



Department of Computer Science
COMP4200-Introduction to Graduation Project

Spring 2022/2023

Title of Project

Power Wheels – An Online Website for Selling and Buying Car
Parts in Palestine.

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Abstract

The huge numbers of vehicles on the road nowadays requiring regular maintenance presents a challenge in finding parts for every individual car. Furthermore, mechanics encounter various issues in their shops, such as effectively managing a diverse inventory to cater to different vehicle models, ensuring the quality of car parts for reliable repairs, addressing compatibility concerns during replacement, managing costs associated with expensive parts, and dealing with delivery delays. Additionally, mechanics face the problem of handling manufacturing defects or premature failures of parts, further complicating their work.

Power Wheels is a user-friendly responsive website designed for effortless searching and purchasing of car parts. Our primary objective is to enhance the convenience of customers by simplifying the process of buying car parts. Accessible at no cost, our website is compatible with computers, laptops, and smartphones, ensuring seamless browsing and purchasing experiences as long as an internet connection is established.

Our website offers a multitude of convenient features and services to enhance the customer experience. Users can easily search for specific car parts or utilize filtering options to find parts that are compatible with their car brand. A comprehensive list of parts matching their search criteria is provided. Detailed product pages allow customers to view specific information before making a purchase as well as taking in consideration the ratings and comments from previous buyers. Payment options include credit card payment or the choice to pay upon arrival. Customers can review their selected items in their cart and proceed to a smooth checkout process where they can select their preferred payment method. In addition to our core features, our website distinguishes itself by providing a unique opportunity for car parts sellers to create market accounts and showcase their products. This functionality enables sellers to expand their reach and connect with a wider customer base, enhancing the overall diversity and availability of car parts on our platform.

The main focus of our website is dedicated to simplifying the process of purchasing car parts within Palestine. Recognizing the absence of similar platforms in our country and the difficult task of searching for and purchasing high-quality car parts, our project was born out of the need to address these challenges.

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Acknowledgements

To family and friends, thank you for always being there for us, for always offering a shoulder to lean on. Your love and support are invaluable, so blessed to have you in our lives.

To our professors, thank you for imparting your knowledge and wisdom, for challenging us to think critically, and for guiding us to become the persons we are today. Your passion for teaching has left a lasting impact on us, and we are forever grateful for your dedication and commitment.

We are truly grateful for everything you have done for us, and we hope to repay your kindness and love in any way that we can. Thank you from the bottom of our hearts.

Chapter 1: Introduction

Our project focuses on creating a car parts website that caters to consumers looking to purchase various types of automobile parts and accessories. Power Wheels aims to provide a convenient and efficient platform for car owners to find and buy the specific parts they need to maintain or repair their vehicles.

One of the significant advantages of using Power Wheels is the convenience it offers. Users can browse and purchase parts from the comfort of their own homes, eliminating the need to physically visit a store or dealership. This aspect is particularly beneficial for individuals residing in rural areas or those with limited access to car parts stores.

Power Wheels offers an extensive inventory of parts, including hard-to-find items that may not be readily available at local stores. This broad selection enables users to compare prices and products from different sellers, ensuring they find the best deals possible.

With a focus on providing top-quality car parts at competitive prices, Power Wheels aims to help users keep their vehicles running smoothly. The diverse range of parts available covers all makes and models, making it easier for customers to find the exact components they need.

In a unique feature, Power Wheels also allows users to create accounts and serve as a marketplace for selling their own car parts and accessories. This opens up opportunities for users to find affordable options and avail special deals.

The user-friendly interface of Power Wheels facilitates easy navigation and allows users to search for specific parts by brand, price, and condition. Additionally, a dedicated customer service team is available to provide assistance and address any questions or concerns that users may have.

Whether users are mechanics in search of parts for their customers' cars or car owners looking for replacement components, Power Wheels aims to meet the diverse needs of the automotive community. (Kashmir Observer, 2019)

1.1 Goals and Objectives

Our primary goal is to streamline the process of finding and purchasing car parts, making it a hassle-free experience. To achieve this, we have set the following sub-aims:

- Providing an extensive selection of products to cater to diverse needs.
- Ensuring the availability of top-quality car parts to enhance vehicle performance and longevity.
- Offering competitive prices to make automotive maintenance more affordable.
- Providing detailed product information, empowering customers to make well-informed decisions.
- Establishing a secure and reliable platform that instills confidence in every transaction.

1.2 Overview of the technical area

In this section, we offer a brief overview of the technologies utilized in the implementation of the proposed system.

1.2.1 BootStrap

Bootstrap is a popular open-source framework used for web development. It provides ready-to-use tools and templates to create responsive and visually appealing websites. Its grid system and customizable components make it easy to build user-friendly interfaces across different devices and screen sizes. (tech target, 1999)

1.2.2 PHP

PHP is a popular server-side scripting language used for web development. It allows developers to create dynamic web pages by embedding PHP code within HTML. (PHP.net, 2001)

1.2.3 PhpMyAdmin

phpMyAdmin is a web-based graphical user interface (GUI) tool used to manage MySQL databases. It is written in PHP and provides a user-friendly interface for administering MySQL databases without the need for a command-line interface.

1.3 Overview of the report

The following sections of this report encompass Chapter 2, which delves into a review of related works, Chapter 3, which provides an in-depth analysis of the proposed system is provided. This includes a comprehensive description of the Power Wheels system and an explanation of its system architecture. Additionally, various software diagrams, such as use case, class, state, sequence, and activity diagrams, are meticulously designed to enhance the understanding of the system's functionalities, Chapter 4, which is dedicated to the implementation and testing phase. A clear and detailed workflow of building the project code is presented, along with the testing scenarios employed to ensure the system's reliability and performance, and Lastly Chapter 5, which is a conclusive assessment of the proposed system is given. This chapter offers a summary of the key findings and outcomes of the project, encapsulating the main points and contributions made by the Power Wheels system.

Chapter 2: Background

2.1 Review of past/reported work

AutoZone:

AutoZone allows the user to create an account that requires a first name, last name, email, phone number password and a ZIP code (since its located in the US) to use it to buy car parts on the website, and a menu option that offers a quick access to the different categories on the website like most popular, shop all, shop deals, shop by, trustworthy advice and a contact us option, and a shopping cart to save your favorite car parts and help you list them to make an easy check out, as well as a car filter that asks for your car's information like the year, the brand, the model and what engine to help recommend car parts to help you get the exact fit. AutoZone also have a rewards and credits policy that is that you get 20\$ for each 5 credits, and credits are earned after each purchase of over 20\$ pre-tax and expires in 1 year, it also shows the user a lot of adds on the website while browsing it and offers special offers for the user to benefit from that includes rewards. (AutoZone, 2001)

The following figures are screenshots of the (AutoZone) website.

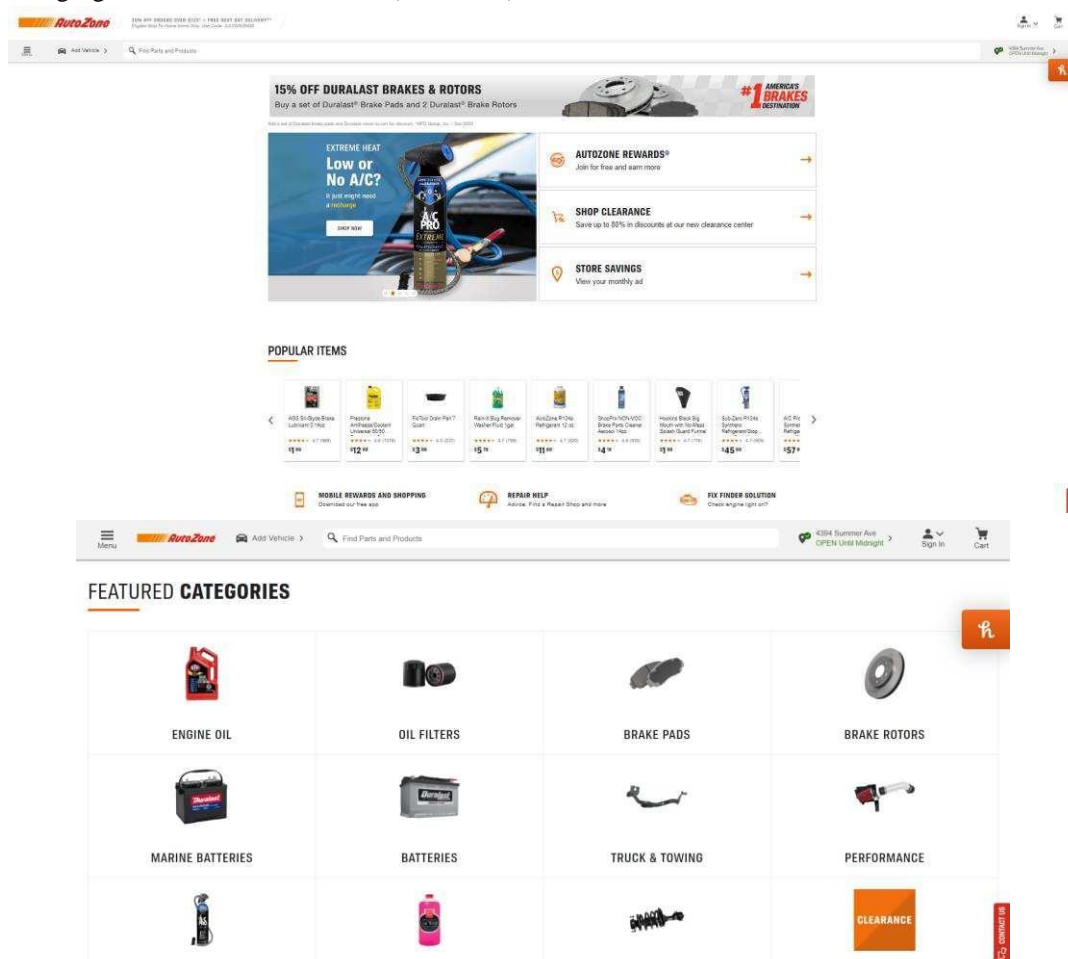


Figure 1 : AutoZone website (AutoZone, 2001)

aeperf:

aeperf allows users to buy car parts, it has a navbar that includes the logo, search engine and shopping cart, form in which the login and registration appear on the site, slider section that shows an overview of the products, search section by car name and some option that can make filter for the products, section of cards that have photo of the vehicles to and button to show the parts of the car, footer that contains customer services and contact, The product page that contains pictures of the product, its price, quantity, a description of the product, and a button that allows it to add the product to the shopping cart, product review, shop by categories, live chat , and show ads in website. (aaperf, 2022)

The following figures are screenshots of the (aeperf) website.

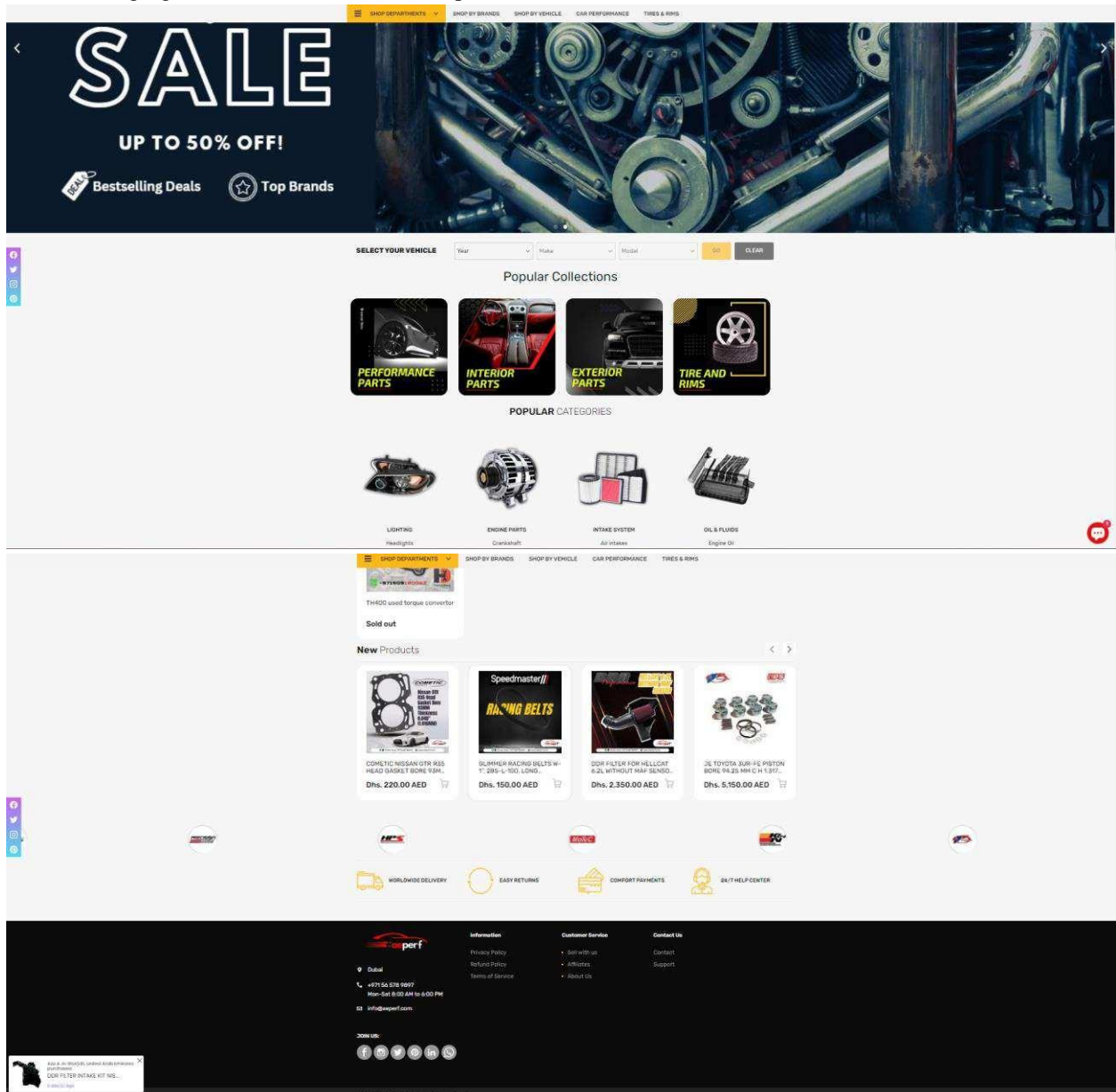


Figure 2: aeperf website (aaperf, 2022)

Buy Auto Parts:

Buy Auto Parts is one of the largest online auto parts distributors. At Buy Auto Parts, They offer an extensive selection of auto parts, truck parts, import parts, performance parts and automotive accessories, so you can easily find the quality parts you need at the lowest price. Explore their wide inventory to find both OEM car parts and aftermarket car parts for your vehicle. They are one of the largest distributors of auto parts online in the USA. Their customers have come to know us as the best place to buy auto parts online. When you buy auto parts online at BuyAutoParts.com, you can be confident that you will receive the highest quality auto parts at wholesale prices, and all the parts they sell come with a full warranty. They also understand how important it is to get the right parts that you need when you buy car parts online. That's why all of Their parts come with their Guaranteed Exact Fit promise. If there are ever any issues, they will cover round trip shipping. They have filter to choose the Car model, Year and which part the customer Want to buy and the customer can create account on the website, and He can rate the site, even he can chat them directly on the site. (Buy Auto Parts, 2019)

The following figures are screenshots of the (Buy Auto Parts) website.

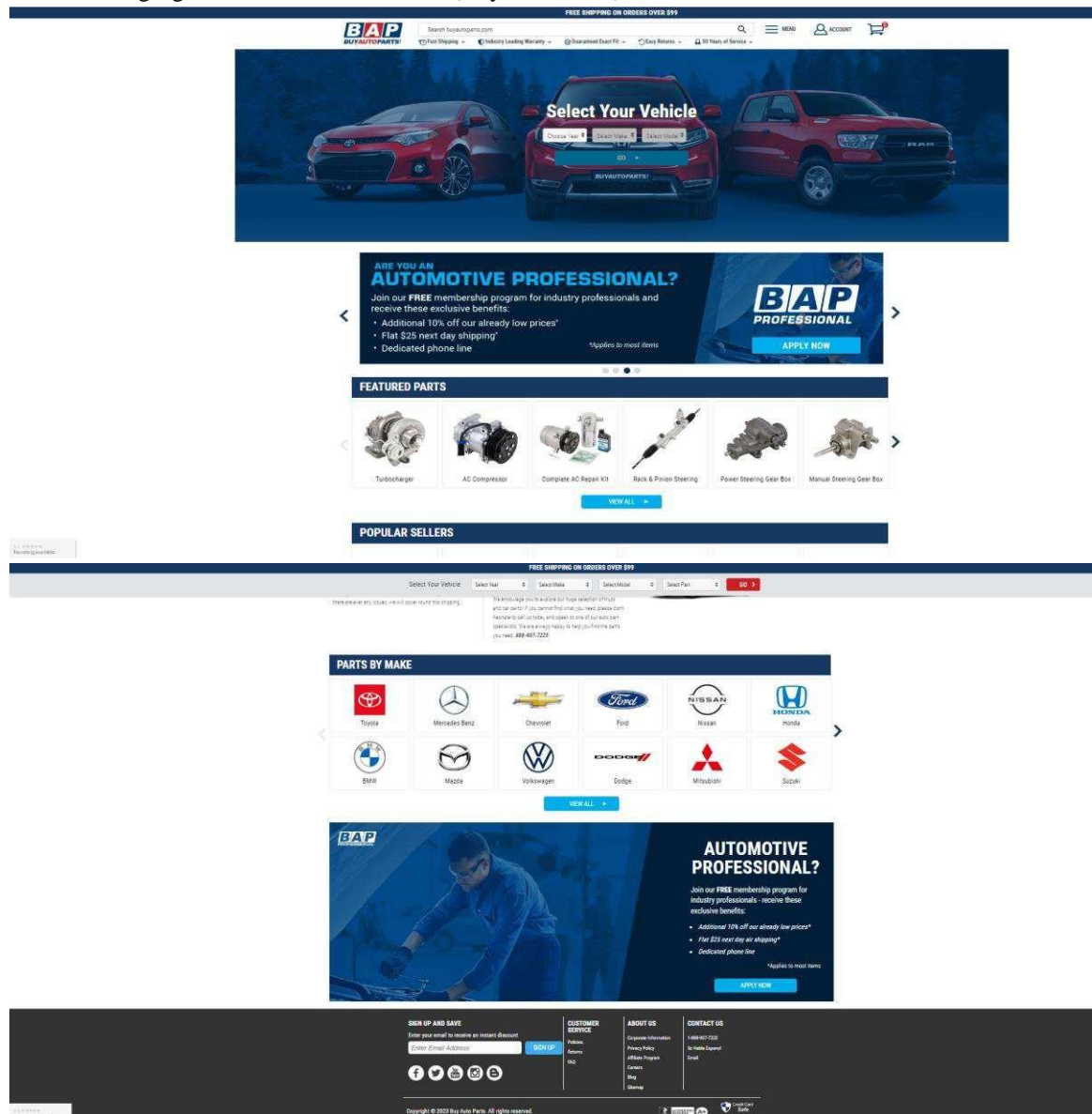


Figure 3: Buy Auto Parts website. (Buy Auto Parts, 2019)

Features	Our website	AutoZone	aeperf	Buy Auto Parts
Creating an account	T	T	T	T
Menu	T	T	T	T
Filter	T	T	T	T
Adds	F	T	F	T
Cart	T	T	T	T
Special offers	F	T	F	T
Rewards	F	T	F	T
Arabic Interface	T	F	F	F
Market account	T	F	F	F

Table 1: Background Comparison

Chapter 3: System Analysis

System Model and System Architecture

3.1 Product Description

This section highlights the advantages of our website, encompassing comprehensive product information and details, while showing the customer's smooth experience when engaging with the Power Wheels Website.

3.1.1 System Objectives

- **Convenient Product Discovery:** Finding the perfect item from home with ease.
- **User-friendly interface:** The website has an easy-to-use interface that allows customers to quickly find and purchase the car parts they need.
- **Accurate product information:** The website provides detailed and accurate product descriptions, specifications, and compatibility information for each car part, to help customers make the right purchasing decisions.
- **Secure payment options:** The website offers secure payment options that protect customers' personal and financial information.

3.1.2 System Main Features

- **Search functionality:** this allows users to find the car parts they need quickly and easily, using a search bar that filters the results based on car brand, price, and condition.
- **Product pages:** Each car part has its own product page that provides information about the product, photos included.
- **Customer reviews:** The website has an option for customer to leave reviews, where customers can leave feedback on the product they have purchased, to help other customers make better purchasing decisions.
- **Order tracking:** The website provides the ability to track orders for the customers, so they can see when their items are expected to arrive.
- **Personalized Profile:** customized page where users can showcase information, and details about them.
- **Enable users with market accounts** to effortlessly add products to the website, expanding the inventory and enhancing the customer experience, as well as the ability to edit the products information.
- **Market Account Statistics:** specialized page that presents inclusive data and insights related to the account's performance on the website.

3.1.3 Operating Environments

As our website has a responsive design, customers and administrators enjoy seamless access via smartphones, computers, and laptops, provided they are connected to the internet. This accessibility extends to various web browsers like Google Chrome, Mozilla Firefox, Microsoft Edge, and Apple Safari, catering to both Android and iOS systems.

3.1.4 Constrains

- **Browser Compatibility:** The website shall work on all browsers.
- **User-Friendly Interface:** The website design and user interface should prioritize ease of use to enhance the overall user experience.
- **Data Security:** the website shall maintain the confidentiality and integrity of sensitive data.
- **24/7 Availability:** the website shall be available at all times.
- **Orders Tracking:** the website shall provide the exact location of the order.

3.1.5 Functional Requirements

FR1.1: The system shall enable the user to register and create an account as either a customer account or a market account. Created account shall include the *account's type and the user's personal information, including Full Name and Address.

FR1.2: The system shall ensure and enable the user to specify a valid email address. The system shall only include a validated email address. The system shall prevent the user from registering or create accounts without a valid email address.

FR1.3: The system shall enable the user to specify a username, made up of a minimum of 8 characters, that include alphanumeric only.

FR1.4: The system shall validate that the username is uniquely identified in the system.

FR1.5: The system shall enable the user to specify a password, of a minimum of 8 characters. The password must include minimum three types of characters of the alphabets, numbers, special characters.

FR2.1: The system shall enable the user, as a customer or as a market, to write their preregistered username or email and password, to login to access their account on the website.

SR2.2: The system shall enable the users, as a customer or as a market, to reset their passwords, by writing their old password and their new password and confirm the new password.

FR3.1: The system shall enable the user, as a customer or as a market, to use the search bar and search for a specific product on the website and filter the results from cheapest to most expensive

or the opposite, or arrange them in alphabetical order, or from oldest models to newest models or the opposite, or from best sellers to least sellers, or used or brand new.

FR3.2: The system shall enable the user, as a customer or as a market, to enter his car information like model, year, make and engine into a filter and the website will offer him what's best for his car.

FR3.3: The system shall enable the user, as a customer or as a market, to browse the website and choose products from the menu option or choose from the random products that appear on the main page.

FR4.1: The system shall enable the user, as a customer or as a market, to view products and add them to the cart to come to later.

FR4.2: The system shall enable the user, as a customer or as a market, to buy the product and rate it and leave a review only after buying it.

FR4.3: The system shall enable the user, as a customer or as a market, to enter his bank card information, which includes the card's number, name, the expiry date of the card and the CVV number.

FR5.1: The system shall enable the user, as a market, to offer his products by entering their name, state (used or brand new), car type and other options from specific options and has the ability to write a description about the products.

FR5.2: The system shall enable the user, as a market, to view his profile and view his selling statistics.

FR5.3: The system shall enable the user, as a market, to update the info's about the items (like price, number of items left in the inventory).

FR6.1: The system shall enable the user, as a customer or as a market, to view market's profile and view the products they offer.

FR7.1: The system shall enable the system administrator to log in using a unique username and a unique password.

FR7.2: The system shall enable the system administrator view market's info and statistics.

FR8.1: The system shall enable the user, as a customer or as a market, to enter his order number and know it's location.

FR8.2: The system shall enable the user, as a customer or as a market, to track his order through his order history on his account.

FR8.3: The system shall enable the user, as a customer or as a market, to know the current status of the order.

FR9.1: The system shall enable the user, as a customer or as a market, to return a product for up to 7 days after delivery.

FR9.2: The system shall enable the user, as a customer or as a market, to provide a reason for the return.

FR9.3: The system shall enable the user, as a customer or as a market, to receive a full refund after the return if the part was proven to be faulty.

3.1.6 Non-Functional Requirements

- The website shall load quickly, with minimal lag or delay, to provide a positive user experience.
- The website shall be reliable and available at all times, with minimal downtime or outages.
- The website shall be designed to be user-friendly and easy to navigate.
- The website shall be compatible with a range of web browsers and operating systems.

3.2 Functional Decomposition (Use Case Diagram)

This section will outline the actors and use cases of the website, providing a comprehensive overview of the individuals or entities involved and the various scenarios in which the system will be utilized.

3.2.1 Actors (actor list and description of their roles)

An actor embodies a user role responsible for interacting with the system. This user can encompass a human user, an organization, a machine, or another external system, all of which participate in engagements with the target system. (Rational Software Architect, 2021)

Actor	Description
Browser	This actor represents someone who doesn't have an account on the website and can only browse products.
Member	This actor represents someone who is registered in the website and is able to browse and buy Products.
Seller member	This actor represents someone who is registered in the website and has the ability to browse the products and add products to the website and also can buy products (Market).
Manager	This actor represents someone who can add products to the website and generate reports (Admin).

Table 2: Actors

3.2.2 Use Cases

- Add Product use case.

This table outlines adding a product scenario, detailing the actions and outcomes involved in this process. The table includes the description and provides information on a different aspect of the use case, such as the user or actor involved, the steps required to complete the task, and the expected results. By providing a clear and concise overview of the use case, the table helps to ensure that all stakeholders have a shared understanding of the process and can work together effectively to achieve the desired outcome.

Car Parts Website: Add Product	
Actors	Seller member, Manager
Description	A seller member or the manager may add products to the website. they must provide the full information of the product when they want to add a product. An add product button will be available in the website.
Pre-conditions	<ol style="list-style-type: none">1. Manager has to be logged in to his admin account.2. Seller member has to be logged inn to his account
Sequence/Flow of Events	<ol style="list-style-type: none">1. Manager or seller member decide that they want to add a product to sell.2. They click on the add product button.3. a new window will pop up so they can enter the products information.4. if everything is correct the product will be added to the website.5. the product will be added to their products list in their accounts also.6. if something goes wrong an error message will be displayed to explain the error.
Data	Products information, Products list
Stimulus/Trigger	User command (button click) issued by manager or seller member.
Post-conditions/Response	<ol style="list-style-type: none">1. the system updates the products list on the website if successful.2. the system updates the seller members products on his account if he is who added the product if successful.

Table 3: Add product use case

- Buy Products use case

This table outlines buying a product scenario, detailing the actions and outcomes involved in this process. The table includes the description and provides information on a different aspect of the use case, such as the user or actor involved, the steps required to complete the task, and the expected results. By providing a clear and concise overview of the use case, the table helps to ensure that all stakeholders have a shared understanding of the process and can work together effectively to achieve the desired outcome.

Car Parts Website: Buying Products		
Actors	Member, Seller member	
Description	Both members and seller member may buy products, the product must be in stock for them to order it, when they click on buy button they must add their payment method, the address where the product should be delivered and the quantity they want. The product will be added to their orders.	
Pre-conditions	1- The buyer must be a member of the website. 2- The product must be available (in-stock).	3-
Sequence/Flow of Events	1- The member searches for the product he wants to buy. 2- The member clicks on the product and checks if its in-stock. 3- If the product is in-stock the member clicks the buy button. 4- The member adds the information (payment method, address, quantity). 5- If the product is not in-stock the buy button will not appear to the member and the member will have to wait for the product to be available.	6-
Data	Product information, Purchase information.	
Stimulus/Trigger	User command issued automatically by website on behalf of Member	
Post-conditions/ Response	1- The website updated the orders for the member, if successful. 2- The website updated the quantity left in-stock of the product the member ordered, if successful.	3-
Comments	If the purchase was successful the buyer will be given an order number for his purchase which he might use to track his order	

Table 4: Buying Products use case

- Track Orders use case

This table outlines tracking an order scenario, detailing the actions and outcomes involved in this process. The table includes the description and provides information on a different aspect of the use case, such as the user or actor involved, the steps required to complete the task, and the expected results. By providing a clear and concise overview of the use case, the table helps to ensure that all stakeholders have a shared understanding of the process and can work together effectively to achieve the desired outcome.

Car Parts Website: Tracking Orders	
Actors	Member, Seller Member
Description	A member who orders some parts from the website and wants to know where the order is, and see its location. A button in the website (track the order) will allow the member to see the before information after asking for the order number.
Pre-conditions	1- The member has an account on the website. 2- The member ordered one part or more from the website. 3- The seller member has an account on the website. 4- The seller member ordered from the website
Sequence/Flow of Events	1- The member chooses some parts to buy. 2- The member completes and requests the order. 3- The member clicks on track the order button. 4- The member should enter the order number. 5- The website displays the status of the order
Data	The order number, member information, seller member information
Stimulus/Trigger	The member clicks on a button to track the order.
Post-conditions/Response	The website displays the location and status for the order to the member or the seller member
Comments	The member must have and memorize the order number.

Table 5: Tracking Orders use case

- Search For a Product use case

This table outlines searching for a product scenario, detailing the actions and outcomes involved in this process. The table includes the description and provides information on a different aspect of the use case, such as the user or actor involved, the steps required to complete the task, and the expected results. By providing a clear and concise overview of the use case, the table helps to ensure that all stakeholders have a shared understanding of the process and can work together effectively to achieve the desired outcome.

Car Parts Website: Searching for A Product	
Actors	Browser, Member, Seller Member
Description	A browser can browse the site looking for parts and the filters can be used to find the parts the visitor wants. Or you can use categories to find similar items. when searching for the name of the product or its number all the similar products will appear with the information under the products image and when clicking on it a new page will appear having all the information about the product and u can choose its color.
Pre-conditions	1. The product should be a car part for it to be found.
Sequence/Flow of Events	<ol style="list-style-type: none"> 1. Run the website and browse the main page displaying the different car parts. 2. Entering the name of the product or its number similar products will appear under 3. Can use filters or categories to find some parts wanted.
Data	Filters (type, color, newest, oldest, car type), categories (wheels, breaks, gears), product info (size, color, price, shipping time), how much exist in stock.
Stimulus/Trigger	user command issued by the users who have the ability to browse products through the search bar.
Post-conditions/Response	<ol style="list-style-type: none"> 1. The system updates the parts exists in the website, if successful 2. Browse for the parts you want and display it if successful (exists).
Comments	The customer must have the appropriate parts number or name for his/her car to find the right parts for his/her car. (Or the vin number).

Table 6: Searching for A Product use case

- Generate Report use case

This table outlines generating a report scenario, detailing the actions and outcomes involved in this process. The table includes the description and provides information on a different aspect of the use case, such as the user or actor involved, the steps required to complete the task, and the expected results. By providing a clear and concise overview of the use case, the table helps to ensure that all stakeholders have a shared understanding of the process and can work together effectively to achieve the desired outcome.

Car Parts Website: Generate Report (market statistics)	
Actors	Manager, Seller Member
Description	The member creates a report about all the things and tasks that have been performed in the account, by a specific click on the site asking him to enter the necessary data for the report, such as the date and so on.
Pre-conditions	1- The manager has an account on the website 2- The seller member has an account on the website
Sequence/Flow of Events	1- The member (manager/seller member) enters his account. 2- He must have made new movements within the account, such as buying and selling. 3- Press the report button to create it. 4- View the report.
Data	manager information, seller member information
Stimulus/Trigger	user command issued by Manager or Seller Member
Post-conditions/Response	The site displays a report of all the operations performed on it.

Table 7: Generate Report use case

3.2.3 Use Cases Diagram

Figure 4 illustrates the Use Cases Diagram, presenting a comprehensive view of Power Wheels use cases and their interactions with the system's actors. It visually depicts how different actors engage with these use cases, contributing to the overall functionality of the system.

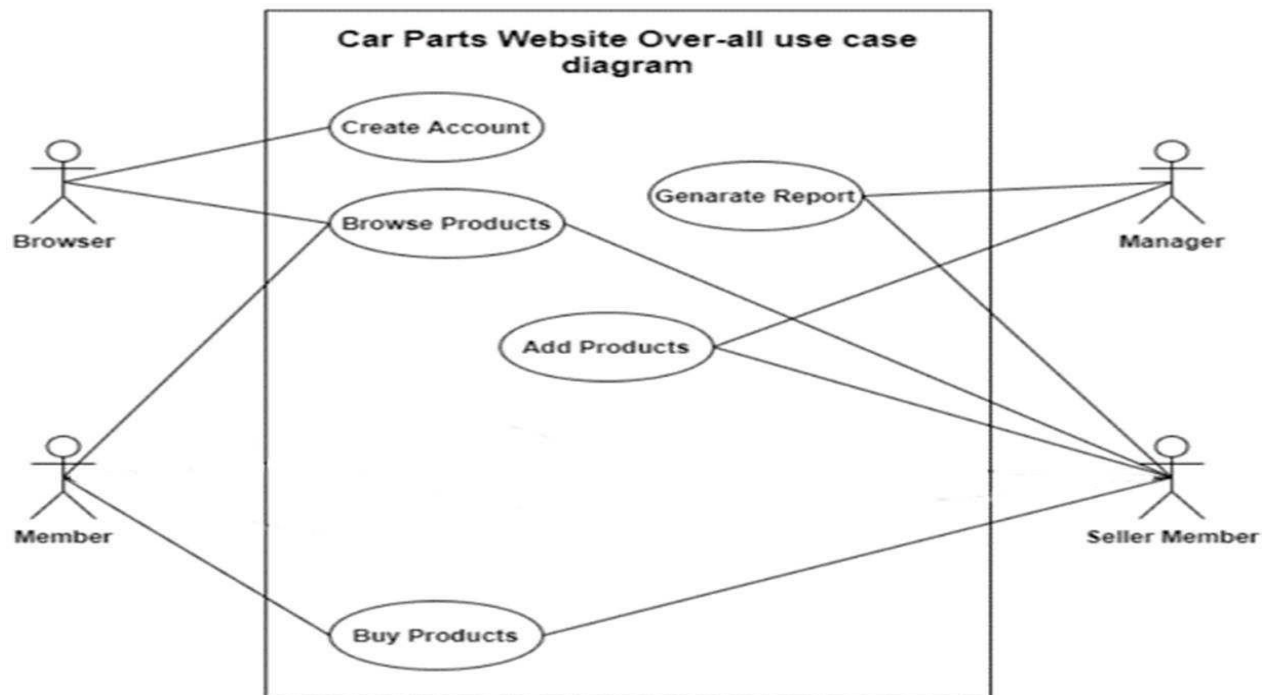


Figure 4: Use Case Diagram

3.3 System Models

3.3.1 Class Diagram

Figure 5 presents the un-detailed class diagram, showcasing all the classes utilized in the implementation process of Power Wheels. Additionally, it illustrates the relationships and associations between each class, providing an overview of the structure and connections within the system's design.

3.3.1.1 Class Diagram

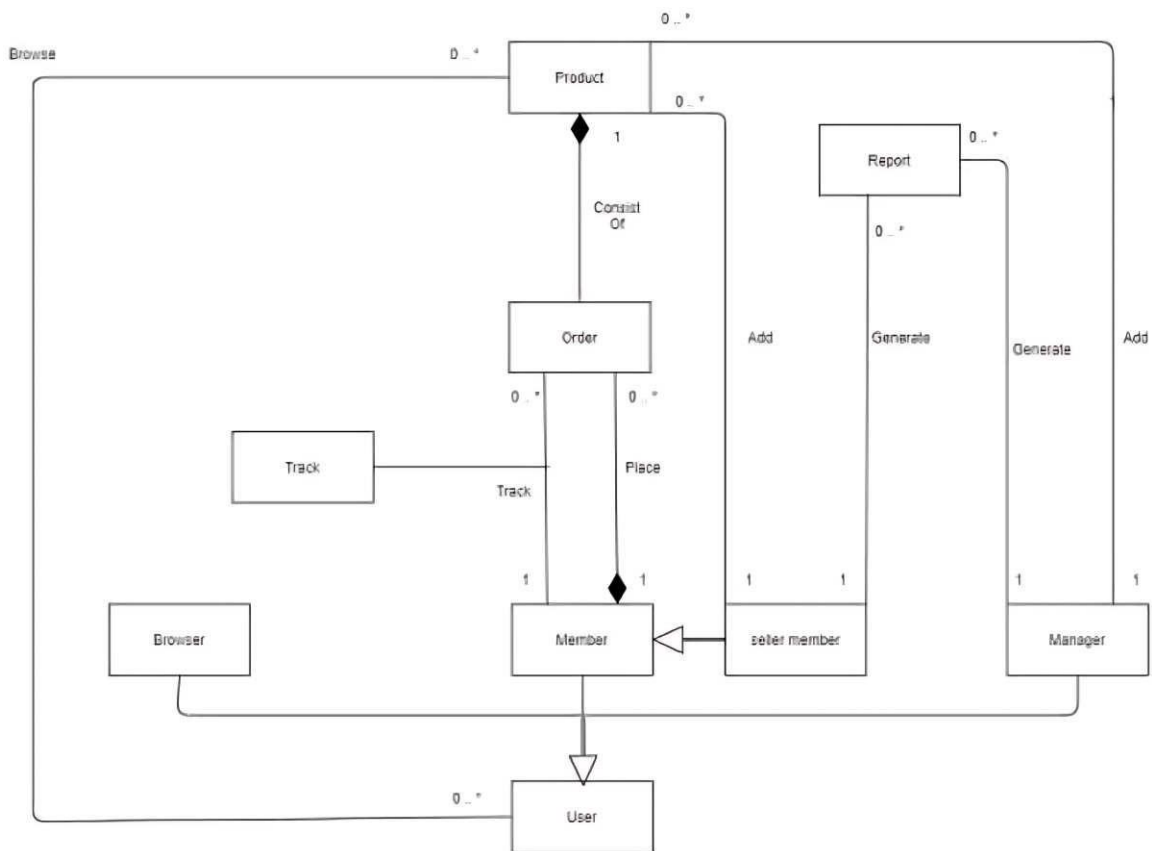


Figure 5: Class Diagram

3.3.1.2 Detailed Diagram:

Figure 6 illustrates the detailed class diagram for the implementation process of Power Wheels, showcasing all classes, their attributes, and methods.

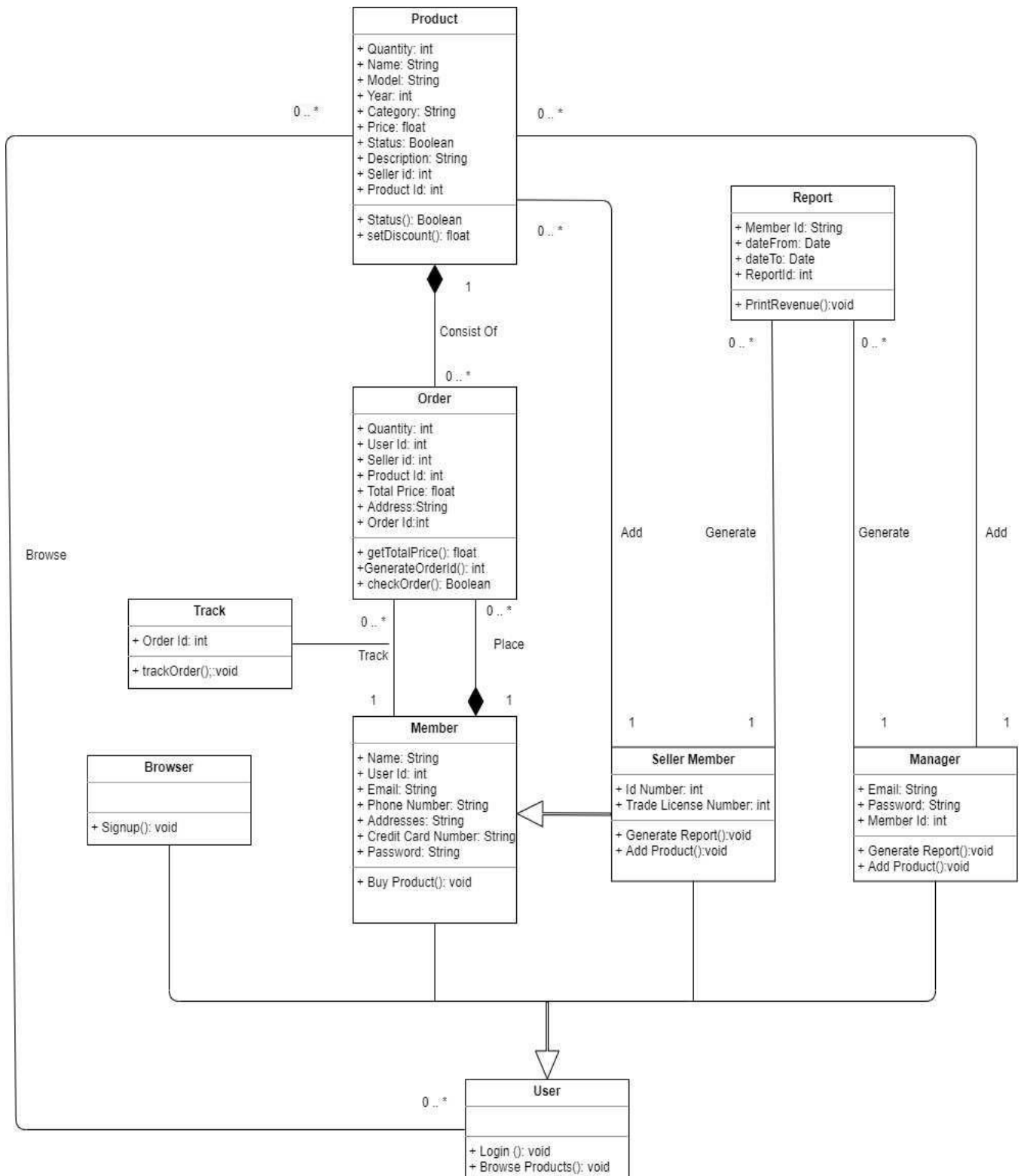


Figure 6: Detailed Diagram

3.3.2 Sequence Diagram

- Sequence diagram (Add Products)

In Figure 7, the Sequence Diagram for adding a new Product is depicted, illustrating the collaborative interaction among Power Wheels objects within the system. This diagram showcases the sequential steps and communication among the objects as they work together to add a new product to the website.

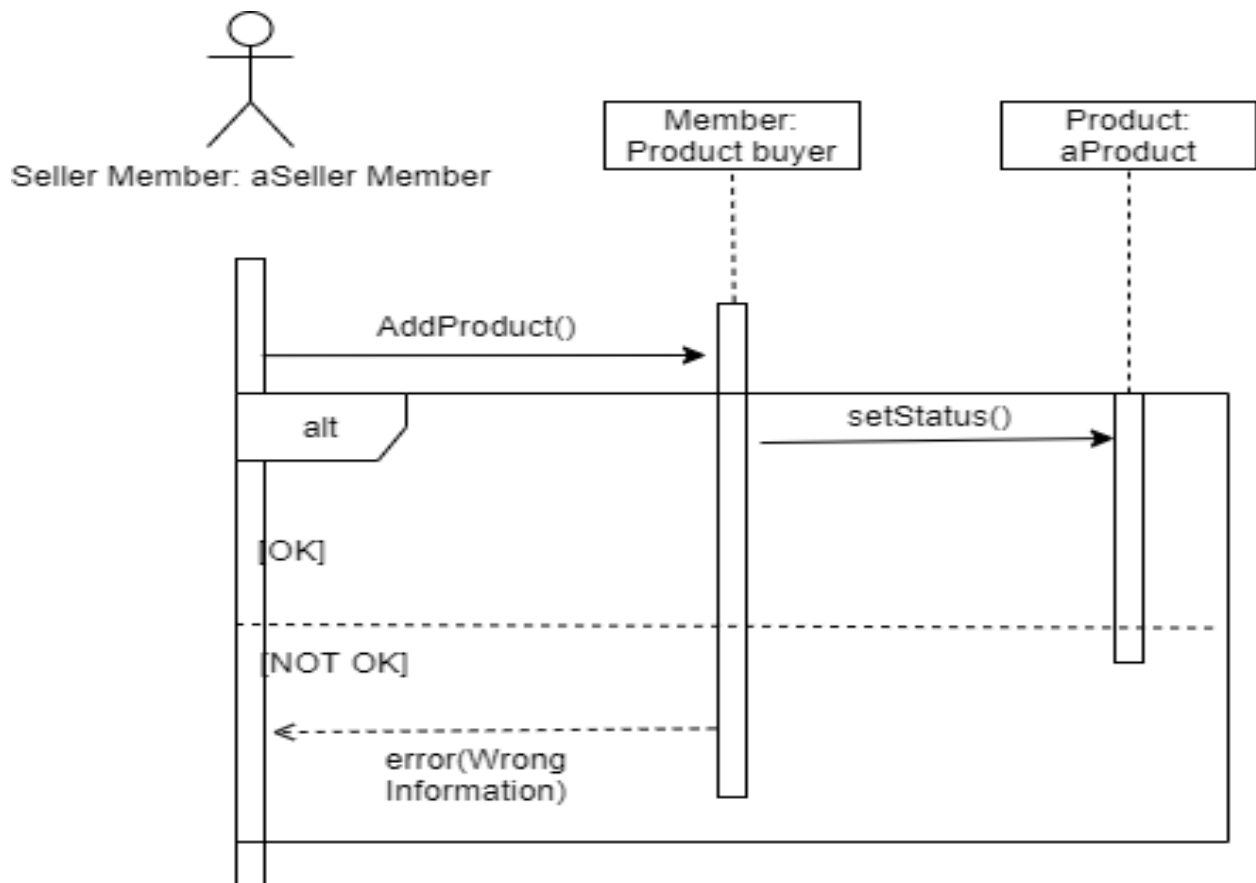


Figure 7: Add Products sequence diagram

- Sequence diagram (Buy Products)

In Figure 8, the Sequence Diagram for buying a Product is depicted, illustrating the collaborative interaction among Power Wheels objects within the system. This diagram showcases the sequential steps and communication among the objects as they work together to let the user buy a product.

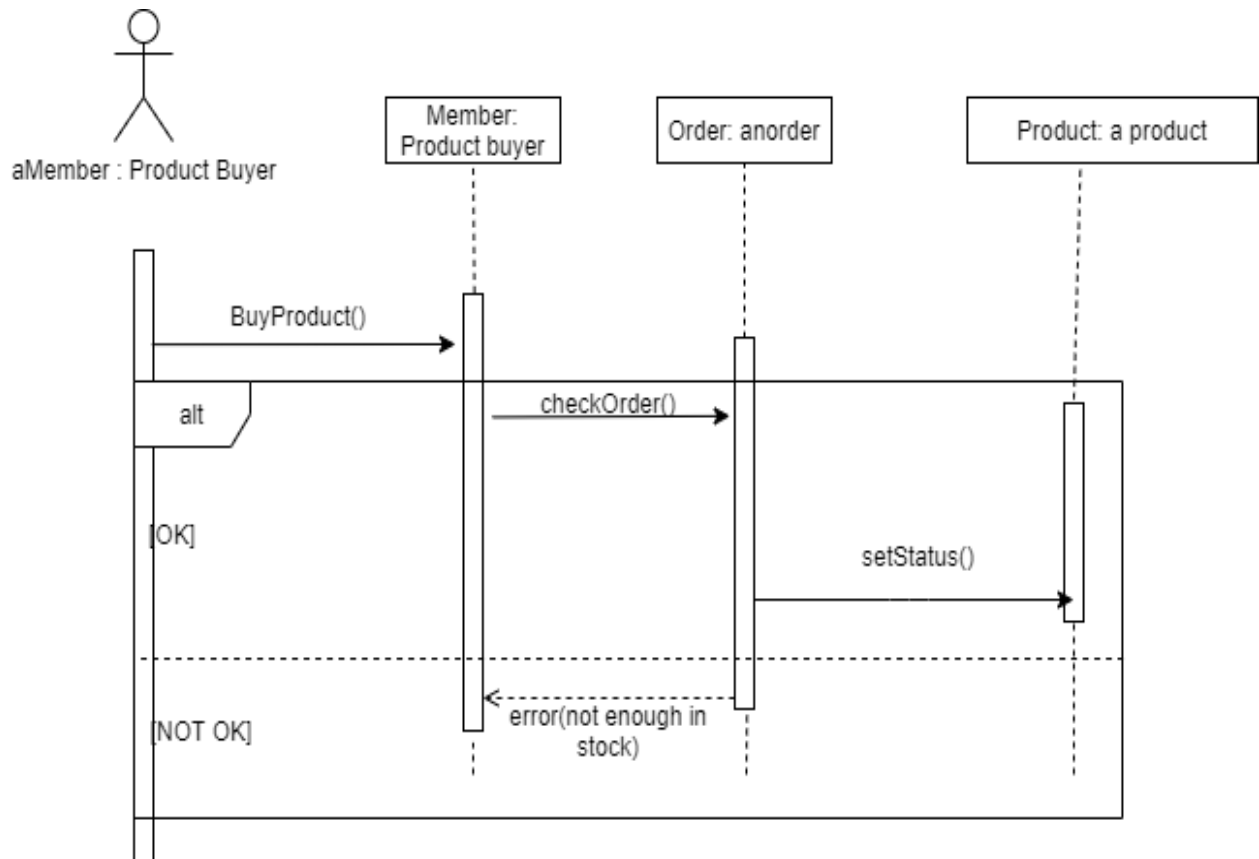


Figure 8: Buy products sequence diagram

- Sequence diagram (Track Orders)

In Figure 9, the Sequence Diagram for tracking an order is depicted, illustrating the collaborative interaction among Power Wheels objects within the system. This diagram showcases the sequential steps and communication among the objects as they work together to get the details about the order status.

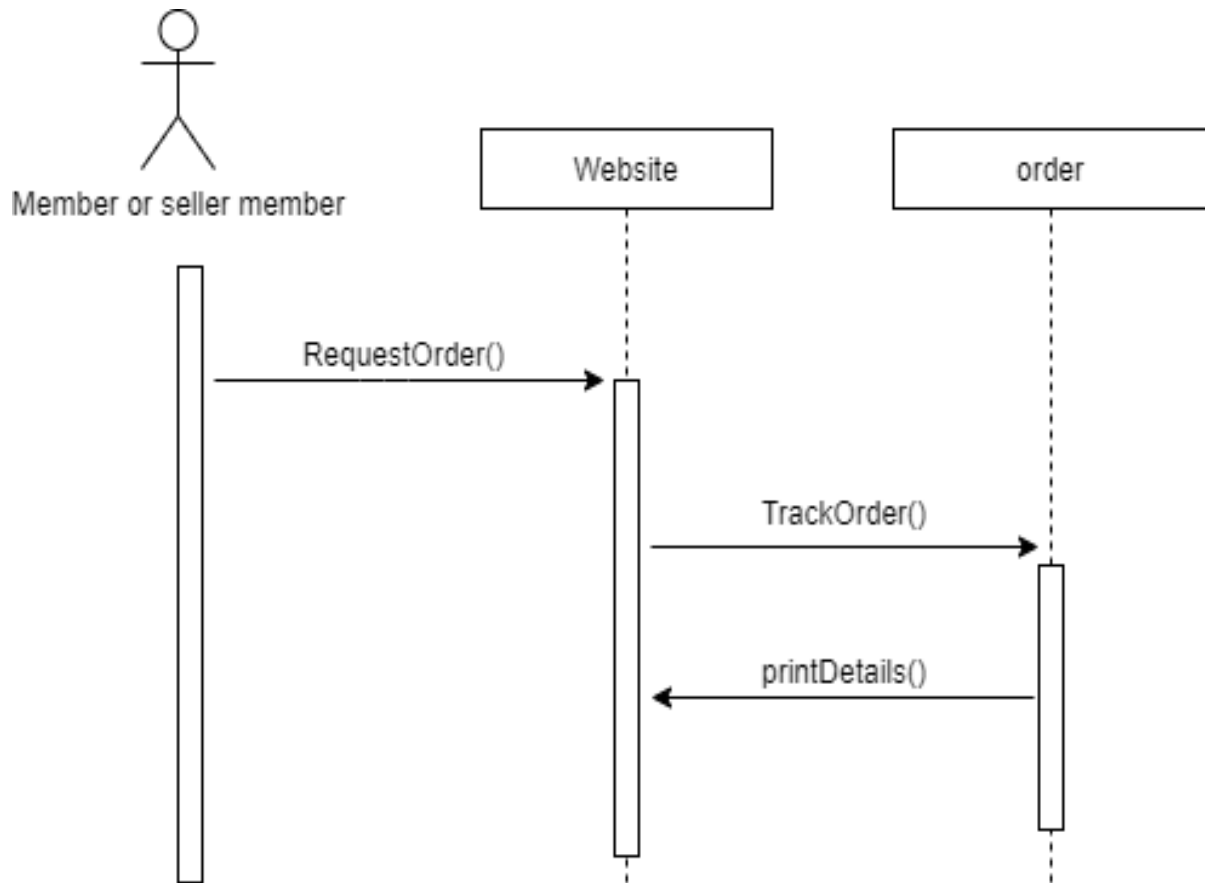


Figure 9: Track Orders sequence Diagram

- Sequence diagram (Search for a product)

In Figure 10, the Sequence Diagram for searching for a Product is depicted, illustrating the collaborative interaction among Power Wheels objects within the system. This diagram showcases the sequential steps and communication among the objects as they work together so user can reach the requested product if it exists.

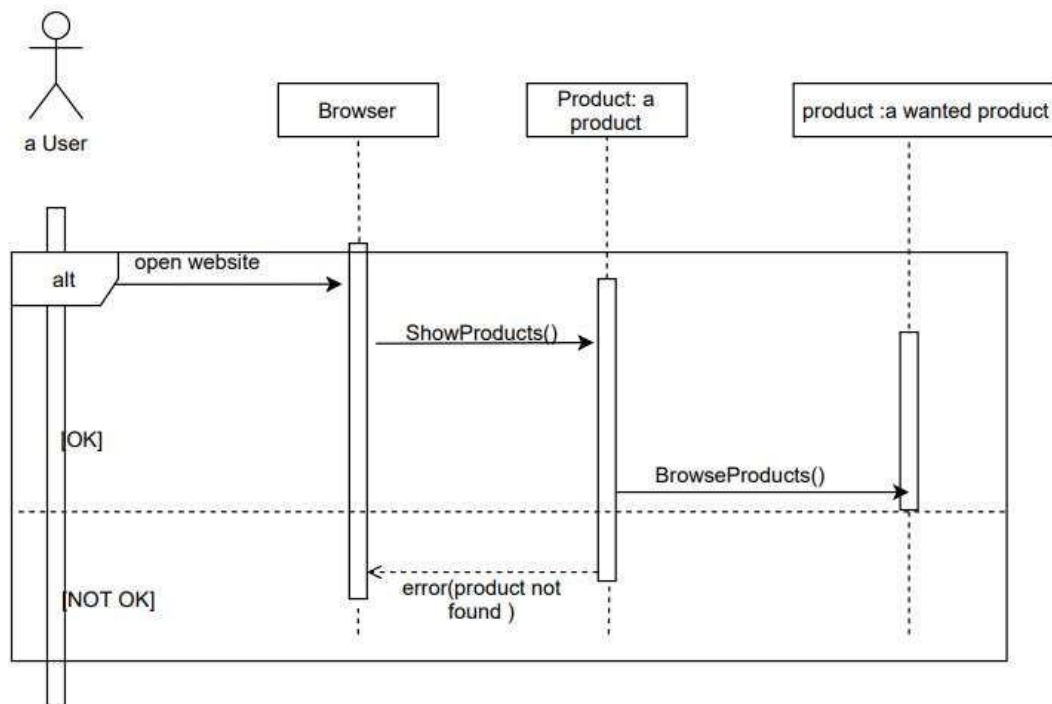


Figure 10: Search sequence Diagram

- Sequence diagram (Generate Report)

In Figure 11, the Sequence Diagram for generating a product is depicted, illustrating the collaborative interaction among Power Wheels objects within the system. This diagram showcases the sequential steps and communication among the objects as they work together to generate the report.

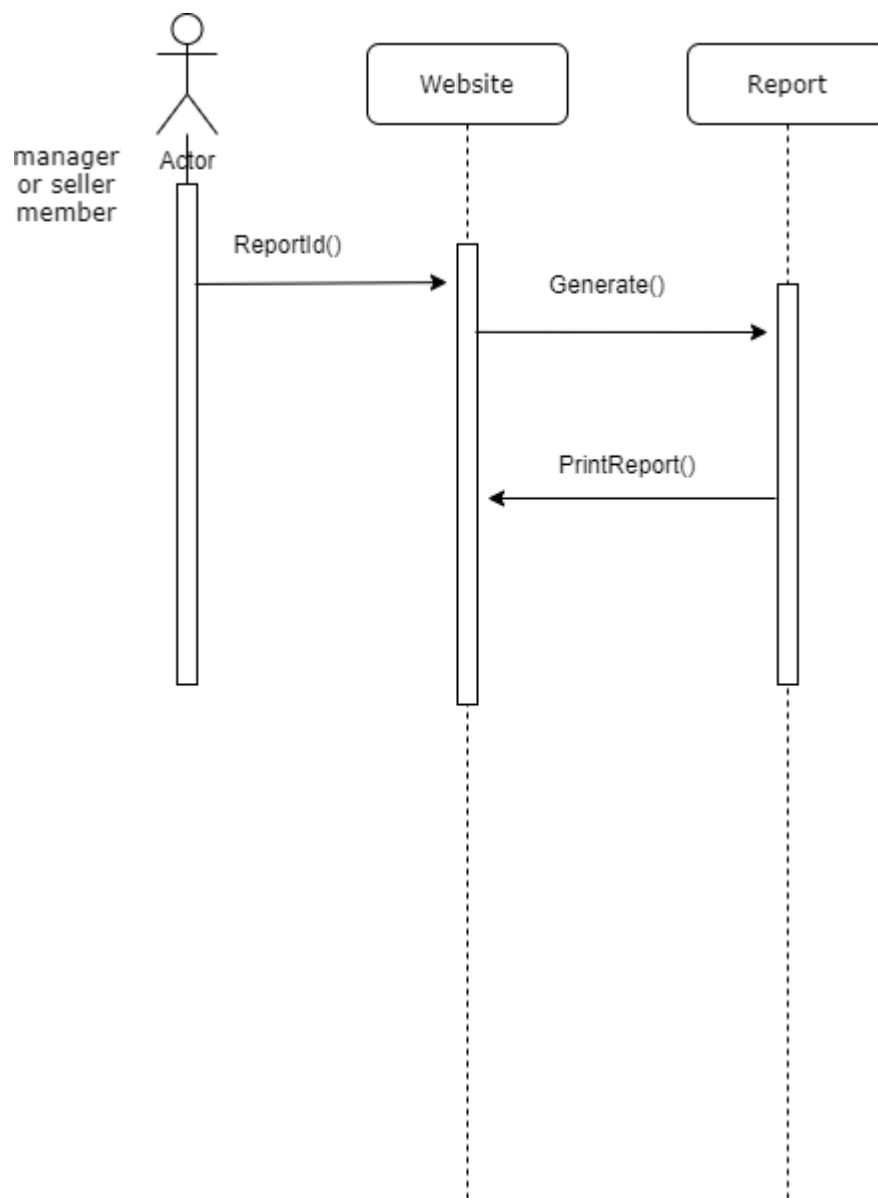


Figure 11: Generate Report sequence diagram

3.3.3 Activity Diagram

Figure 12 displays the Activity Diagram, illustrating the sequential flow of events within the Power Wheels system. This diagram depicts the progression from one event to another, providing a clear representation of the system's processes and interactions.

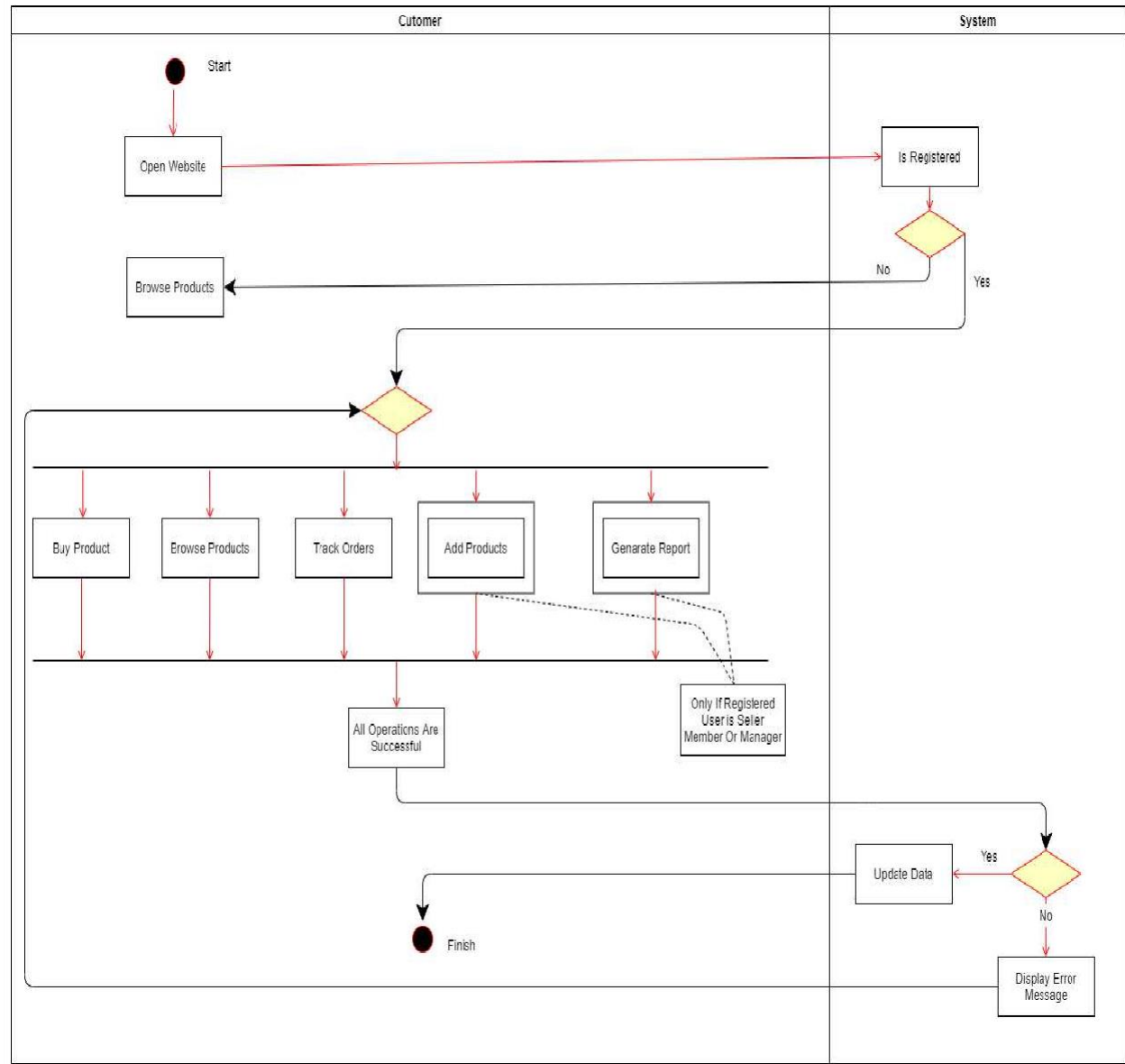


Figure 12: Activity Diagram

3.4.4 State Chart Diagram

Figure 13 presents the State Diagram, revealing the different states of a component in the Power Wheels system and the transitions between these states. It provides a visual representation of the component's behavior and how it changes based on various events or conditions.

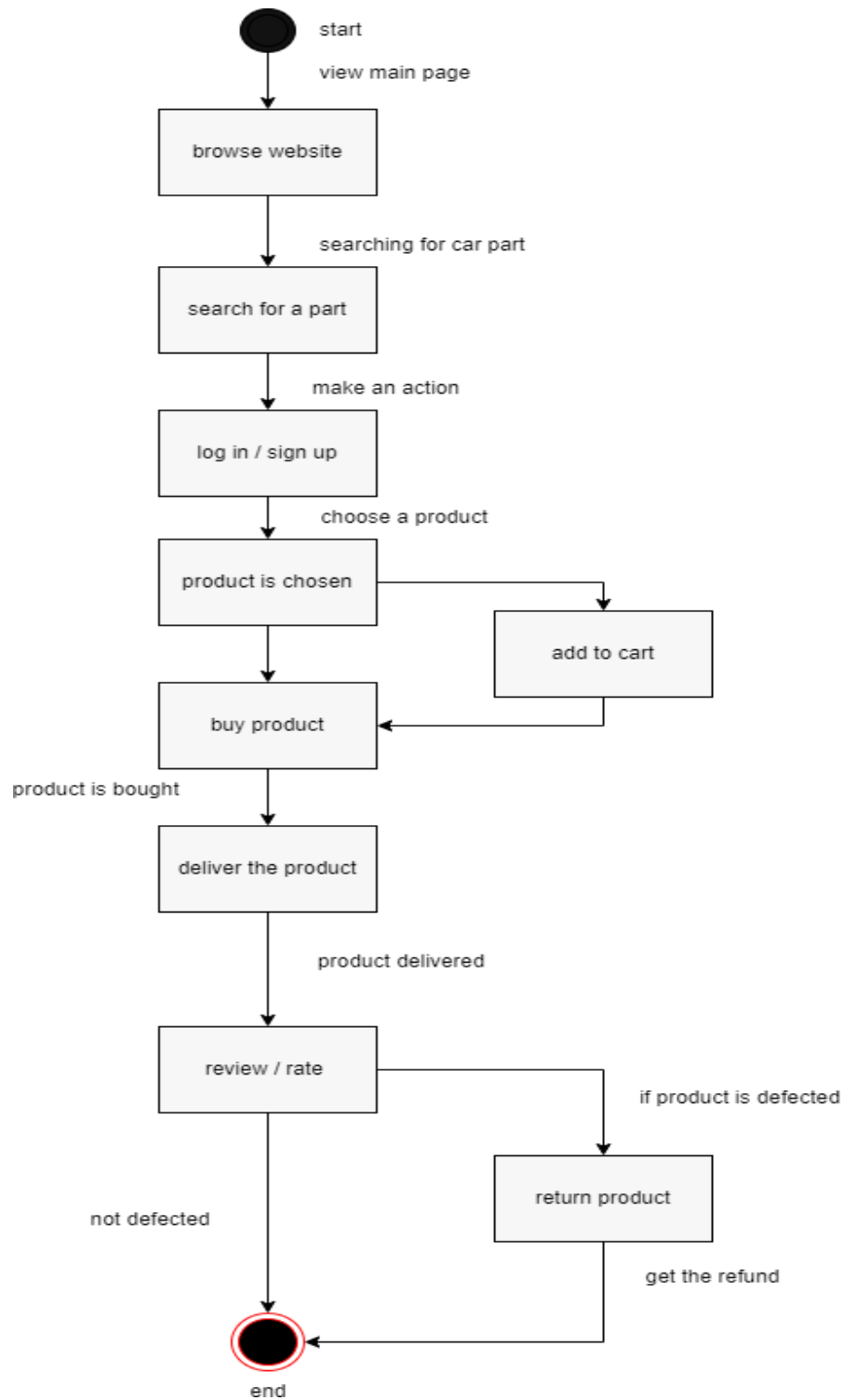


Figure 13: State Chart Diagram

3.4 System Architecture

3.4.1 Software Architecture

Figure 15 presents the System Architecture Diagram, which serves as a tool to comprehend, clarify, and communicate ideas regarding the system's structure and the user requirements it must fulfill. This diagram visually illustrates the components, modules, and their relationships within the system, aiding in a better understanding of the system's overall design and functionality.

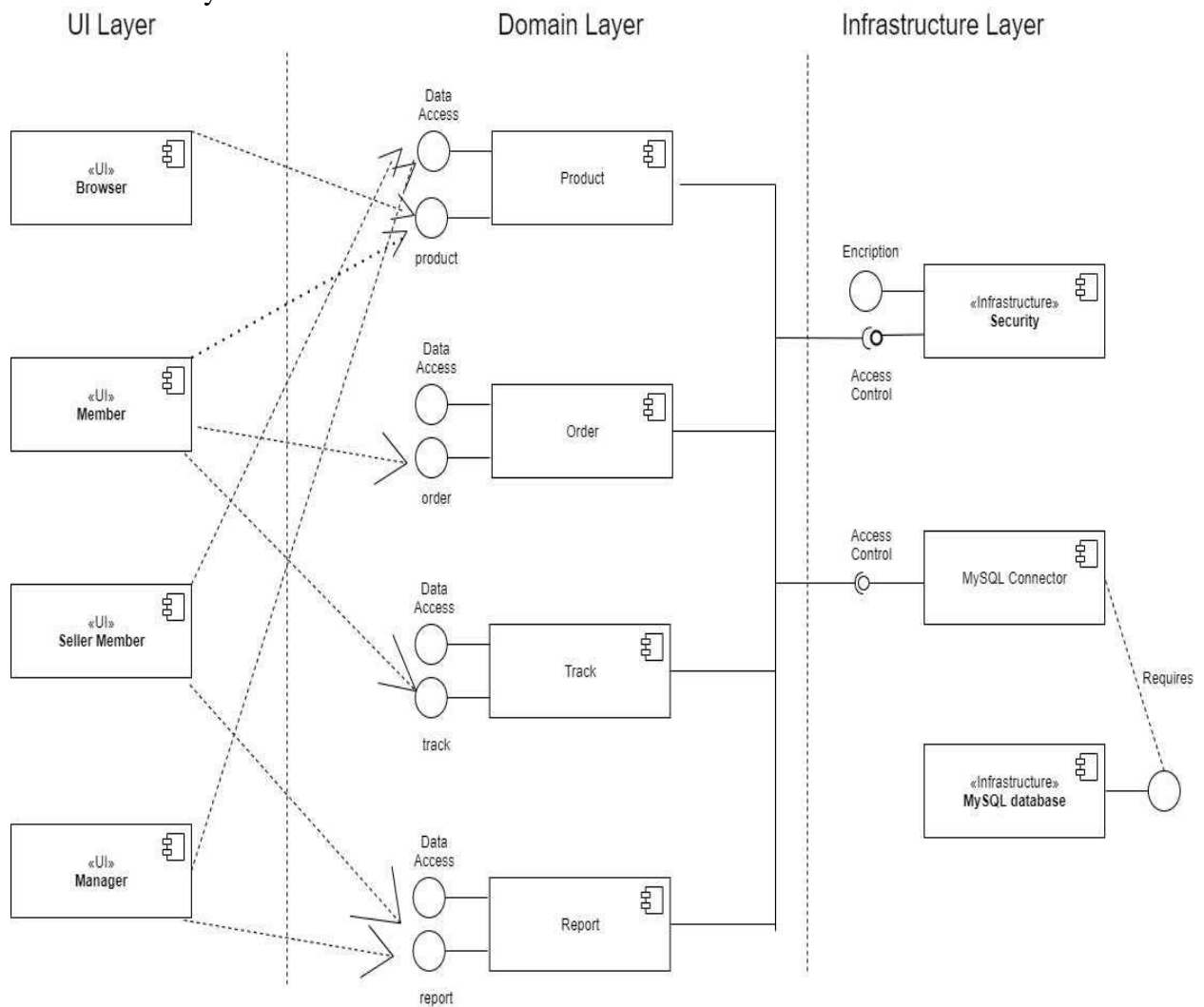


Figure 14: Software Architecture Diagram

3.4.2 Deployment Diagram

Figure 16 exhibits the Deployment Diagram, a visual representation utilized to model the physical aspect of an object-oriented system. This diagram illustrates how different software components and hardware nodes are distributed across the system's infrastructure and how they interact with each other to support the overall functionality.

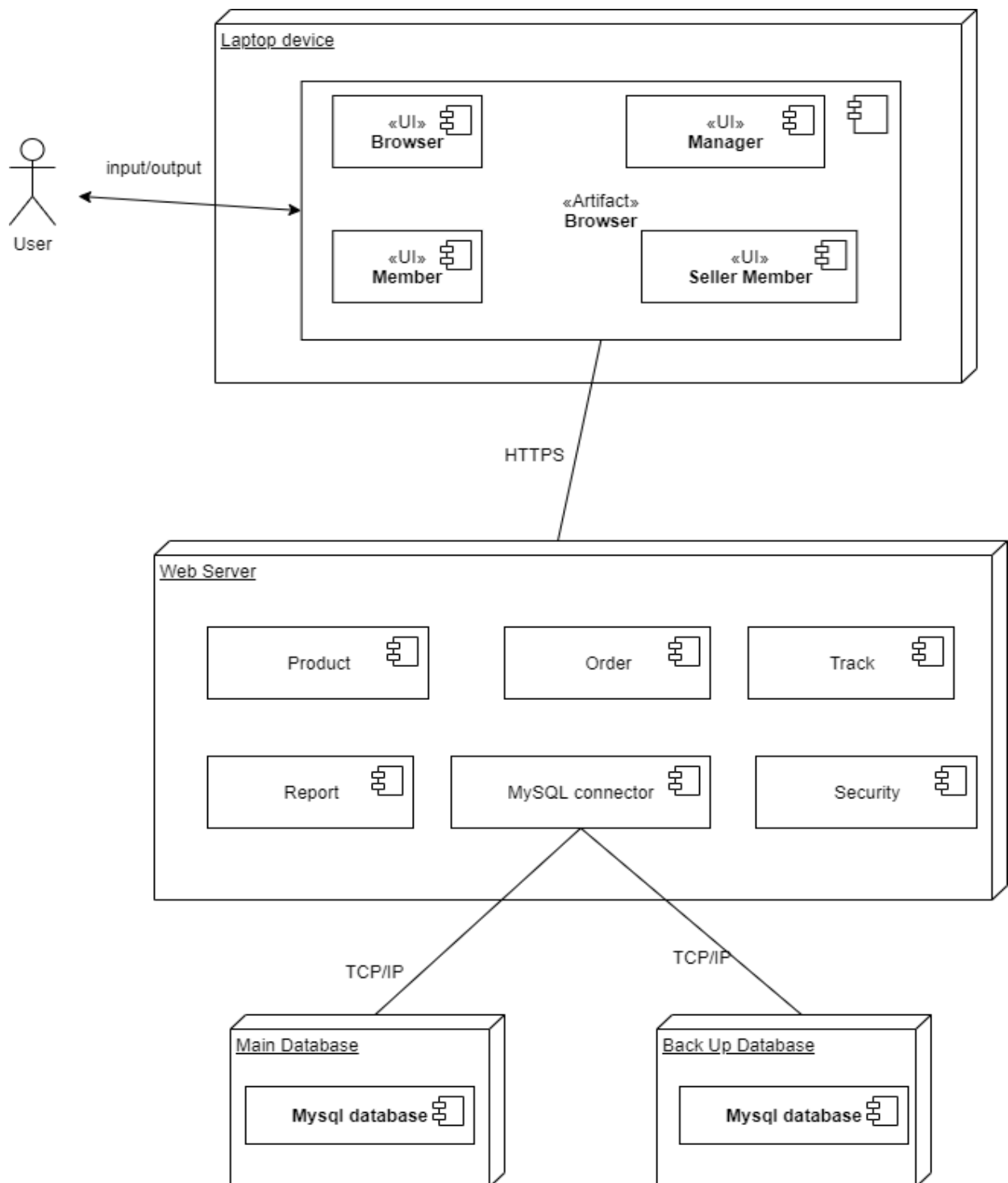


Figure 15: Deployment Diagram

Chapter 4: Implementation and Testing

This section includes the workflow, implementation process description, testing scenarios, and screenshots of the implemented website.

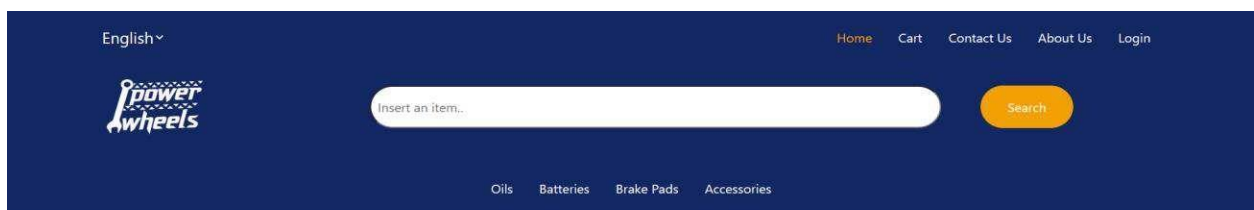
4.1 Implementation

4.1.1 UI Design

Below is the HTML and CSS implementation for the website pages, designed to be user-friendly and intuitive. The website logo was thoughtfully crafted to serve as a distinctive signature for the platform.

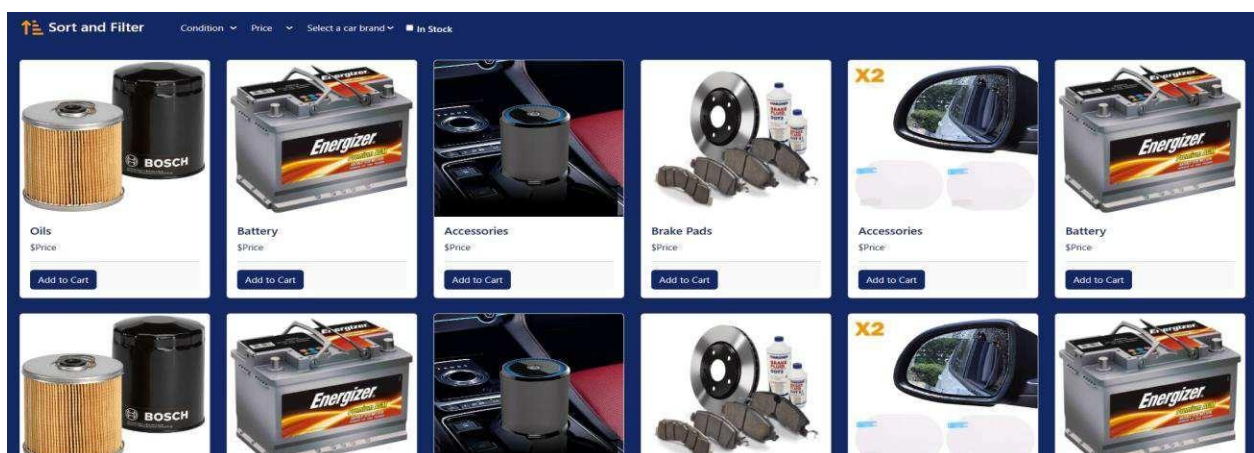
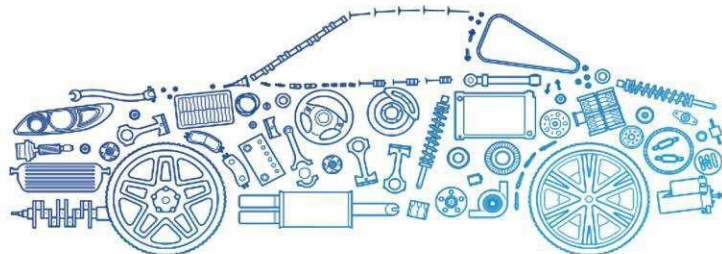
Main Page Design:

This page is the first page that appears to the user, and it's meant to allow the user to browse the Power Wheels website and view products without any registration or login.



Power Wheels

Our website specializes in providing high-quality car parts to automotive enthusiasts and professionals. Whether you're looking to upgrade your vehicle's performance or replace a damaged component, Power Wheels has an extensive selection of products from top brands that are designed to meet your needs. With a user-friendly interface and competitive pricing, our website has become a go-to destination for car enthusiasts and mechanics alike. With their commitment to customer satisfaction and fast shipping, Power Wheels is a reliable source for all your car part needs.



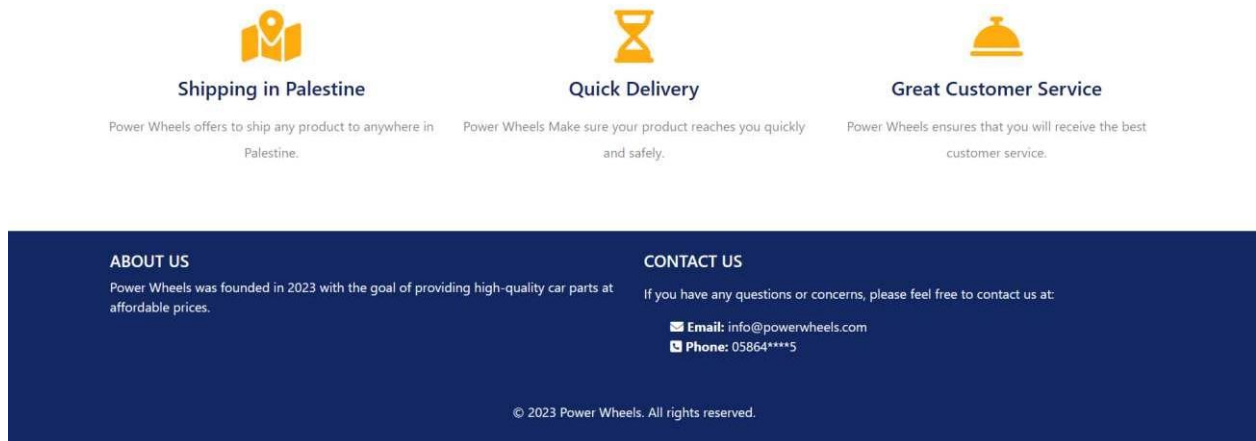


Figure 16: Main Page Design

Login Page Design:

This page facilitates user login to the Power Wheels website through their email and password, granting access to all the services offered on the platform.

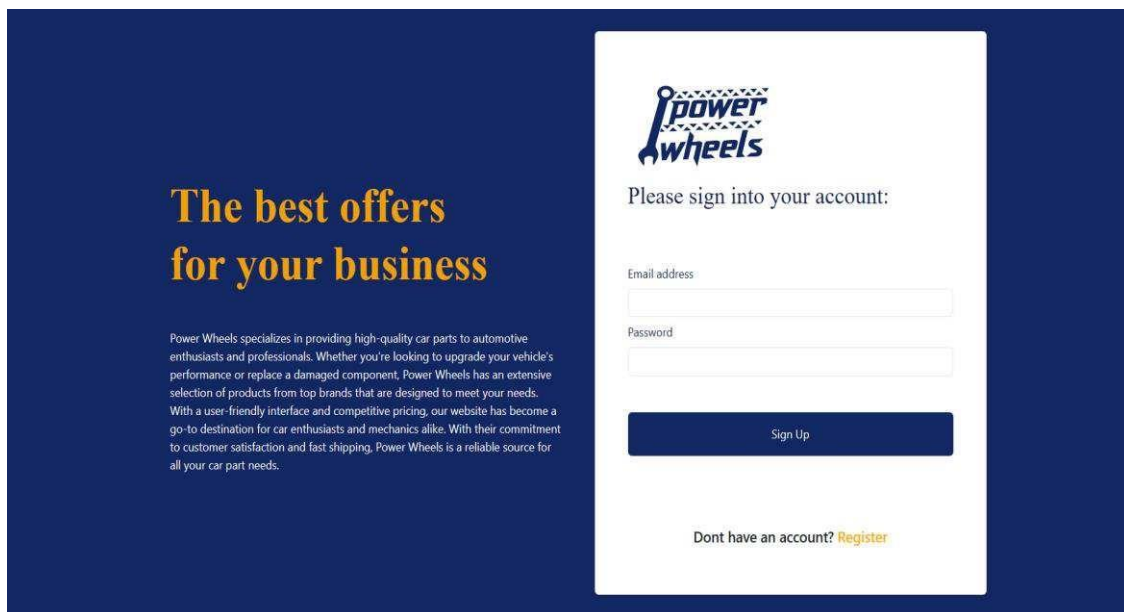


Figure 17: Login Page Design

Signup Page Design:

This page is designed to enable users to register on our website by creating an account and providing essential personal information such as name, email address, phone number, password, and account type. Once the account is successfully created, users gain access to Power Wheels and can utilize all the features available within their account.

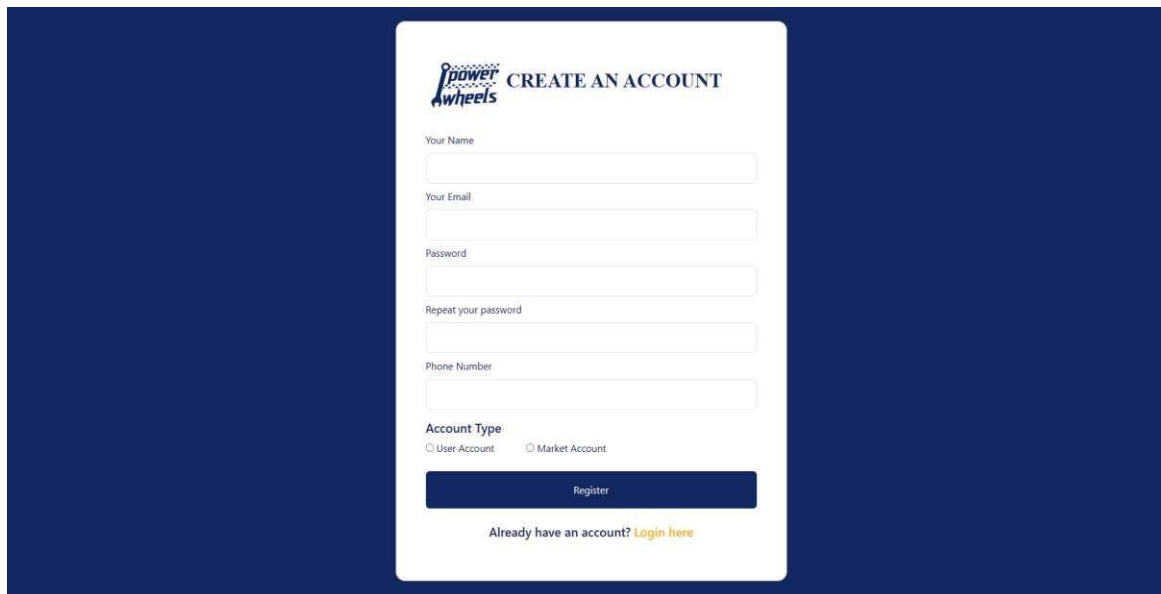
The image shows a 'CREATE AN ACCOUNT' form for 'Power Wheels' on a dark blue background. The form is white and contains the following fields: 'Your Name', 'Your Email', 'Password', 'Repeat your password', and 'Phone Number'. Below these is the 'Account Type' section with two radio buttons: 'User Account' and 'Market Account'. A dark blue 'Register' button is at the bottom of the form. Below the button, it says 'Already have an account? [Login here](#)'.

Figure 18: Signup Page Design

Cart Page Design:

This page on a website is where users can see the items they want to buy before checking out. It shows the product details and allows users to adjust quantities or remove items as needed before completing their purchase.

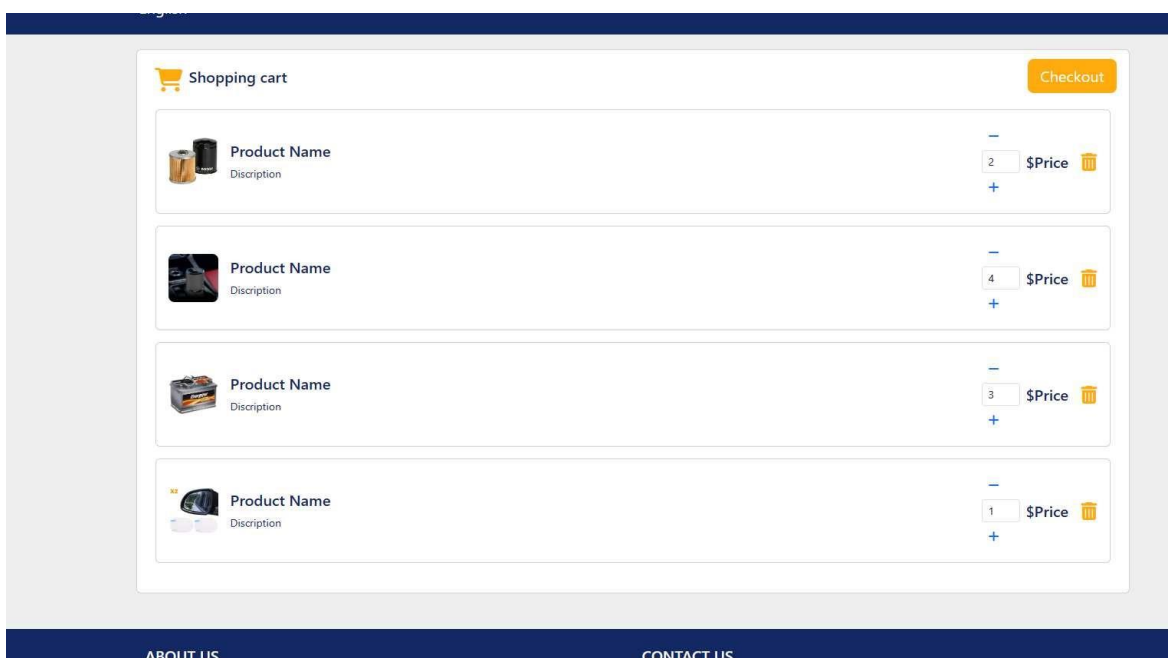
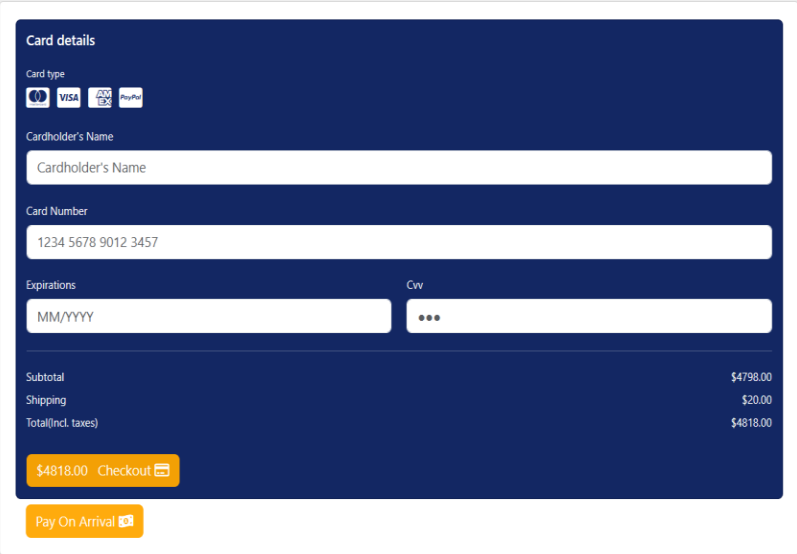
The image shows a 'Shopping cart' page. At the top left is a shopping cart icon and the text 'Shopping cart'. At the top right is an orange 'Checkout' button. The cart contains four items, each in a white box. Each box has a product image, 'Product Name', 'Discription', a quantity input field with minus and plus buttons, '\$Price', and a trash icon. The items are: 1. Product Name, Discription, quantity 2, \$Price. 2. Product Name, Discription, quantity 4, \$Price. 3. Product Name, Discription, quantity 3, \$Price. 4. Product Name, Discription, quantity 1, \$Price. At the bottom of the page is a dark blue footer with 'ABOUT US' and 'CONTACT US' links.

Figure 19: Cart Page Design

Credit Card Page Design:

This page is where users choose the payment method that Power Wheels offers where the user enters his credit card details to make a secure payment for their purchase or he can choose to pay on arrival.



The image shows a credit card payment form with a dark blue background. It includes fields for Card type (with logos for Visa, AMEX, and Mastercard), Cardholder's Name, Card Number (1234 5678 9012 3457), Expiration date (MM/YYYY), and Cvv (three dots). A summary table shows Subtotal (\$4798.00), Shipping (\$20.00), and Total (incl. taxes) (\$4818.00). At the bottom, there are two orange buttons: '\$4818.00 Checkout' and 'Pay On Arrival'.

Item	Amount
Subtotal	\$4798.00
Shipping	\$20.00
Total (incl. taxes)	\$4818.00

Figure 20: Credit Card Page Design

Product Page Design:

This is the product page that displays detailed information about a specific item, and also shows the ratings and comments the product got from previous buyers, helping users make informed decisions before purchasing.

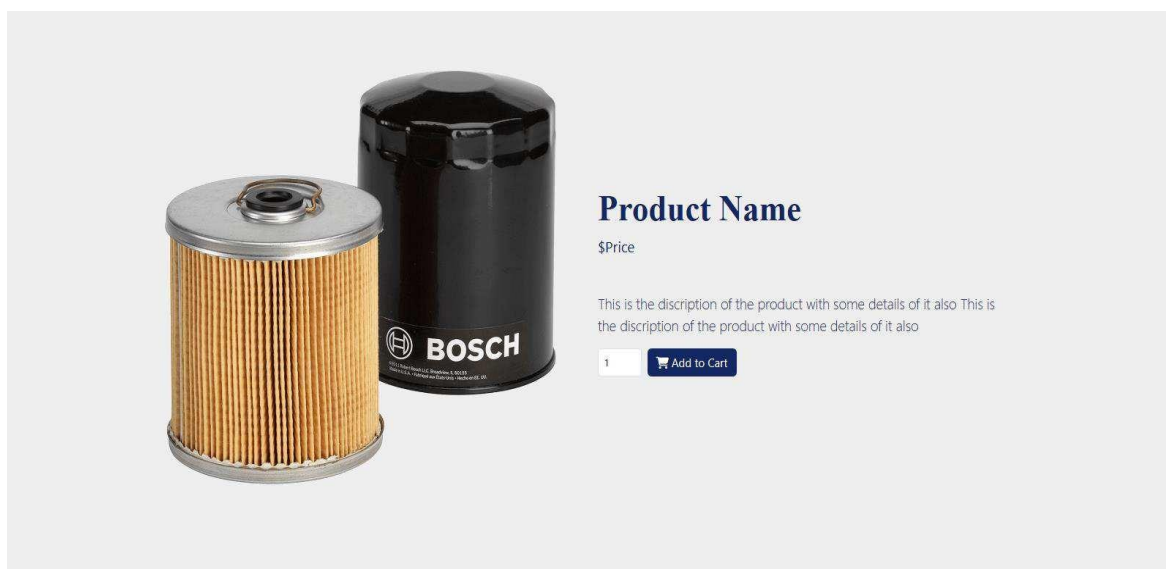




Figure 21: Product Page Design

Market Page Design:

This page provides markets profile with various functionalities, including the ability to add products to the website, generate reports for business insights, and track orders placed by customers.

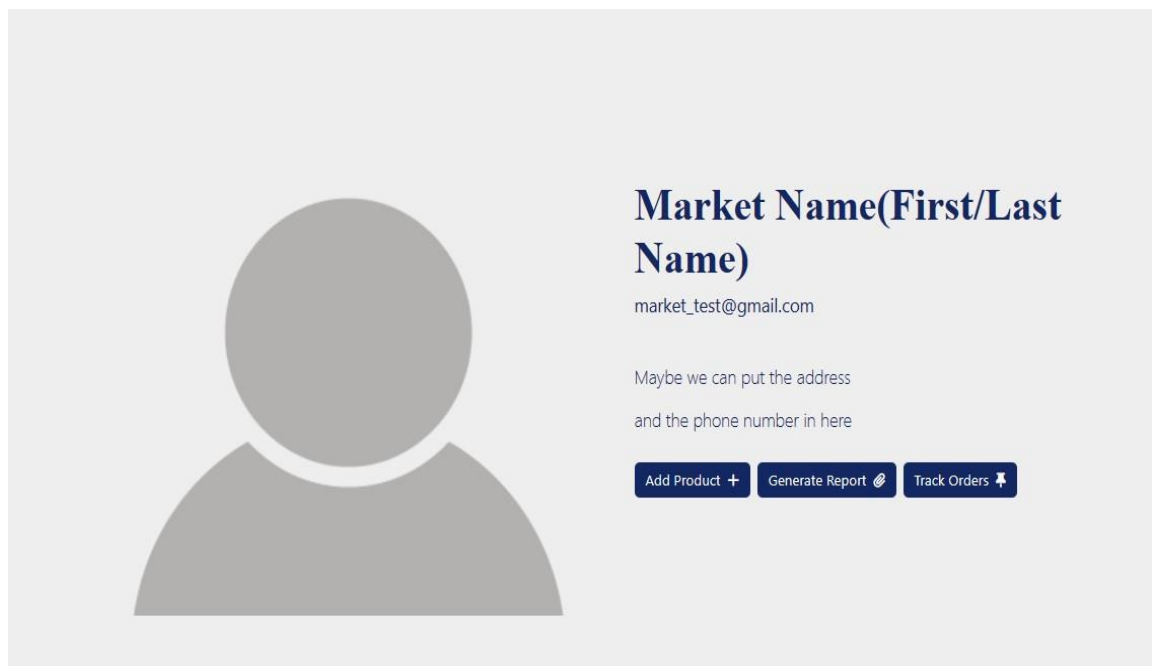


Figure 22: Market Page Design

Customer Page Design:

This page allows customers to track their orders and provides the option to switch their account to a market account.

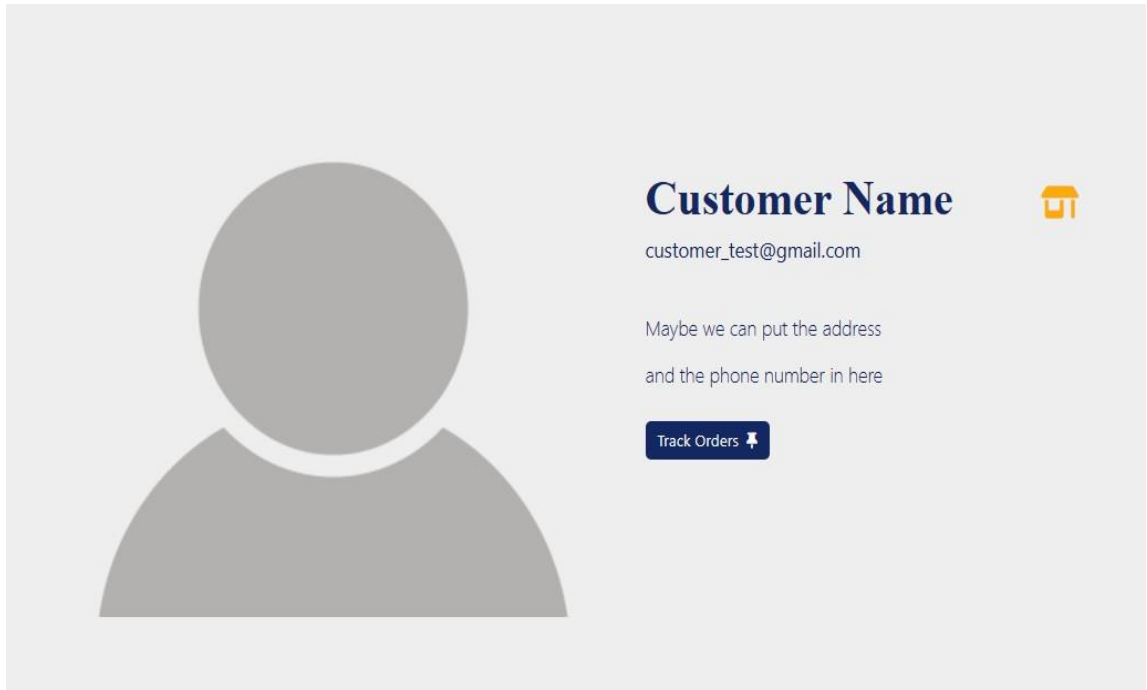


Figure 23: Customer Page Design

Switch to market Page Design:

This page enables users to upgrade their regular account to a market account, unlocking additional features and benefits.

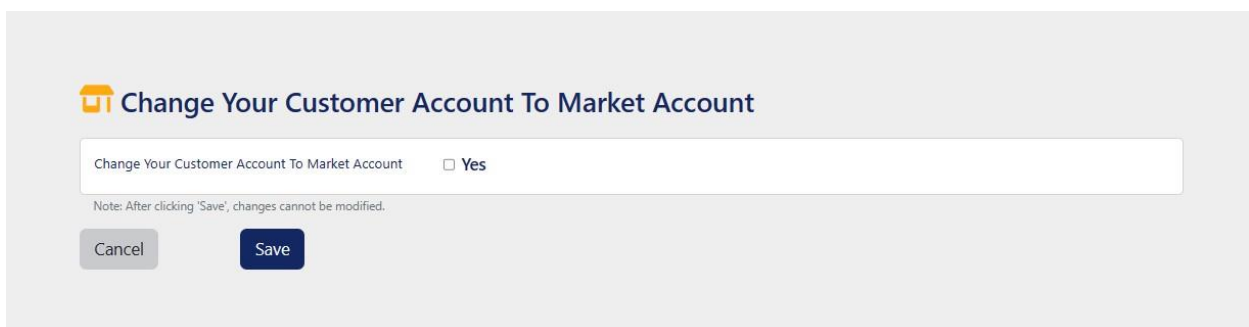


Figure 24: Switch Page Design

Statics Page Design:

This page displays data and metrics related to the market performance.

English ▾ Home Profile Cart Contact Us About Us Log Out

power wheels

Insert an item...

Search

Oils Batteries Brake Pads Accessories

Market Statistics

Order ID	Order Image	Price	Number Of Orders	Total Profit
1		\$	#	\$\$\$
2		\$	#	\$\$\$
3		\$	#	\$\$\$

ABOUT US
Power Wheels was founded in 2023 with the goal of providing high-quality car parts at affordable prices.

CONTACT US
If you have any questions or concerns, please feel free to contact us at:
Email: info@powerwheels.com
Phone: 05864****5

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Figure 25: Statics Page Design

Tracking Orders Page Design:

This page lets users check the status of their orders and stay updated on their delivery progress.

English ▾ Home Profile Cart Contact Us About Us Log Out

power wheels

Insert an item...

Search

Oils Batteries Brake Pads Accessories

Track Your Orders

Order ID	Order Image	Order Name	Price	Quantity	Status
1		****	\$\$\$	#	Delivered
2		****	\$\$\$	#	On the way
3		****	\$\$\$	#	Pending

ABOUT US
Power Wheels was founded in 2023 with the goal of providing high-quality car parts at affordable prices.

CONTACT US
If you have any questions or concerns, please feel free to contact us at:
Email: info@powerwheels.com
Phone: 05864****5

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Figure 26: Tracking Order Page Design

Add Product Page:

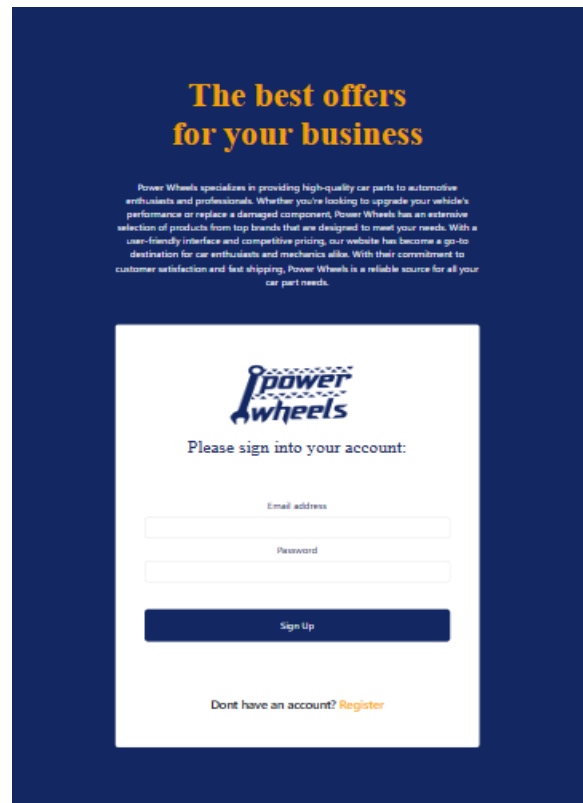
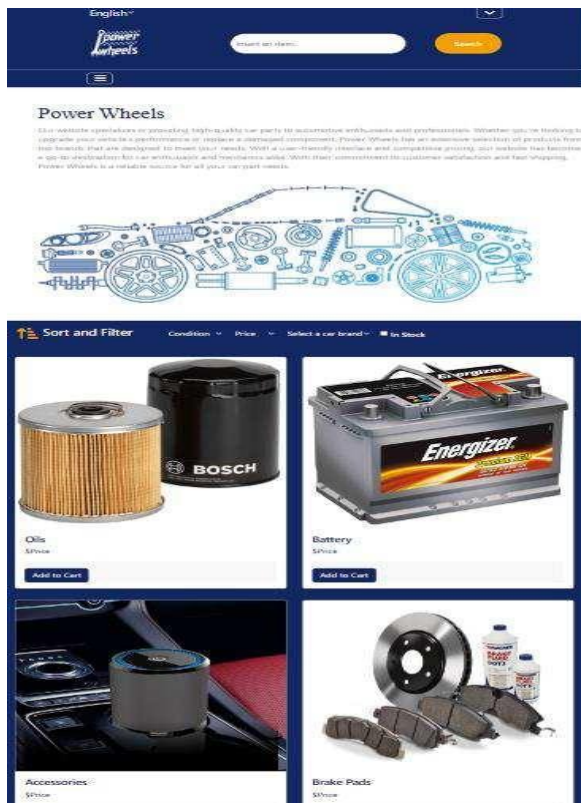
This page allows sellers to easily add new products to the website's inventory. Sellers can enter product details, upload images, and set availability and pricing information.

The screenshot shows the 'Add Product' page on the Power Wheels website. The page has a dark blue header with the 'power wheels' logo, a search bar, and navigation links (Home, Cart, Contact Us, About Us). Below the header, there are links for 'Oils', 'Batteries', 'Brake Pads', and 'Accessories'. The main content area is light gray and contains the 'Add Product' form. The form has the following fields: 'Product Name' (text input), 'Product Description' (text area), 'Product Price' (text input), 'Number of Items in Stock' (text input), and 'Product Image' (with a 'Choose File' button and 'No file chosen' text). There is an 'Add Product' button at the bottom of the form. The footer is dark blue and contains 'ABOUT US' and 'CONTACT US' sections.

Figure 27: Add Product Page Design

Responsive Pages:

All website pages are designed to be responsive, adapting their layout and scaling to fit any screen size. This includes adjustments to elements like the navigation bar.



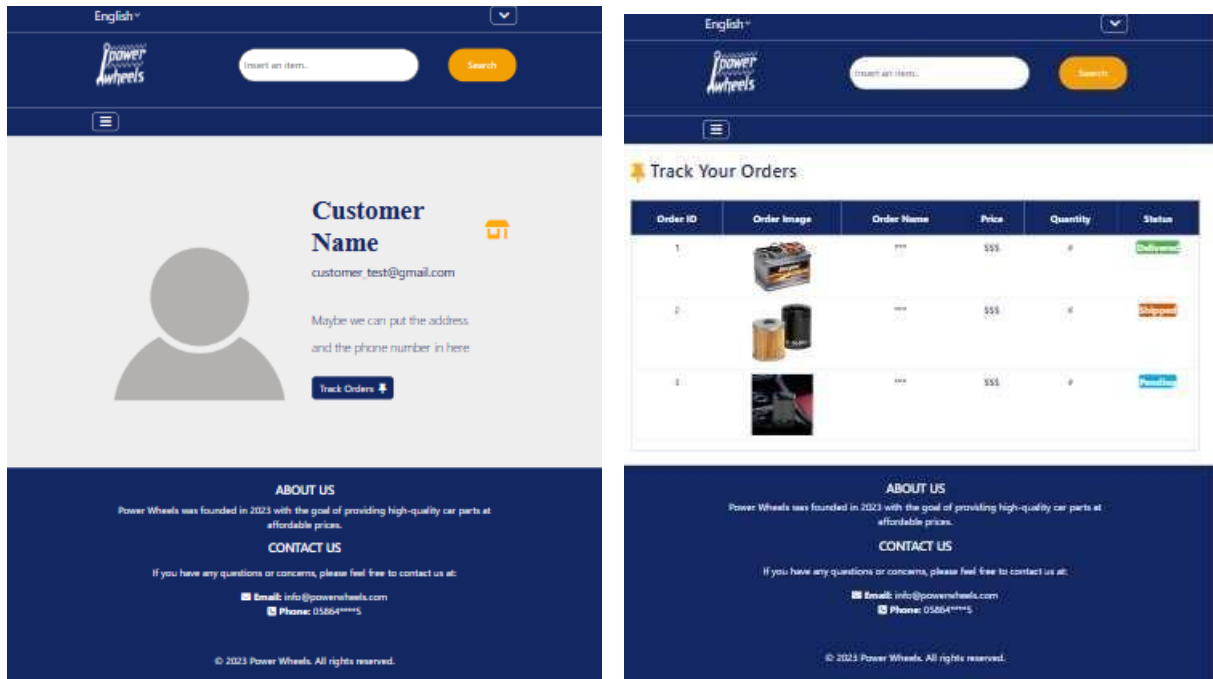


Figure 28: Responsive Pages Design

Admin Page Design:

This page lets administrators view and edit customer and market accounts, manage product details, and add new products to the website. It serves as a central hub for website management.

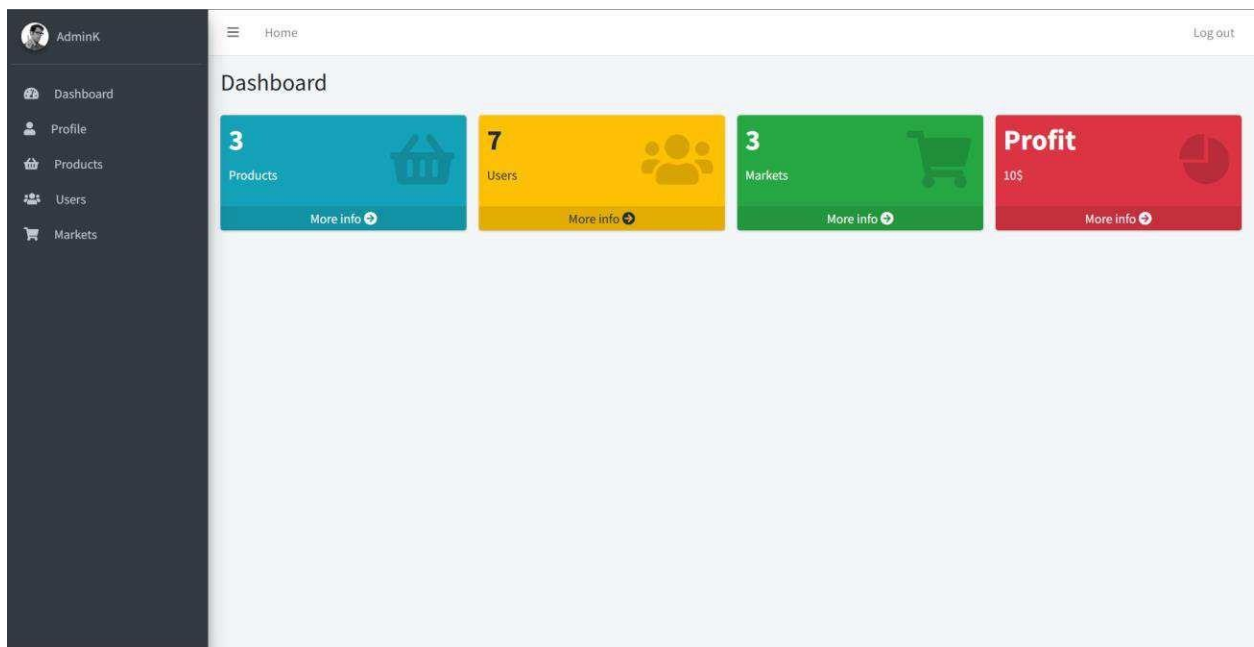


Figure 29: Admin Page Design

4.1.2 Testing

- Test Cases:

The following examples provide a clear overview of various scenarios that users may encounter while navigating the website. They illustrate the workflow and explain how we address potential issues, outlining the step-by-step process from beginning to end.

- Wrong Value:

This scenario is when the user tries to add a product with wrong field value.

The screenshot shows a web application interface for adding a product. At the top, there is a navigation bar with links: Home, Profile, Add Product, Cart, Contact Us, About Us, and Log Out. Below the navigation bar is a search bar with the text 'filter'. The main form contains several input fields: 'Product Price' with the value '-10', 'Number of Items in Stock' with the value '100', 'Product Condition' with radio buttons for 'New Product' (selected) and 'Used product', 'Product brand' with the value 'Volvo', and 'Product category' with the value 'oils'. A blue 'Add Product' button is at the bottom. A validation error message is displayed above the 'Add Product' button, stating 'Value must be greater than or equal to 1.' with an exclamation mark icon.

Figure 30: Wrong Value Test Case

- Wrong Password:

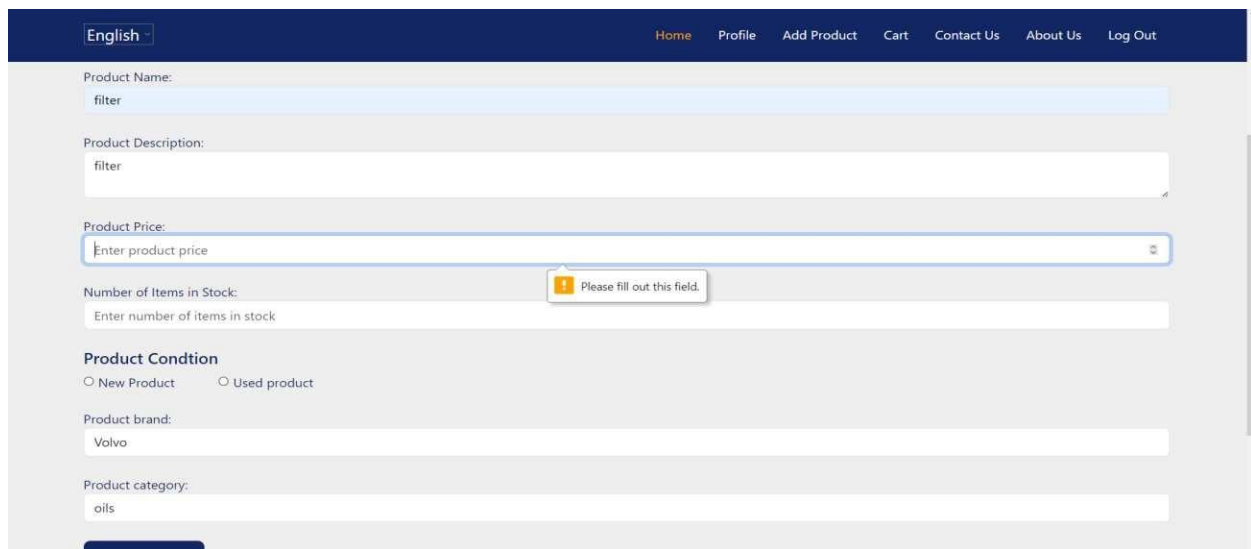
This scenario is when the user tries to log in with a wrong password.



Figure 31: Wrong Password Test Case

- Missing Field:

This scenario is when the user tries to add a product with missing field value.

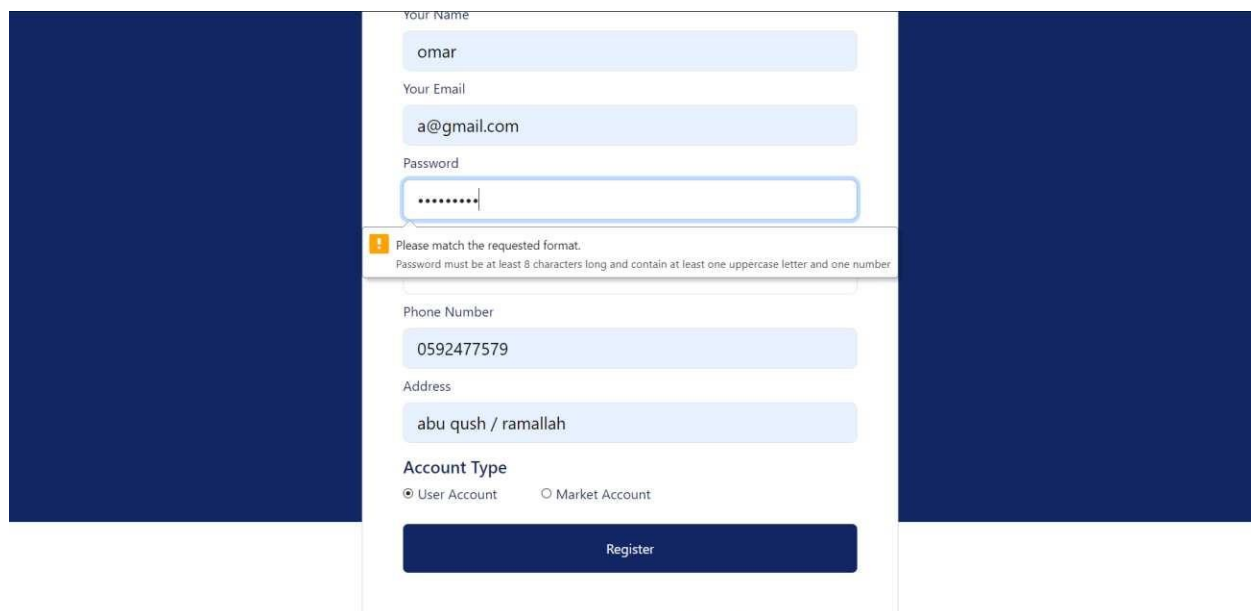


The screenshot shows a web application interface for adding a product. The form includes fields for Product Name, Product Description, Product Price, Number of Items in Stock, Product Condition (New Product or Used product), Product brand, and Product category. The Product Price field is highlighted with a red border and a red error message: "Please fill out this field." The Product Name field contains the text "filter", the Product Description field contains "filter", the Number of Items in Stock field contains "Enter number of items in stock", the Product Condition field has "New Product" selected, the Product brand field contains "Volvo", and the Product category field contains "oils".

Figure 32: Missing Field Test Case

- Wrong Password Format:

This scenario is when the user tries to create a new account with wrong password format.



The screenshot shows a web application interface for creating a new account. The form includes fields for Your Name, Your Email, Password, Phone Number, Address, and Account Type (User Account or Market Account). The Password field is highlighted with a red border and a red error message: "Please match the requested format. Password must be at least 8 characters long and contain at least one uppercase letter and one number". The Your Name field contains "omar", the Your Email field contains "a@gmail.com", the Password field contains "*****", the Phone Number field contains "0592477579", the Address field contains "abu qush / ramallah", and the Account Type field has "User Account" selected. A "Register" button is at the bottom.

Figure 33: Wrong Password Format Test Case

- Out Of Stock:

This scenario is when the user attempts to add a product to their cart; however, they encounter a situation where the product is currently out of stock. As a result, the "Add to Cart" button is unavailable for selection.

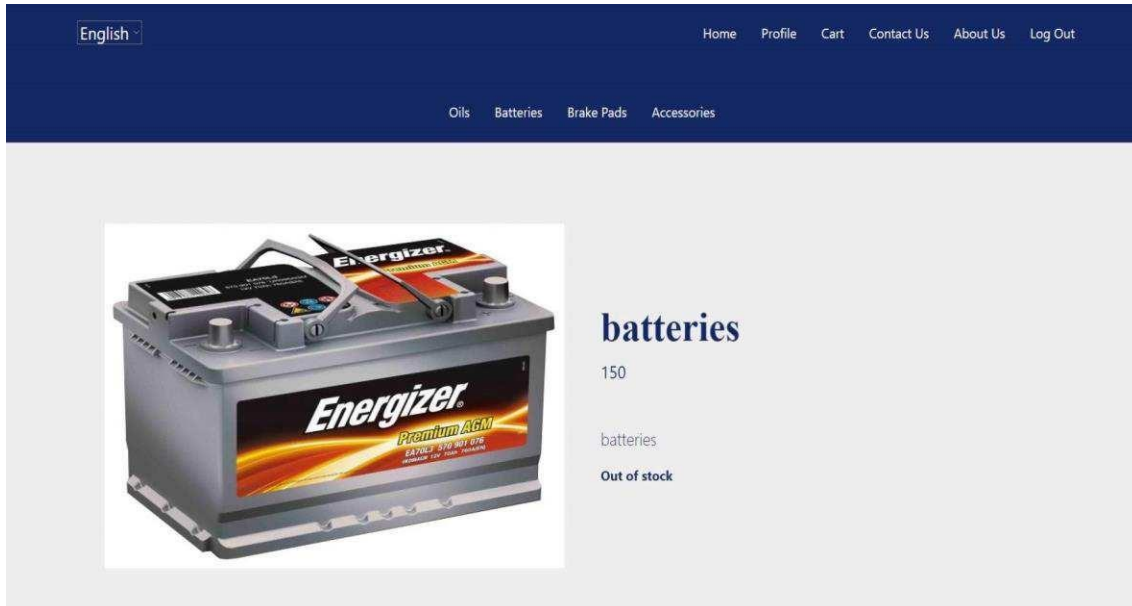


Figure 34: Out Of Stock Test Case

Account Does Not Exist: -

This scenario is when the user tries to log in with an email that has no account linked to it.

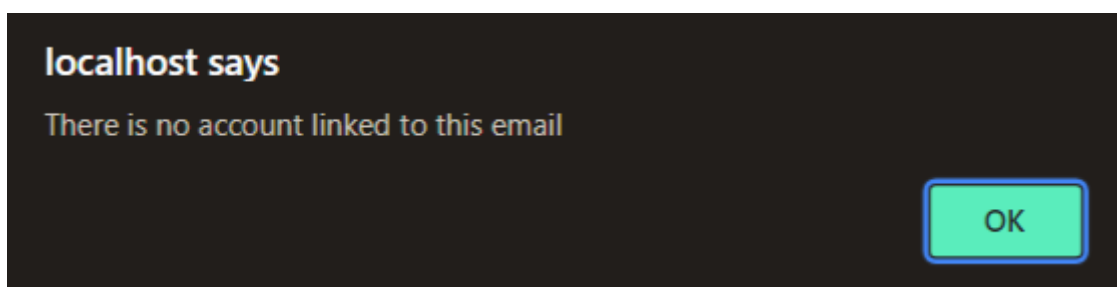


Figure 35: Account Does Not Exist Test Case

Chapter 5: Conclusion and Future works

5.1 Review of the project

During the first semester, we aimed to achieve several goals, Firstly, we focused on outlining the project's scope and objectives. Secondly, we conducted a thorough review of similar websites to gain valuable insights and identify potential areas for improvement, and By comparing their offered features, we gained a clearer understanding of how our website should be designed. Additionally, we collected related data to support the project's software development phase. Thirdly, we initiated the software preparation process, setting the foundation for the project's implementation.

Moving into the second semester, the focus shifted towards website implementation. To facilitate this, we gathered additional information required for the website's successful completion. Subsequently, we proceeded with the implementation of the website's database and user interface. A crucial step involved integrating the database with various techniques within the user interface.

5.2 Future Works

Since our website is based in Palestine, primarily driven by the lack of similar platforms that cater to mechanics and customers seeking the best car parts. Looking ahead, our vision is to expand the website globally, offering shipping services worldwide, thereby providing a valuable resource to a broader audience of car enthusiasts and professionals around the globe.

5.3 Conclusion

In conclusion, Power Wheels is a comprehensive online platform catering to car enthusiasts and mechanics, offering high-quality car parts and accessories. With the convenience of shopping from home, a wide selection of parts, and a user-friendly interface, we aim to provide a seamless experience for our customers. Our commitment to quality and affordability, along with the option for users to sell their car parts, fosters a sense of community. As we grow, we strive to expand globally and offer shipping services worldwide.

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