins with the first ever online sale: on the August 11, 1994 a man sold a CD by the band Sting to his friend through his website. This is the first example of a consumer purchasing a product from a business through the World Wide Web or "ecommerce" as we commonly know it today [3].

1.2   Statement of the Problem

The pandemic (coronavirus pandemic) has accelerated the shift towards a more digital world and triggered changes in online shopping behaviors that are likely to have lasting effects. Because of lockdown, all physical or local shop forced to close until contain the virus. As a result of the closures, the stores stopped operating or selling products also the customer cannot go out to buy what they need.

To solve these problems the trader, shop owner and customer need a virtual place or shop (Eshop) that can be accessed via the internet to buy and sell products.

1.3   Significance of the project

The project aims to develop a website that can handle the e-commerce process including buy and sell the products with help the vendor to show their product on the website to reach all the customers while they stay at their houses.

2. Methodology

2.1 Latest web technologies

The Eshop website developed using the latest web technologies such as PHP (general-purpose scripting language), HTML (Hypertext Markup Language), CSS3 (Cascading Style Sheets), JavaScript, Bootstrap and MySQL Databases [4].

2.2   Software development lifecycle (SDLC)

The SDLC methodology used for building the system was Agile is a practice that promotes continuous iteration of development and testing throughout the software development lifecycle of the project. In the Agile model, both development and testing activities are concurrent, unlike the Waterfall model [5]. The reasons behind why I am choosing Agile are [6]:

- Lower Cost
- Enables clients to be happier with the end product by making improvements and involving clients with development decisions throughout the process.
- Encourages open communication among team members, and clients.
- Speeds up time spent on evaluations since each evaluation is only on a small part of the whole project.
- Ensures changes can be made quicker and throughout the development process by having consistent evaluations to assess the product with the expected outcomes requested.

To help me to apply the agile model, I have used Trello. Trello is a web-based, Kanban-style, list-making application, Users can create their task boards with different columns and move the tasks between them. Typically columns include task statuses such as To Do, In Progress, Done. The tool can be used for personal and business purposes [7].

As shown in Figure 1 the website development break down into smaller pieces the called cards, each card represent the specific requirement of the website as requested.
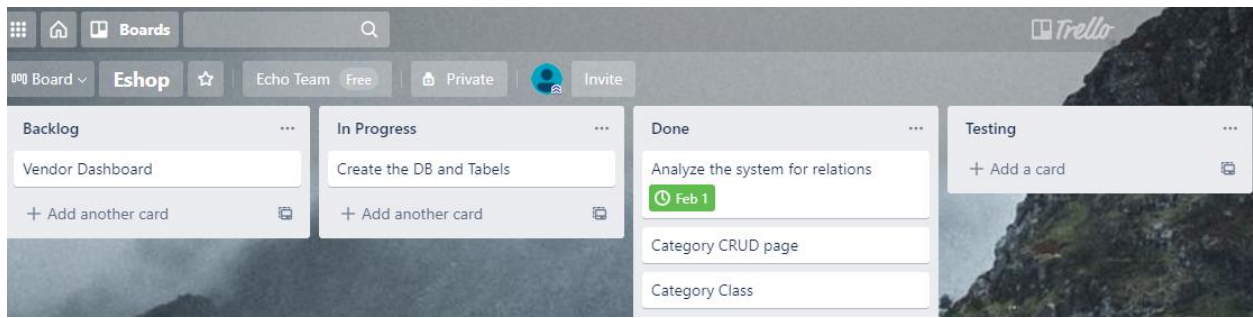
Figure 1: Eshop Trello dashboard that shows the requirement as card include tasks statuses

2.3 System overview

The development of the Eshop website system can be divided into three parts:

A. Data Base Design.
B. Front End Design.
C. Back End Code.

A. Data Base Design

For database design, I have started gathering all requirements that are needed to build the entity-relationship diagram (ERD) from existing ecommerce websites [8]. By defining the entities, their attributes, and showing the relationships between them, an ER diagram illustrates the logical structure of databases. As shown in Figure 2 ER diagram that shows the relationship between DB tables.
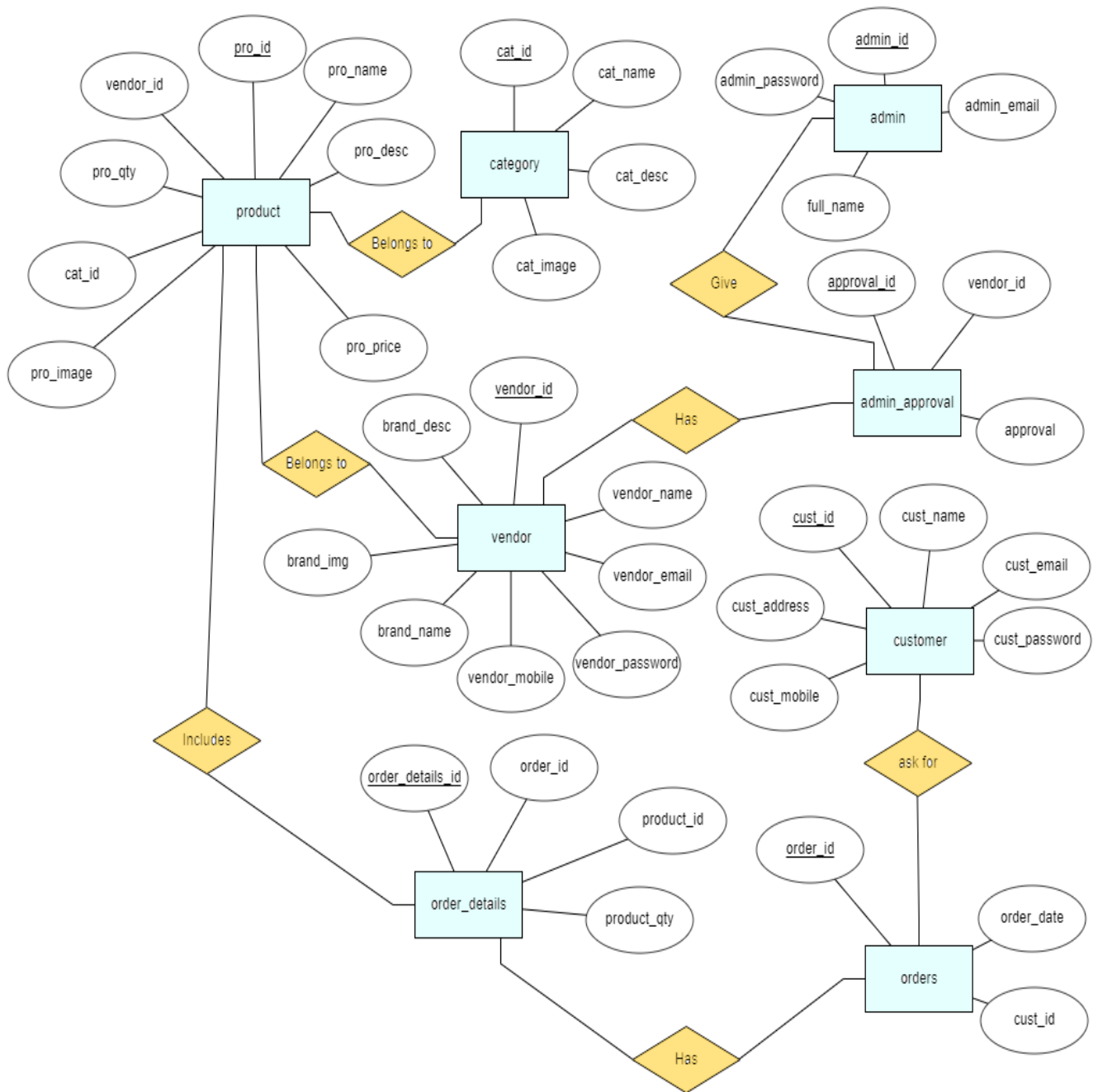
Figure 2: Eshop entity-relationship diagram entity-relationship diagram that shows the relationship between DB tables

For the classes, I have built a class diagram [9] including the attribute and the methods that used in the back-end code as shown in Figure 3.
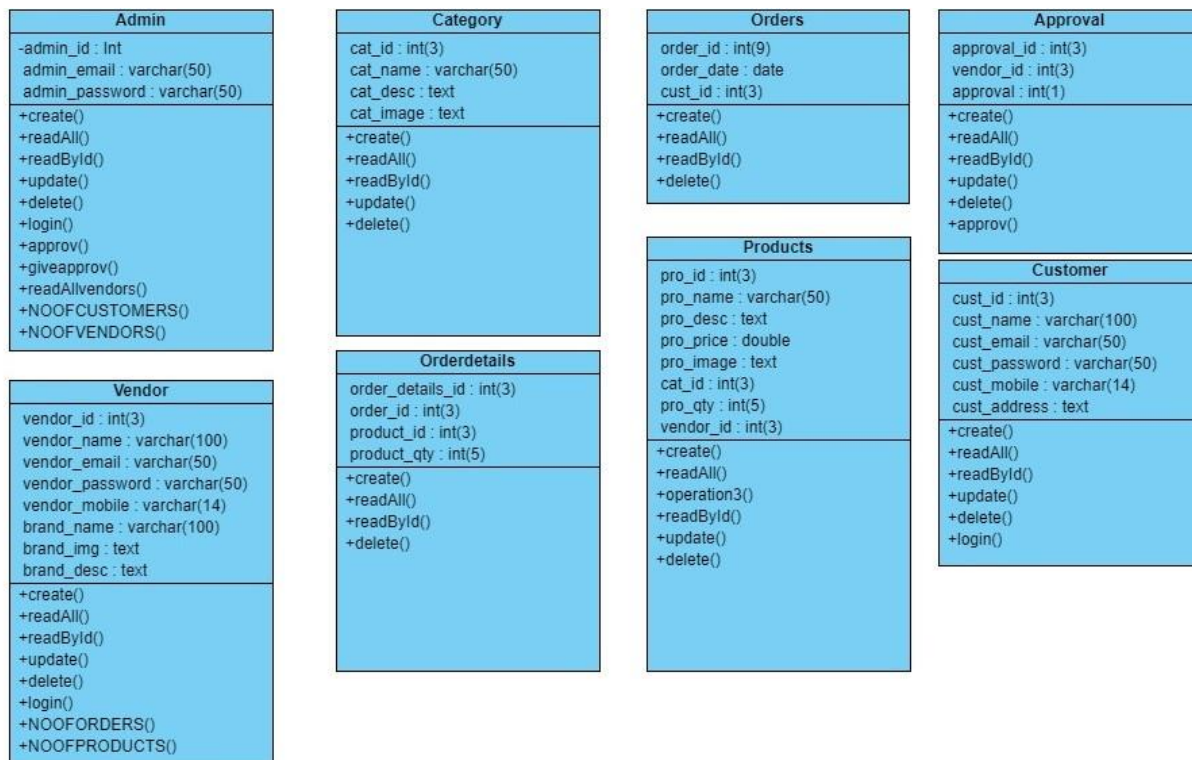

Figure 3: Eshop class diagram including the attribute and the methods

B. Front End Design

For front-end design which means the user interface that can interact with. I used a template library called Colorlib [10]. Searching their website you can find any responsive theme built using Bootstrap and css3. After select one of the templates, it is easy to edit it in a way that suits your website.

In Figure 4 and Figure 5 you will see the design for the admin dashboard page and the homepage, which I have chosen to edit.
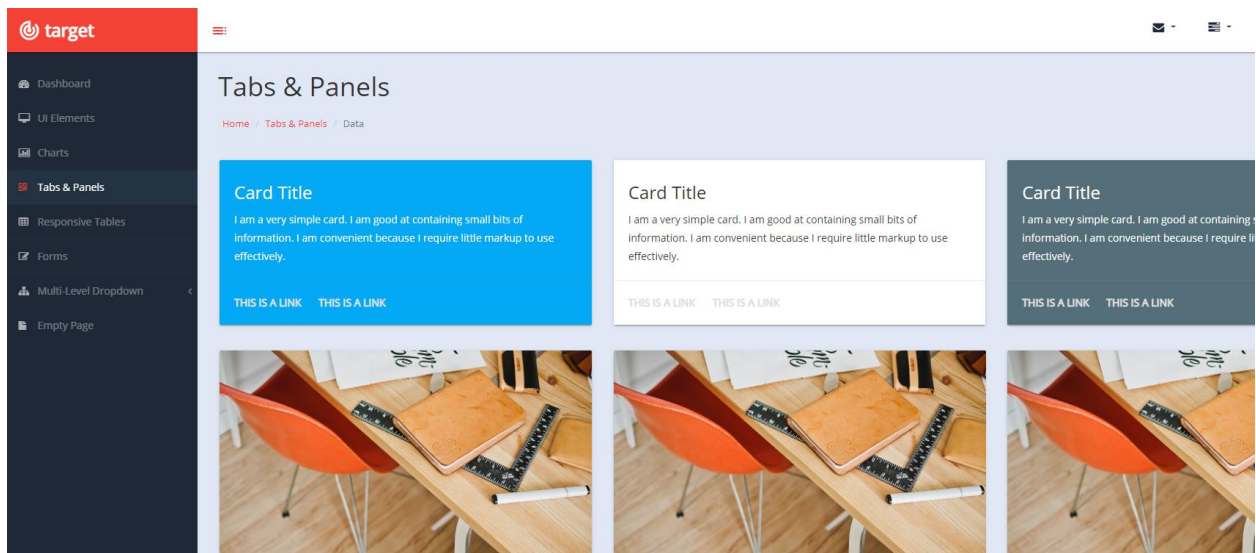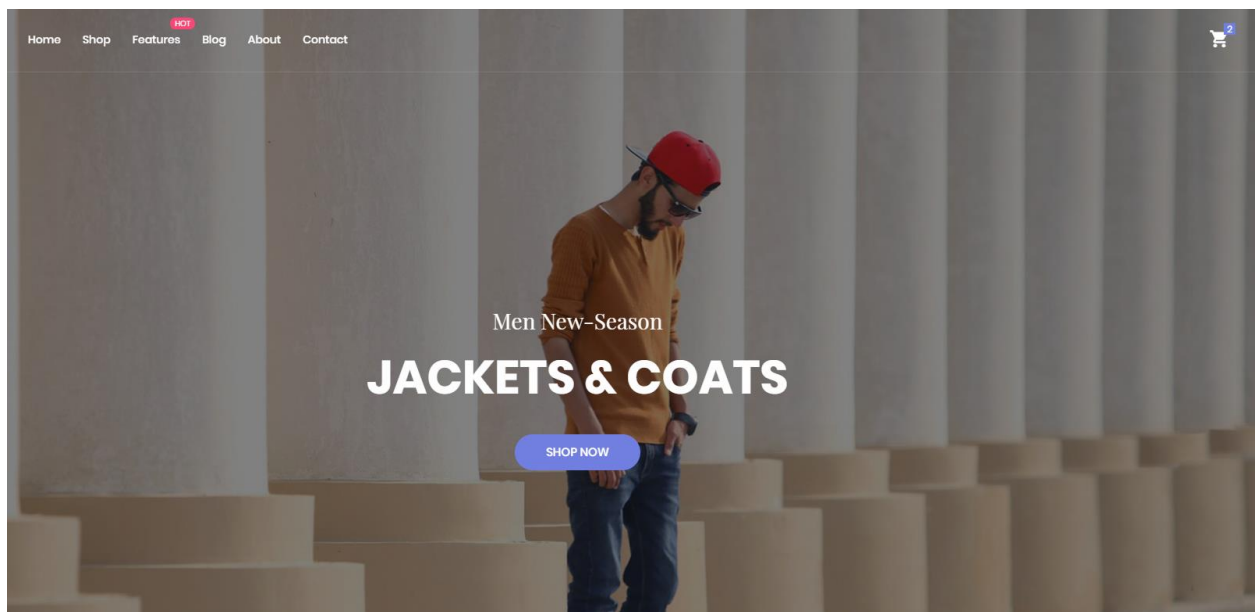
Figure 4: Eshop admin dashboard page template

Figure 5: Eshop home page template

The last step for front-end design is a site map of the website. A site map is a "visual or textually organized model of a Web site's content that allows the users to navigate through the site to find the information they are looking for, just as a traditional geographical map helps people find places they are looking for in the real world" [12].

In Figure 6 you will see the sitemap for the Eshop website including all the pages.
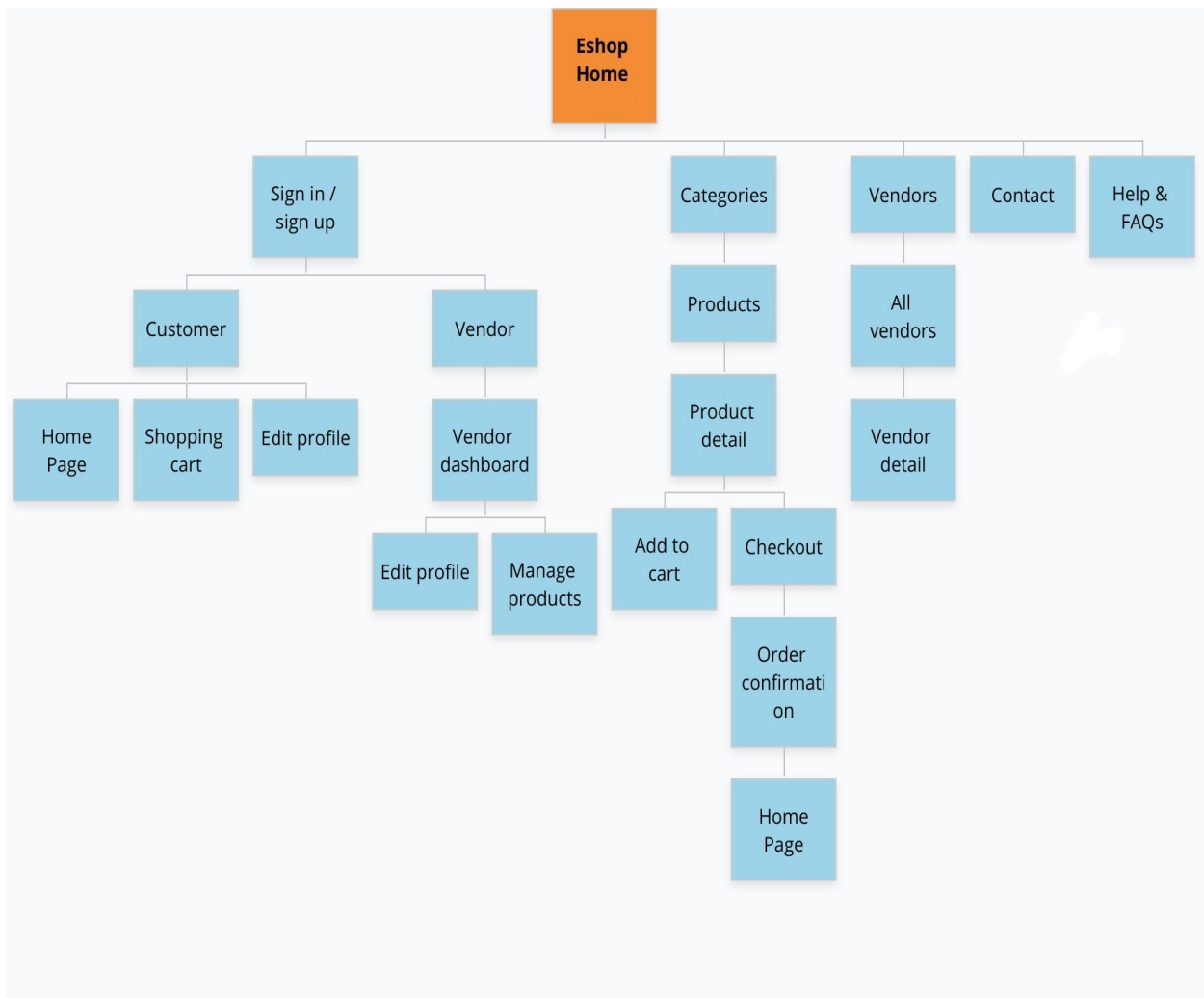

Figure 6: Eshop sitemap

C. Back End Code

For coding, I have used PHP language applying the Object-oriented programming (OOP) model [13] for easy less coding, to control and handle the site pages, data and database.

All the files and code scripts managed and sorted in an organized way using the GitHub web site   to upload the project. You can find the project repository from here https://github.com/Mohmmed-Olimat/Capstone_Project_Eshop

To test the finished website and the code, I have done five test scenarios as follow:

1. All the forms fields should not be empty.
2. Login if the password is entered correctly and fails to access the account if the pass is wrong.
3. The user can add/delete the item to/from the shopping cart.
4. The website viewed from a smartphone's browser responsively makes all the images and text look clear.
5. All new registered vendors should wait until the admin approves their accounts to log in to their dashboard pages.

3. Graphical user interface and the result

As a result of the all work that has been done these are some of the screenshots for the website pages as shown below:
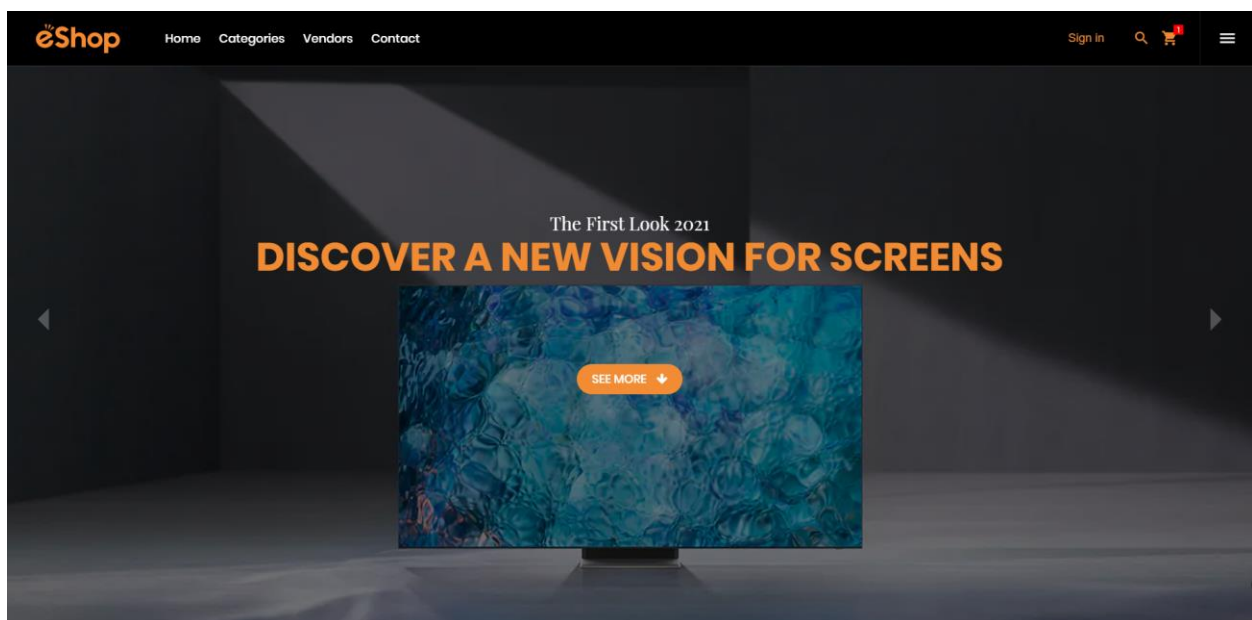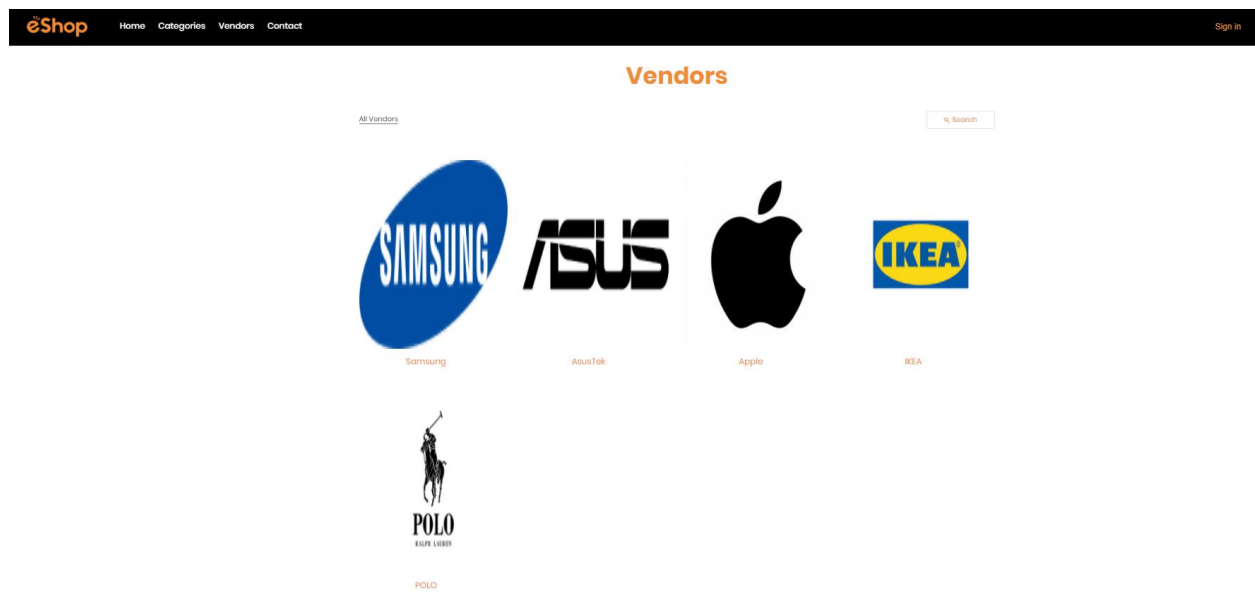

Figure 7: Eshop home page
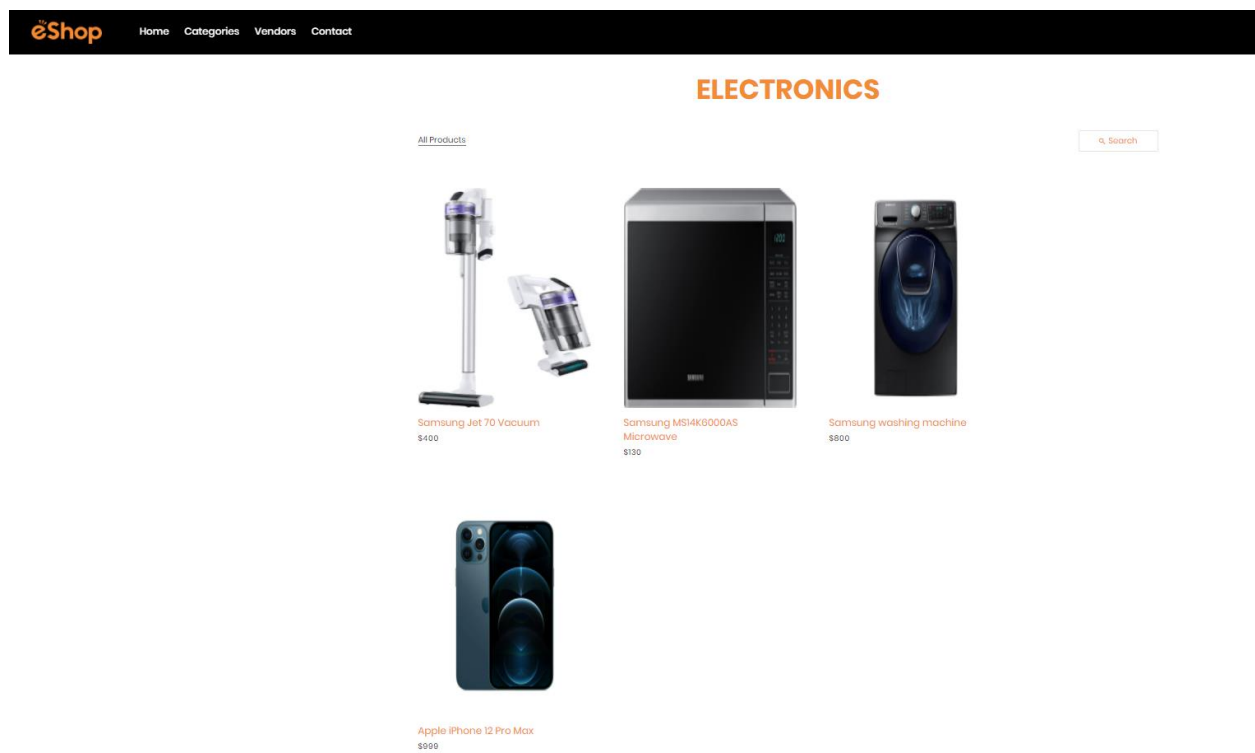
Figure 8: Eshop vendor's page
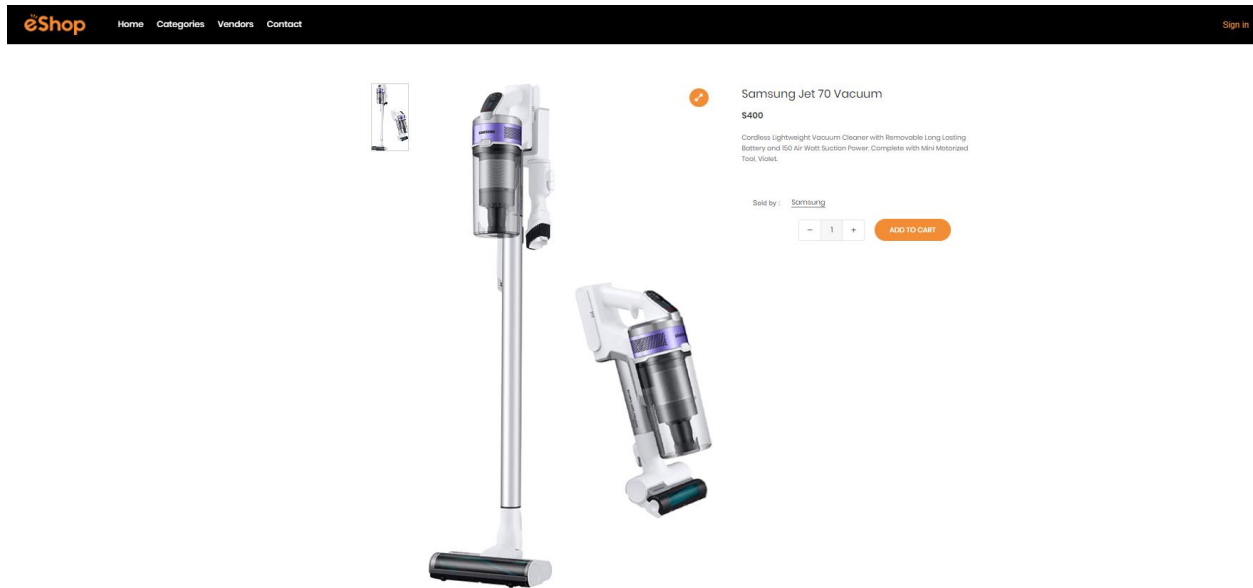

Figure 9: Eshop products page

Figure 10: Eshop product detail page

4. Conclusion and future works

Applying e-commerce concepts to any business has many benefits for the business owner and customers in terms of saving time, effort, money and reducing costs.

Also, the application of modern web technologies when building websites facilitate the process of accessing through any computer or mobile phone connected to the Internet, carry out ordering operations and buy products easily.

The Eshop website now has all the basic operations of any e-commerce site to help sellers display their products and make profits.

For future work, adding operations is easy, such as adding an inventory management system, including electronic payment processes, and a product evaluation and sorting system.

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