Advance Computer Science

Manage Seasonal Tires and Wheels

Submitted By:

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Idea

Tire is one of the most important part of a vehicle. As the seasons change, a vehicle owner may need to think about changing their seasonal tires. Whether switching to winter tires or to summer tires, it's important to think about how you store your off-season set. If you don't handle and store your tires properly, their characteristics can change. This can shorten their life. They can even deteriorate so badly in storage that they need to be replaced. But if you handle and store them correctly, they will deliver years of service – and you'll save money.

So, the idea behind the project is to build a solution to support the owner of a tire shop so that he can keep track of his and their tire. The replacement information, price and storage location should be effectively displayed so that faster processing of data occurs. There should not be any problem if the customer list is gigantic. Within a single screen all the data should be accessed which makes it less error tolerant.

Objective

There are various category of tires available in the market e.g. All Seasons, Winter, Performance, Touring etc. Some tires don't perform efficiently in certain seasons. The main goal behind this project is to provide a tire company a new way of expanding his business. Using this software, they can keep track of the tires of their customers and store it in their warehouse until the next season, until a customer has to change their tires. All the information of the customer along with their vehicle will be stored in the database so that when time comes and the customer walks into the store for replacement the user will face no difficulty to search for the and customer and replace the tire.

The User

This application is mainly focused on the owner of the tire shop or the receptionist of the shop to make their life easier. This is a very simple application so it can be operated by any person who has a basic idea of handling a computer. As globalisation is properly followed while developing this application so the owner doesn't need to have a specific language skill to make himself familiar with the application. There's no specific age requirement for the user to use the application, anyone who has a basic computer knowledge can easily use it, but as I guess the minimum age of a working receptionist must be 18 so that's the minimum age to use this application.

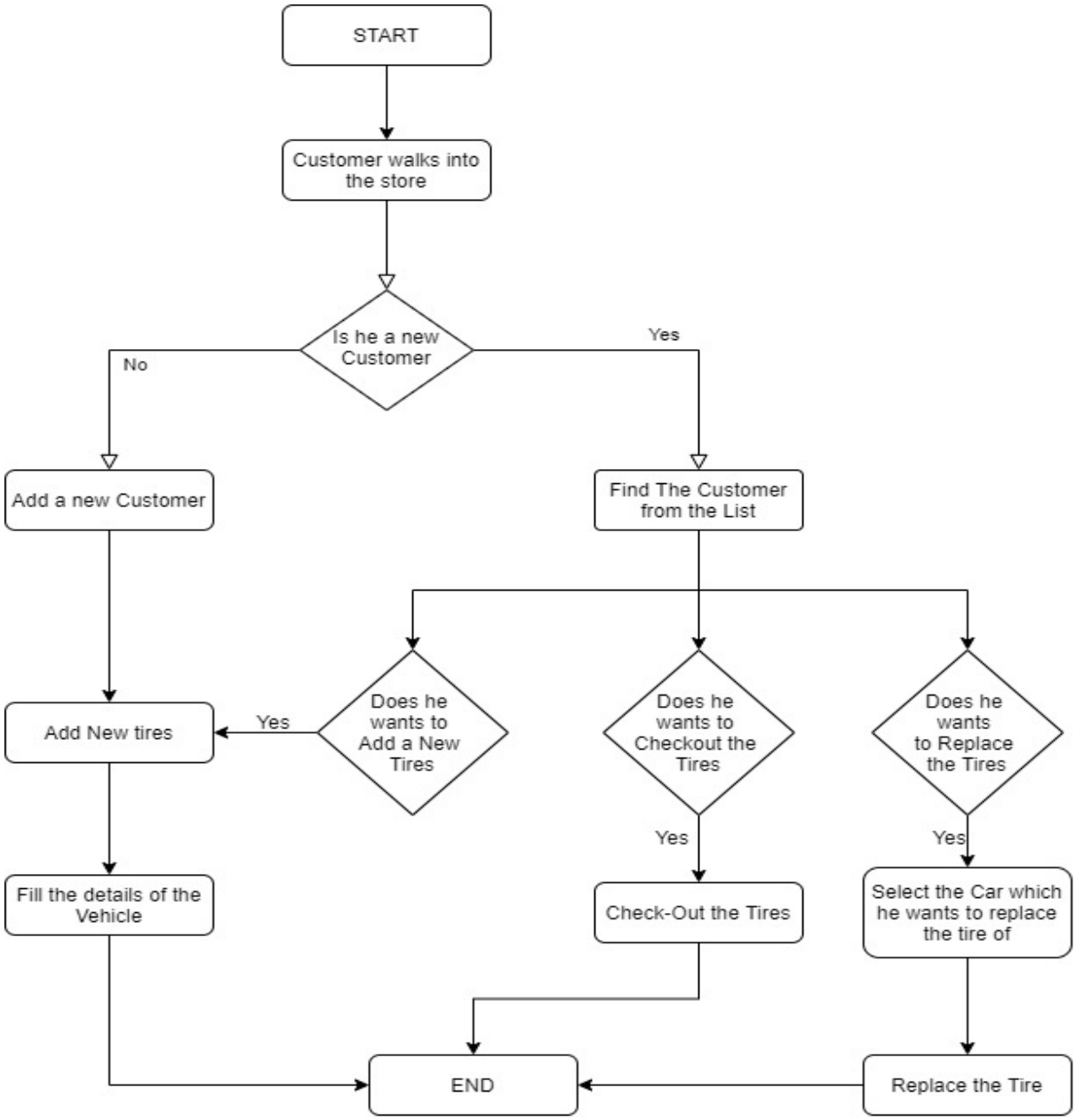
Functionalities

By using this software, a person can keep track of the tires/wheels of their customer in an efficient manner. When a new customer walks into the store the user has to ask for their basic information like his Name, Address and Date of Birth to uniquely identify customer. After that the details of the customer will be added to list of customers. Then a user can easily store the tire of the customer for safekeeping for long term. A customer can have multiple cars so when a user click on the customer name his/her list of car is being displayed on a list box. To avoid

the obstacle of finding customer from a huge list of customers there is the functionality to filter from the list where the user can write either the first name or last name to find the customer. After replacing the tire of the customer, a user can simply click on the “Replace” button to replace the tire of the car. In this app there’s no need too worry about price calculation for the customer, because the system will generate the updated price and display it within the box. If a customer decided to stop taking service for a certain car from the shop, then the user can easily delete the car from the list by clicking on “Check-Out” button. The system will ask for a conformation and display the money the customer owes to the shop. This application follows Globalisation principle so there’s no need to learn a specific language to use the application. The user can easily change to their feasible language. When the user deletes a customer or a car there’s no need to worry about the lack of transparency. Because all the information regarding the customer as well as their respective vehicle are stored in the history tab. If the user wants to find out the past replacement of the customer then can easily surf through the details in the history section.

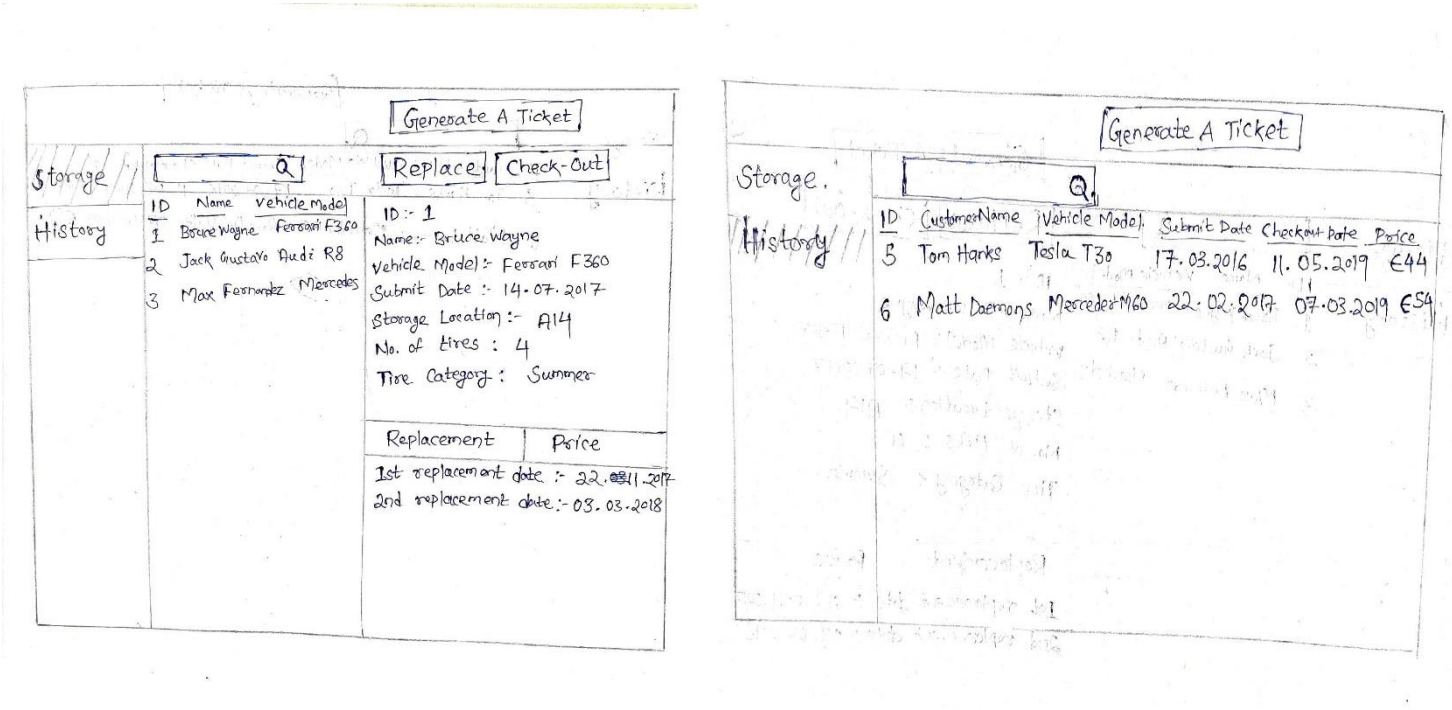
Approach

- **Flow Diagram**



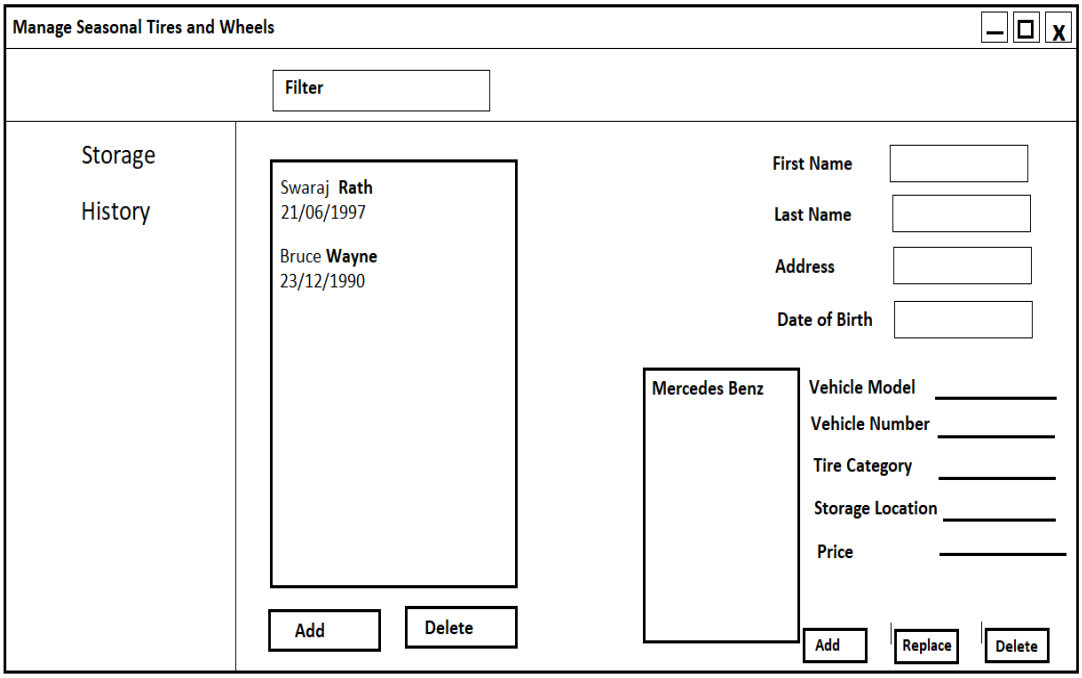
After listing out various requirement I first started designing the flow diagram of the application. How the process will follow up when the customer walks into the store to the end. This helped me to an great extent of picturing the requirement and to create a virtual image of the application.

- **Paper Prototype:**

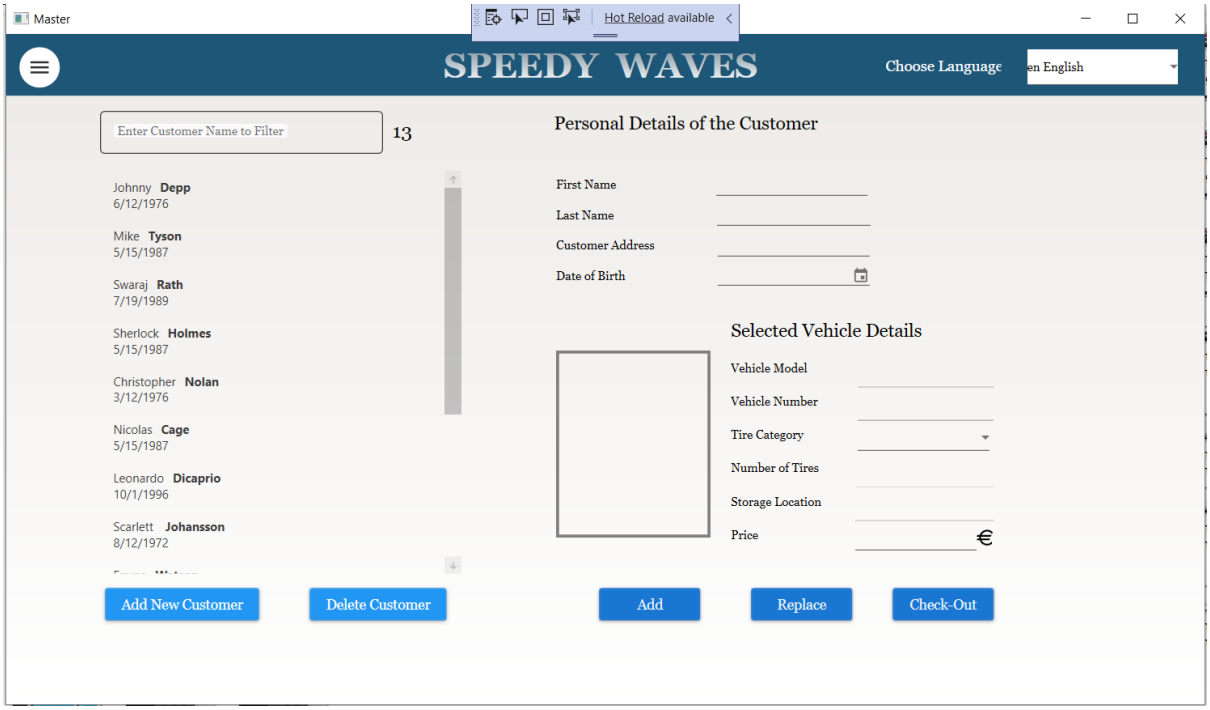


Then I started putting the virtual ideas into paper. The paper prototype was really a great help of picturing the app. Although there were some major changes happened after creating the paper prototype. It helps in proper communication and also to gain knowledge about better improvement of the app.

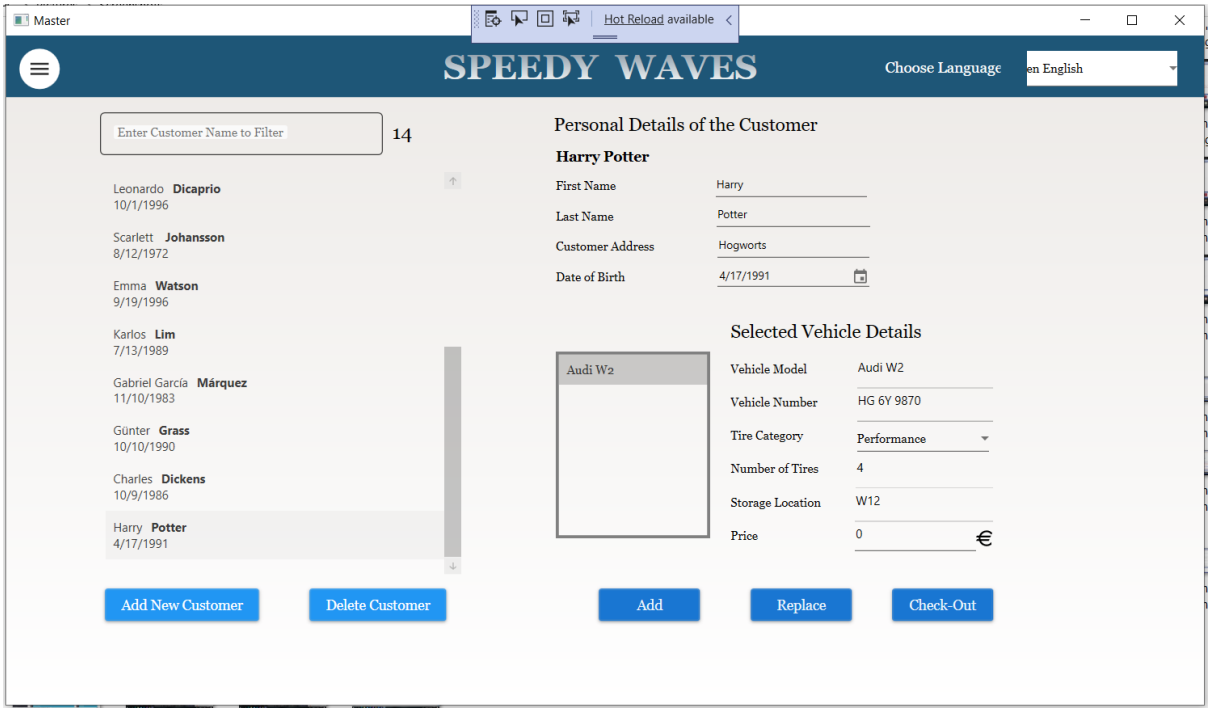
- **Wireframes**


Manage Seasonal Tires and Wheels
Filter
Storage
History
Swaraj Rath
21/06/1997
Bruce Wayne
23/12/1990
Add
Delete
First Name
Last Name
Address
Date of Birth
Mercedes Benz
Vehicle Model
Vehicle Number
Tire Category
Storage Location
Price
Add
Replace
Delete

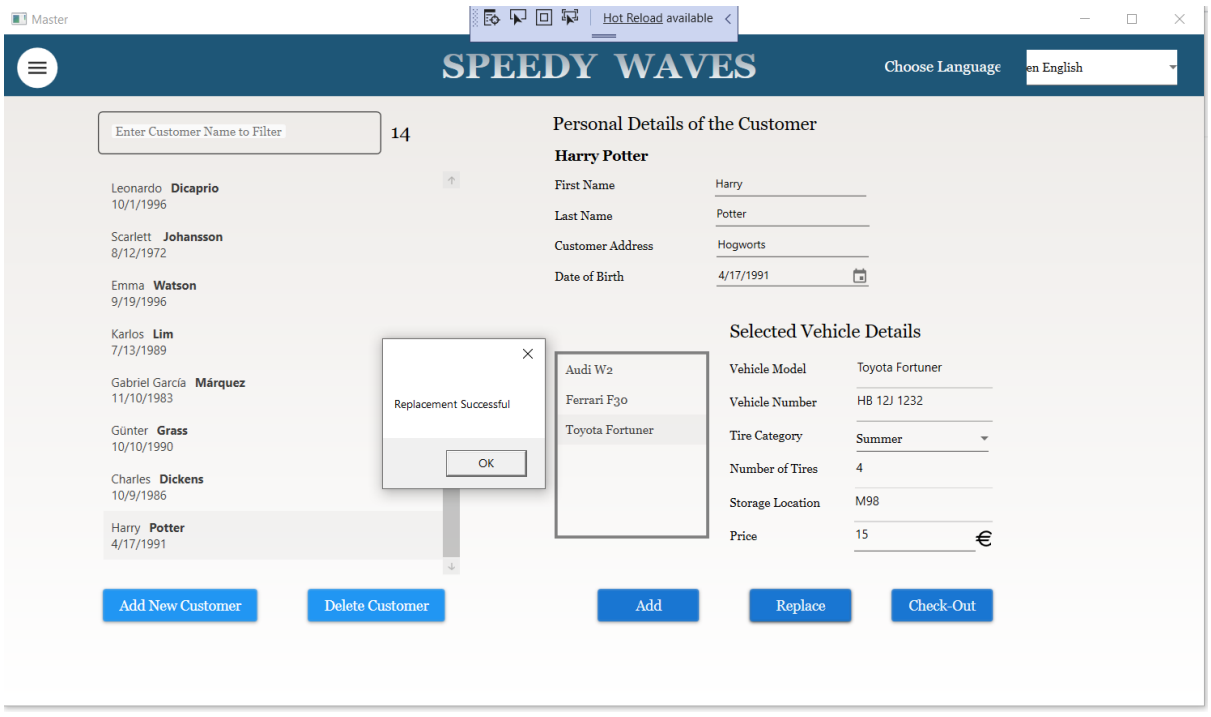
Implementation



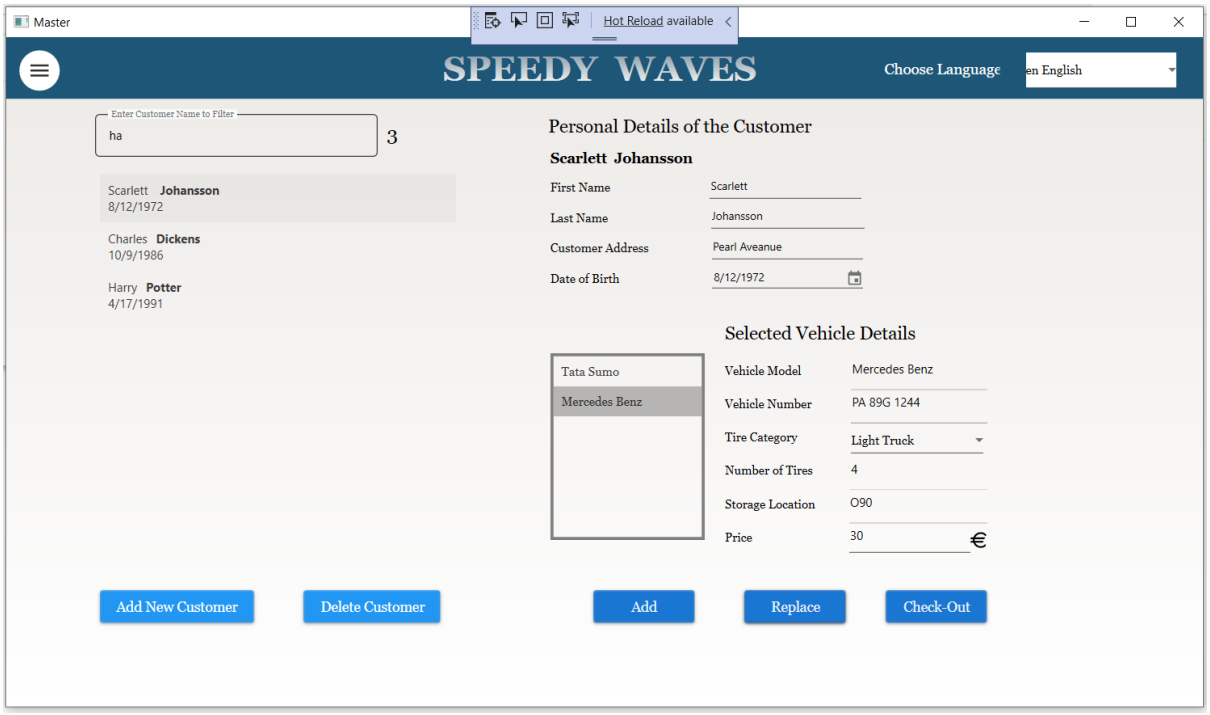
The above is the initial screen of my application. As I think a user should be able to find his way easily in this application. So “Self-Descriptiveness” principle is properly followed in this application. Beside that if a user doesn’t able to understand the functionalities of any button, he can easily get the answer by hovering on it. Also, Gestalt’s principle is also properly followed while creation of this projects. The buttons which are close to each other perform similar tasks which includes “Proximity” and “Similarity”. This application follows the rule of Globalisation so it’s a multilingual app. There are 4 possible language supported in this app i.e. English, German, Arabic, and Hindi. So, a user doesn’t need to worry about learning a specific language for using this application. “Error Tolerance” which is a very important aspect of Ergonomics is duly noted in the development process of this application.

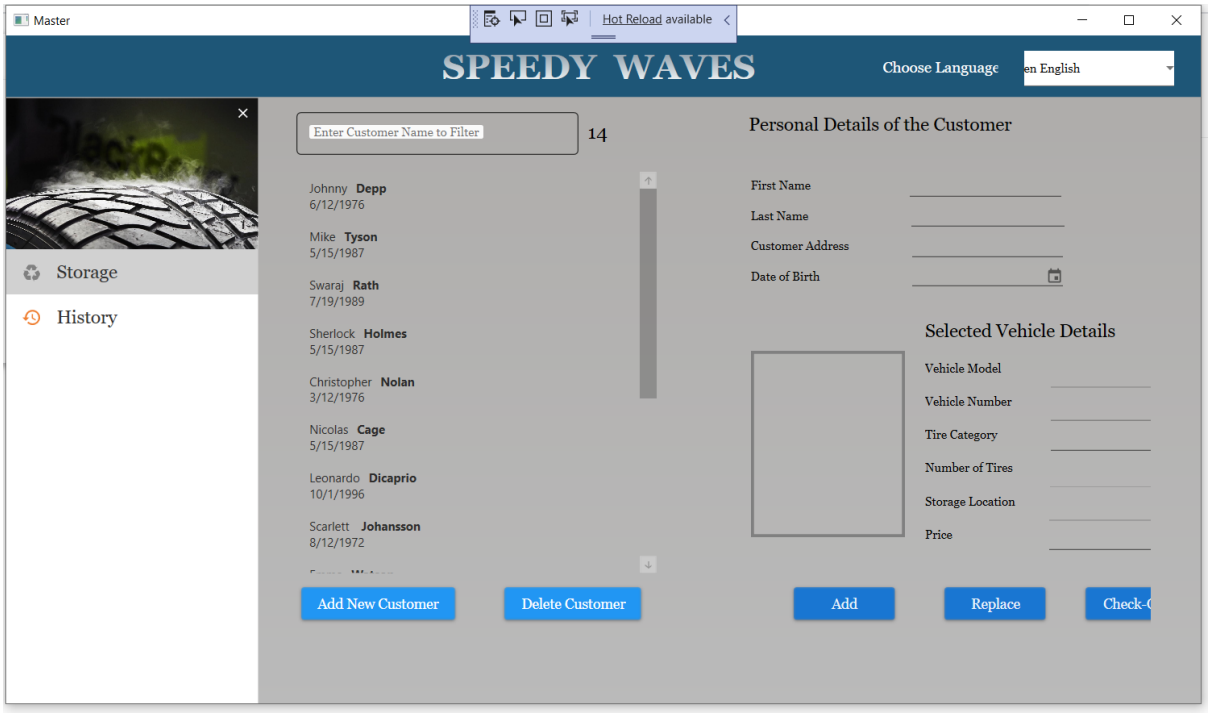


When a new customer walk into the store a user can click on the “Add New Customer” button. After that he has to fill the basic details of the customer like First Name, Last Name, Address and Date of Birth to uniquely identify the customer. After adding the customer successfully to store his tire he must click on “Add” button and fill out the details of the vehicle. If the customer has multiple vehicles then the user can also add multiple vehicle.



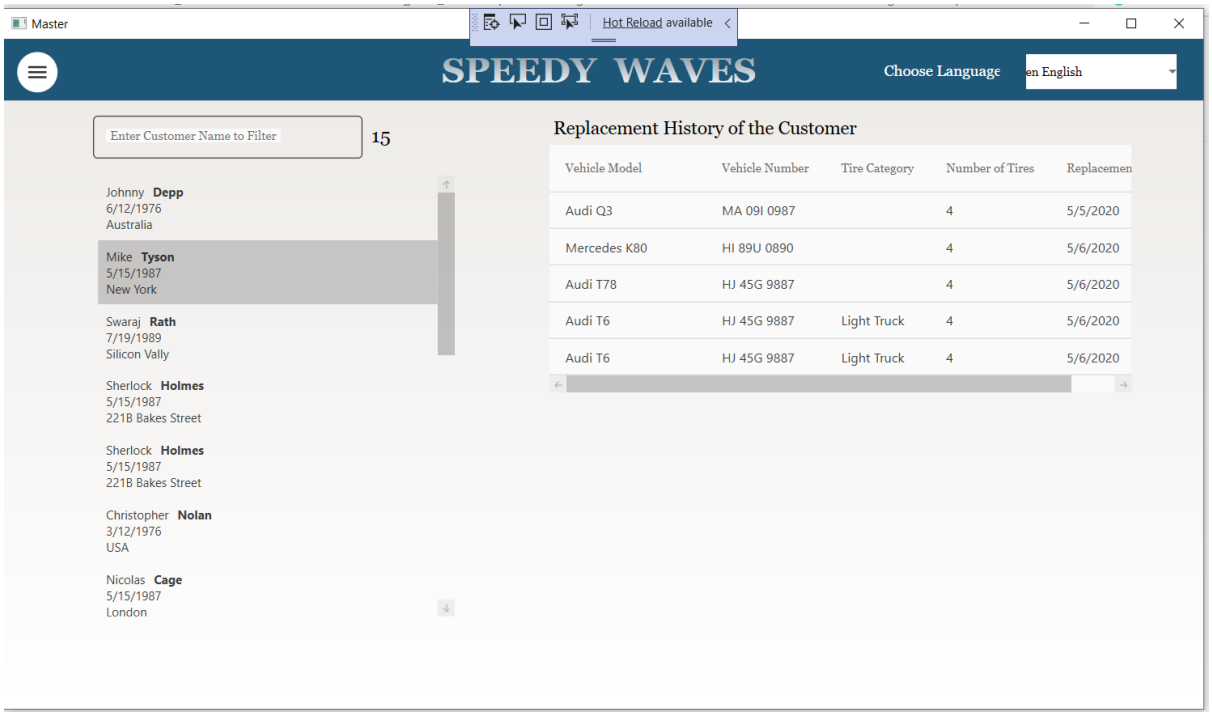
If an existing customer walks into the store and want to get their tire replaced all the user has to do is to find that customer from the list and select the desired vehicle and click on the “Replace” button. The price will be automatically changed and information will be stored in the history. This is one of most important of the Dialogue Principle i.e. ‘Suitability for the task’. Supporting the user to his task effectively and efficiently.



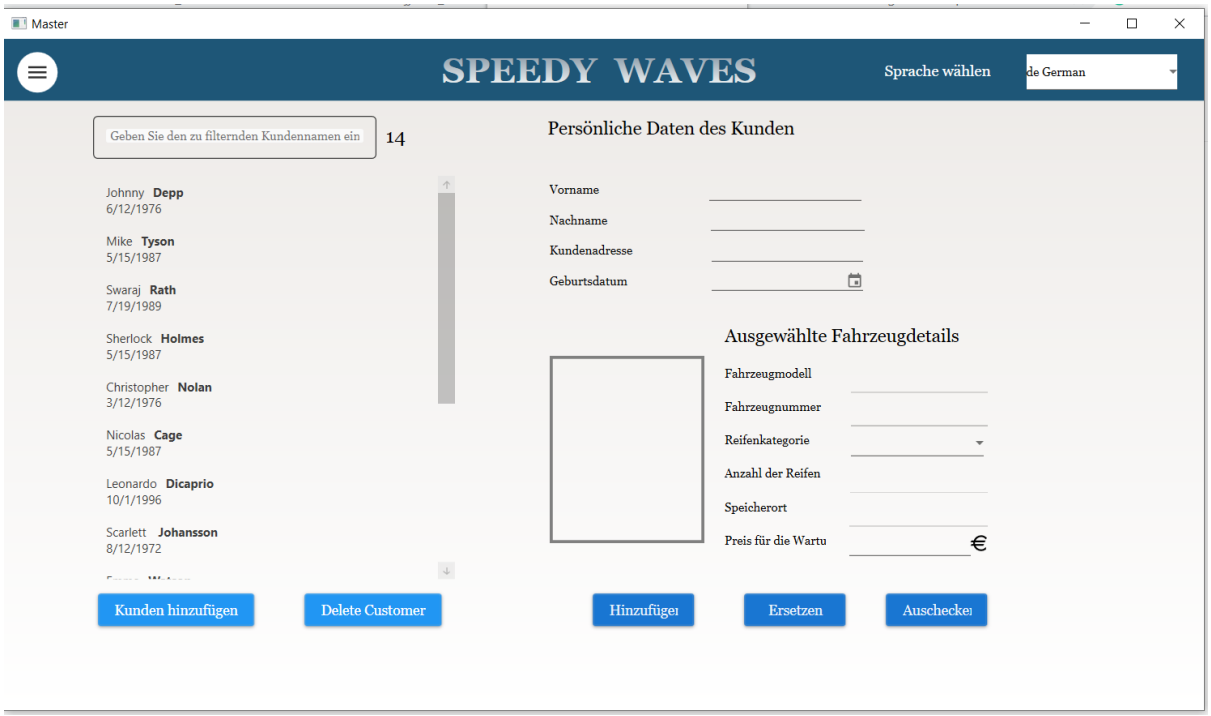


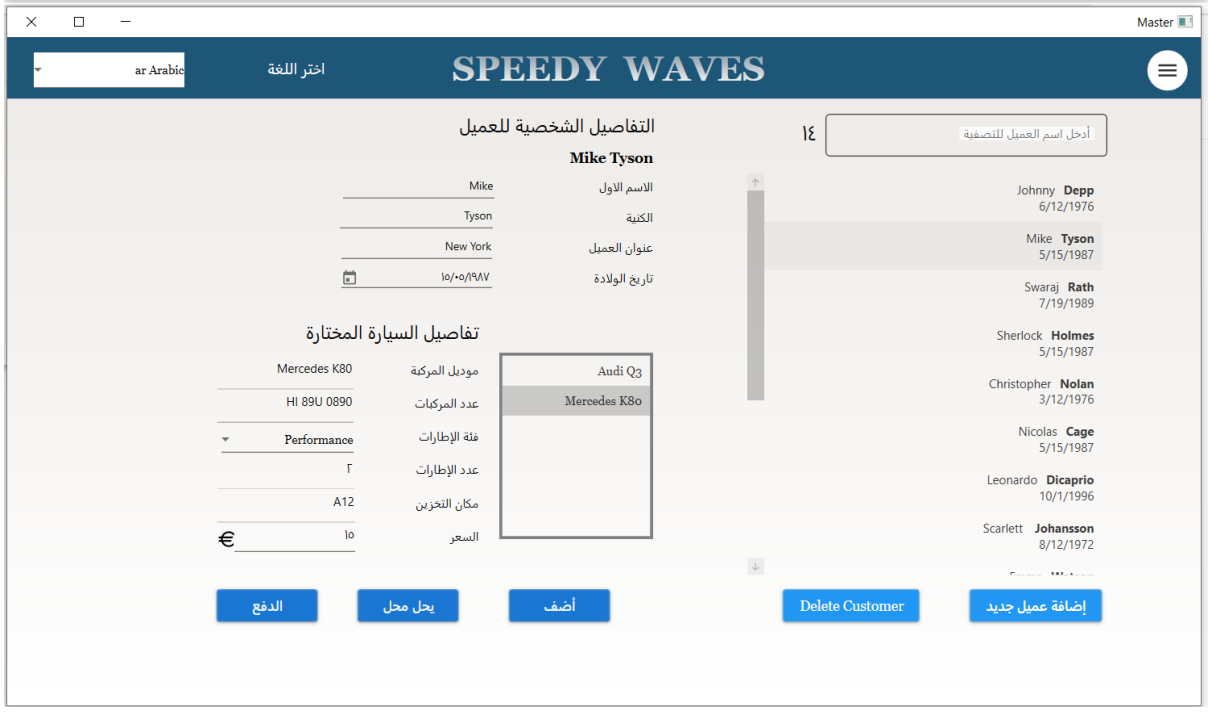
The side menu of the application can be accessed by clicking on the Menu button on the top left corner of the screen. The menu will be slide open from the left so that it doesn't occupy spaces. Using this menu the user can navigate to and from the Storage and History section.

In the History section the user can see all the replacement history of the tire shop. He can easily type the name of the customer and find all of his replacement history. The user can also sort the table according to his requirement.



As mentioned earlier this application follows the rule of globalisation properly. So the language can be changed from the combo-box which is at the top right corner. According to the requirement the flow direction also changes from Right To Left in case of Arabic.


Master
SPEEDY WAVES
Sprache wählen
de German
Geben Sie den zu filternden Kundennamen ein
14
Johnny Depp
6/12/1976
Mike Tyson
5/15/1987
Swaraj Rath
7/19/1989
Sherlock Holmes
5/15/1987
Christopher Nolan
3/12/1976
Nicolas Cage
5/15/1987
Leonardo Dicaprio
10/1/1996
Scarlett Johansson
8/12/1972
Kunden hinzufügen
Delete Customer
Persönliche Daten des Kunden
Vorname
Nachname
Kundenadresse
Geburtsdatum
Ausgewählte Fahrzeugdetails
Fahrzeugmodell
Fahrzeugnummer
Reifenkategorie
Anzahl der Reifen
Speicherort
Preis für die Wartu
€
Hinzufüge
Ersetzen
Auscheke


Master
ar Arabic
اختر اللغة
SPEEDY WAVES
١٤
أدخل اسم العميل للتصفية
Johnny Depp
6/12/1976
Mike Tyson
5/15/1987
Swaraj Rath
7/19/1989
Sherlock Holmes
5/15/1987
Christopher Nolan
3/12/1976
Nicolas Cage
5/15/1987
Leonardo Dicaprio
10/1/1996
Scarlett Johansson
8/12/1972
Delete Customer
إضافة عميل جديد
التفاصيل الشخصية للعميل
Mike Tyson
الاسم الاول
Mike
الكنية
Tyson
عنوان العميل
New York
تاريخ الولادة
١٥/٠٥/١٩٨٧
تفاصيل السيارة المختارة
موديل المركبة
Mercedes K80
عدد المركبات
HI 89U 0890
فئة الإطارات
Performance
عدد الإطارات
٢
مكان التخزين
A12
السعر
€
١٥
Audi Q3
Mercedes K80
الدفع
يحل محل
أضف

Results

I tried to put all of my effort into this project to make it as helpful to the users as possible. I have tried to follow the rules of Gestalt's principle to make the application follow proximity rule. The globalisation concepts were also properly followed in this project to make this application available globally. Without using SQL database, I get to learn how easily data can be stored inside XML file to access data very quickly in efficient manner. Object Oriented Programming is used to optimum level in this course, so my base become very strong on that area. The concept of Binding and IConverter are very crucial in this project so I get to learn a lot from it apply in this project. If my project implemented into production, then it can eases the life of a tire shop owner to a great extent.

However, there was always something which could have been done better. This application doesn't have the functionality of selling new tires. In most of the tire shop might sell new tires to generate more profit for their shop. Another thing is to display, and analytical view of the profit generated from the selling and replacing the tire according to the month and year would be very nice. Some other basic functionality like changing the price charged by the tire shop and to remind the customer to replace their tire would have been very nice to add into the application.

In my personal experience I get to learn a lot in this module and after implementing it practically. My concept in OOPs programming developed in great extent. Apart from that from the UX designing I learned a great lesson about how to think from a user perspective point of view. To create an application and make it as simple as possible for the user. The dialogue principle, Gestalt's principle and Globalisation plays an extremely important role in usability.