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**Question 1**

1. Design the model for the "CarHub Online Showroom" web application by including the tables, fields, and fields' datatype. The model should include tables for user accounts, dealers, cars, reviews, and other relevant entities. (6 marks)

Ans:

For the user accounts, I use **Django's built-in 'User' model**. I extend its functionality with the **'UserProfile'** model.

*Table 1: Details of Model*

| No | Model | Fields | Fields' datatype |
|---|---|---|---|
| 1 | User Account Model | User | • id: AutoField (Primary Key)<br>• username: CharField(max_length=150)<br>• password: CharField(max_length=128)<br>• email: EmailField<br>• first_name: CharField(max_length=30, blank=True)<br>• last_name: CharField(max_length=30, blank=True)<br>• date_joined: DateTimeField(auto_now_add=True) |
| | | UserProfile | • id: AutoField (Primary Key)<br>• user: OneToOneField(User, on_delete=models.CASCADE)<br>• user_type: CharField(max_length=10, choices=[('dealer', 'Dealer'), ('customer', 'Customer')])<br>• bio: TextField(blank=True, null=True) |

| | | | |
|---|---|---|---|
| | | | • contact_info: TextField(blank=True, null=True) |
| 2 | Dealer Model | DealerProfile | • id: AutoField (Primary Key)<br>• user: OneToOneField(UserProfile, on_delete=models.CASCADE), related_name='dealer_profile'<br>• company_name: CharField(max_length=100)<br>• company_address: CharField(max_length=255)<br>• email: EmailField<br>• phone_number: CharField(max_length=20)<br>• bio: TextField(blank=True, null=True) |
| 3 | Car Model | Category | • id: AutoField (Primary Key)<br>• name: CharField(max_length=50) |
| | | Car | • id: AutoField (Primary Key)<br>• dealer: ForeignKey(UserProfile, on_delete=models.CASCADE)<br>• make: CharField(max_length=50)<br>• model: CharField(max_length=50)<br>• year: IntegerField<br>• price: DecimalField(max_digits=10, decimal_places=2)<br>• image: ImageField(upload_to='car_images/', blank=True, null=True)<br>• description: TextField<br>• category: ForeignKey(Category, on_delete=models.CASCADE) |

| | | | |
|---|---|---|---|
| 4 | Review Model | Review | • id: AutoField (Primary Key)<br>• car: ForeignKey(Car, related_name='reviews', on_delete=models.CASCADE)<br>• user: ForeignKey(UserProfile, on_delete=models.CASCADE)<br>• rating: IntegerField(choices=[(1, '1 Star'), (2, '2 Stars'), (3, '3 Stars'), (4, '4 Stars'), (5, '5 Stars')])<br>• comment: TextField(max_length=200)<br>• created_at: DateTimeField(auto_now_add=True) |
| 5 | Wishlist Model | Wishlist | • id: AutoField (Primary Key)<br>• user: ForeignKey(UserProfile, on_delete=models.CASCADE)<br>• car: ForeignKey(Car, related_name='wishlist', on_delete=models.CASCADE) |

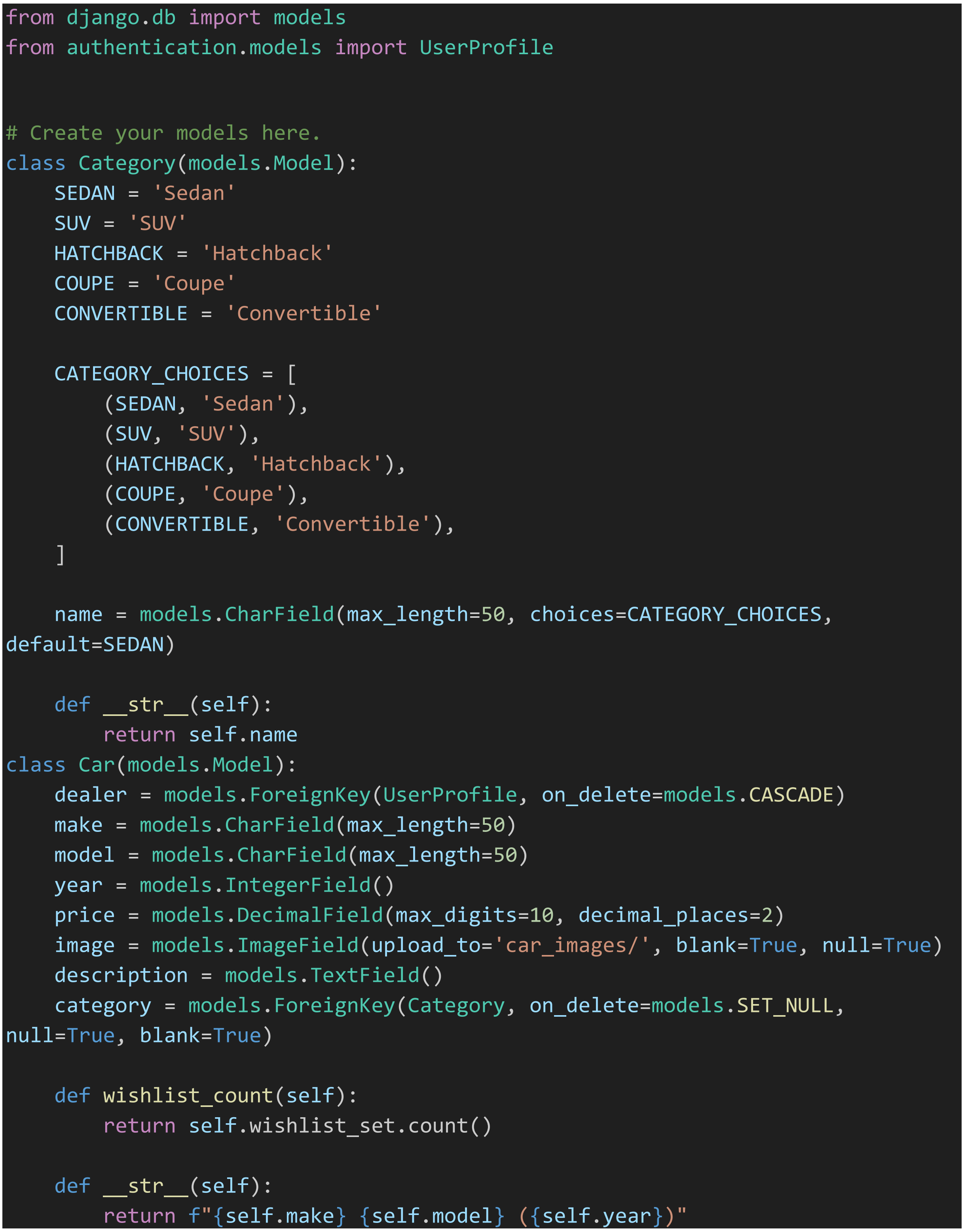
## UserProfile Model

```python
from django.db import models
from django.contrib.auth.models import User

# Create your models here.
class UserProfile(models.Model):
    USER_TYPE_CHOICES = (
        ('dealer', 'Dealer'),
        ('customer', 'Customer'),
    )
    user = models.OneToOneField(User, on_delete=models.CASCADE)
    user_type = models.CharField(max_length=10, choices=USER_TYPE_CHOICES)
    bio = models.TextField(blank=True, null=True)
    contact_info = models.TextField(blank=True, null=True)

    def __str__(self):
        return self.user.username
```

## Dealer Model

```python
from django.db import models
from authentication.models import UserProfile
from cars.models import Car

class DealerProfile(models.Model):
    user = models.OneToOneField(UserProfile, on_delete=models.CASCADE,
related_name='dealer_profile')
    company_name = models.CharField(max_length=100)
    company_address = models.TextField(max_length=255)
    email = models.EmailField()
    phone_number = models.CharField(max_length=20)
    bio = models.TextField(blank=True, null=True)
    contact_info = models.TextField(blank=True, null=True)

    def __str__(self):
        return self.company_name

    def get_cars(self):
        return Car.objects.filter(dealer=self.user)

    def get_wishlist_count(self, car):
        return car.wishlist_set.count()
```

## Car Model



```
from django.db import models
from authentication.models import UserProfile


# Create your models here.
class Category(models.Model):
    SEDAN = 'Sedan'
    SUV = 'SUV'
    HATCHBACK = 'Hatchback'
    COUPE = 'Coupe'
    CONVERTIBLE = 'Convertible'

    CATEGORY_CHOICES = [
        (SEDAN, 'Sedan'),
        (SUV, 'SUV'),
        (HATCHBACK, 'Hatchback'),
        (COUPE, 'Coupe'),
        (CONVERTIBLE, 'Convertible'),
    ]

    name = models.CharField(max_length=50, choices=CATEGORY_CHOICES,
default=SEDAN)

    def __str__(self):
        return self.name
class Car(models.Model):
    dealer = models.ForeignKey(UserProfile, on_delete=models.CASCADE)
    make = models.CharField(max_length=50)
    model = models.CharField(max_length=50)
    year = models.IntegerField()
    price = models.DecimalField(max_digits=10, decimal_places=2)
    image = models.ImageField(upload_to='car_images/', blank=True, null=True)
    description = models.TextField()
    category = models.ForeignKey(Category, on_delete=models.SET_NULL,
null=True, blank=True)

    def wishlist_count(self):
        return self.wishlist_set.count()

    def __str__(self):
        return f"{self.make} {self.model} ({self.year})"
```

## Review Model

```
class Review(models.Model):
    RATING_CHOICES = [
        (1, '1 Star'),
        (2, '2 Stars'),
        (3, '3 Stars'),
        (4, '4 Stars'),
        (5, '5 Stars'),
    ]

    car = models.ForeignKey(Car, on_delete=models.CASCADE,
related_name='reviews')
    user = models.ForeignKey(UserProfile, on_delete=models.CASCADE)
    rating = models.IntegerField(choices=RATING_CHOICES)
    comment = models.TextField(max_length=200)
    created_at = models.DateTimeField(auto_now_add=True)

    def __str__(self):
        return f"Review by {self.user.user.username} on {self.car}"
```

## Wishlist Model

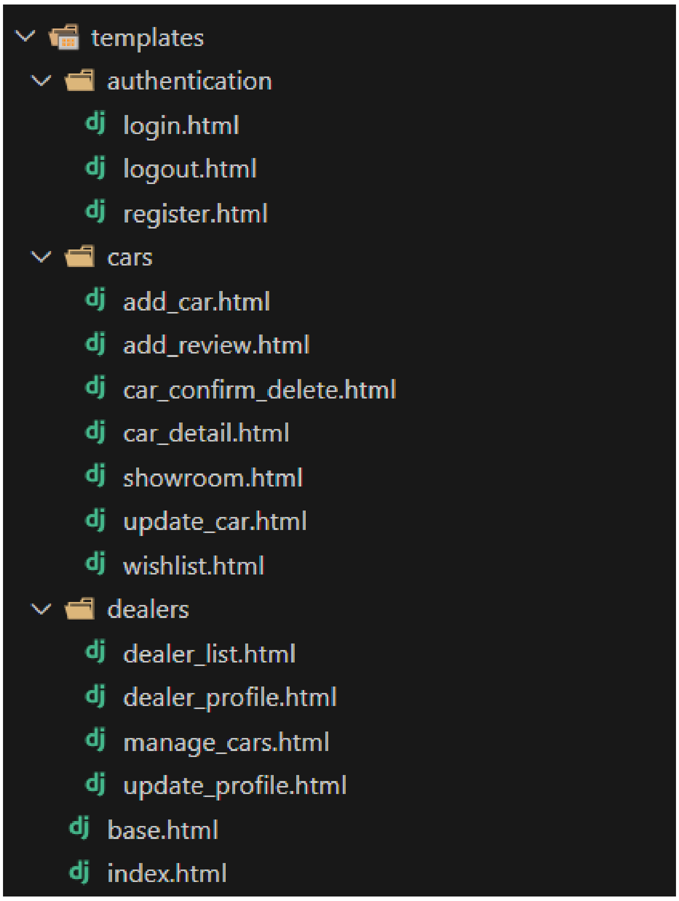
```
class Wishlist(models.Model):
    user = models.ForeignKey(UserProfile, on_delete=models.CASCADE,
related_name='wishlist')
    car = models.ForeignKey(Car, on_delete=models.CASCADE)

    def __str__(self):
        return f"{self.user.user.username} wishlist - {self.car.make}
{self.car.model}"
```

**Question 2**

2. Draft the base template and other required templates to provide information and interact with the users via a graphical user interface in the web application. In your base template, you should include a header with the website logo and a footer to display copyright information (eg; company name, student name and ID). Other templates should provide information about cars, showcase car listings, and enable users to search, review or wishlist cars. (4 marks)

Ans:

These are the templates needed. There are 16 templates used in this Django website.



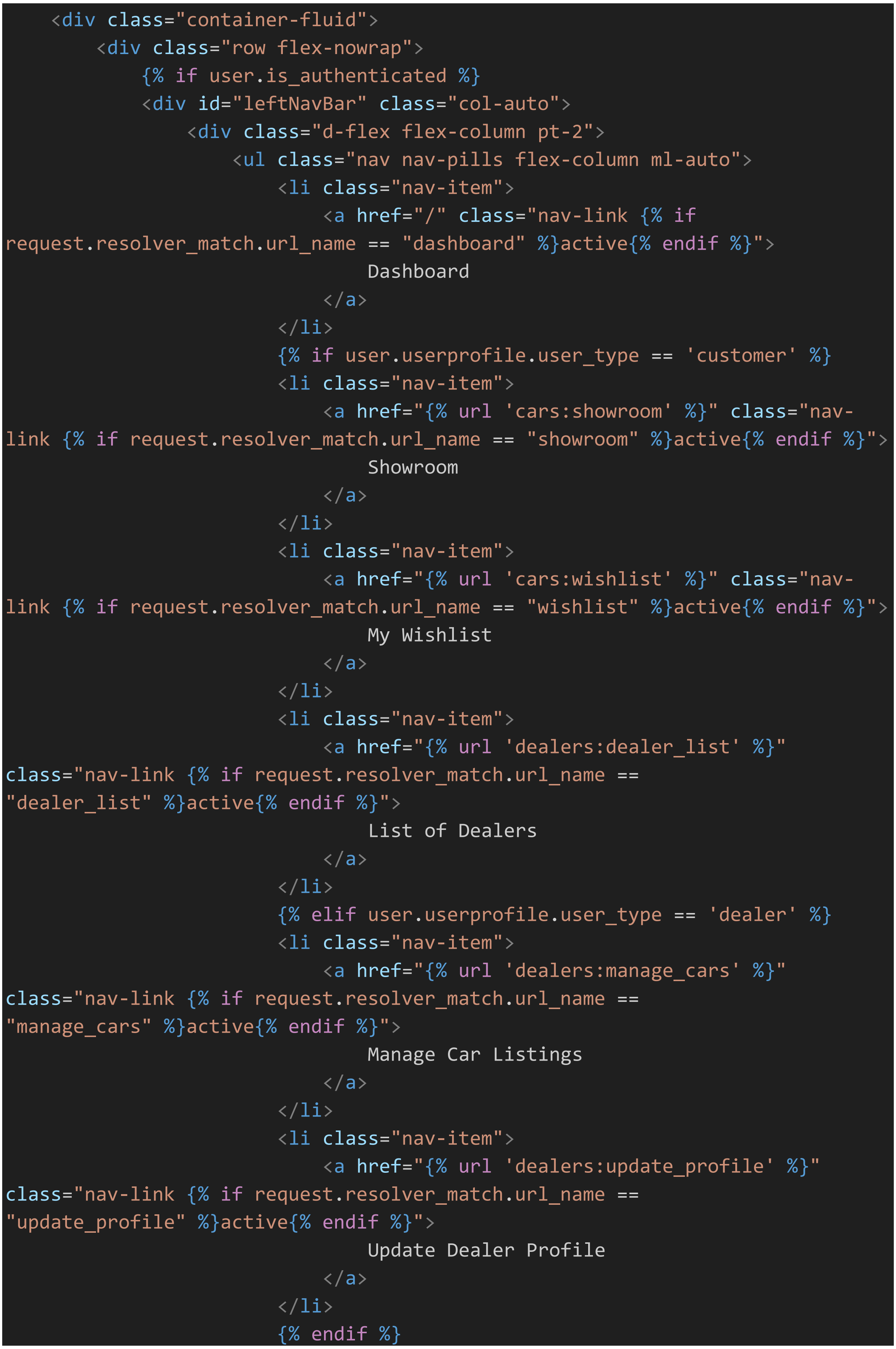
```
templates
  authentication
    login.html
    logout.html
    register.html
  cars
    add_car.html
    add_review.html
    car_confirm_delete.html
    car_detail.html
    showroom.html
    update_car.html
    wishlist.html
  dealers
    dealer_list.html
    dealer_profile.html
    manage_cars.html
    update_profile.html
  base.html
  index.html
```

## 2.1 Base Template

Purpose: To provide a consistent user interface, top navigation bar and left navigation bar to allow the user can access any function quickly.

Explanation: This template includes the header with the website logo and a footer to display copyright information.

```
{% load static %}
<!DOCTYPE html>
<html lang="en">
<head>
    <title>{% block title %}CarHub Online Showroom{% endblock %}</title>
    <link rel="stylesheet" href="{% static 'css/bootstrap.min.css' %}">
    <link rel="stylesheet" href="{% static 'css/styles.css' %}">
    <link rel="icon" type="image/svg+xml" href="{% static 'img/Logo.png' %}">
</head>
<body>
    <!-- Header with logo -->

    <nav id="topNavBar" class="navbar navbar-expand-lg navbar-dark" style="background-color: black;">
        <div class="container-fluid">
            <a class="navbar-brand" href="/" style="color: white;">
                <img src="{% static 'img/Logo.png' %}" alt="CarHub Logo" style="height: 40px; margin-right: 10px;">
                CarHub Online Showroom
            </a>
            <div class="navbar-nav">
                {% if user.is_authenticated %}
                <li class="nav-item dropdown">
                    <a class="nav-link dropdown-toggle" href="#" id="navbarDropdownMenuLink" role="button" data-bs-toggle="dropdown" aria-expanded="false">
                        {{ user.username }}
                    </a>
                    <ul class="dropdown-menu dropdown-menu-end" aria-labelledby="navbarDropdownMenuLink">
                        <li><a class="dropdown-item" href="{% url 'authentication:logout' %}">Sign Out</a></li>
                    </ul>
                </li>
                {% else %}
                <li class="nav-item">
                    <a class="nav-link" href="{% url 'authentication:login' %}">Login</a>
                </li>
                <li class="nav-item">
                    <a class="nav-link" href="{% url 'authentication:register' %}">Register</a>
                </li>
                {% endif %}
            </div>
        </div>
    </nav>
```



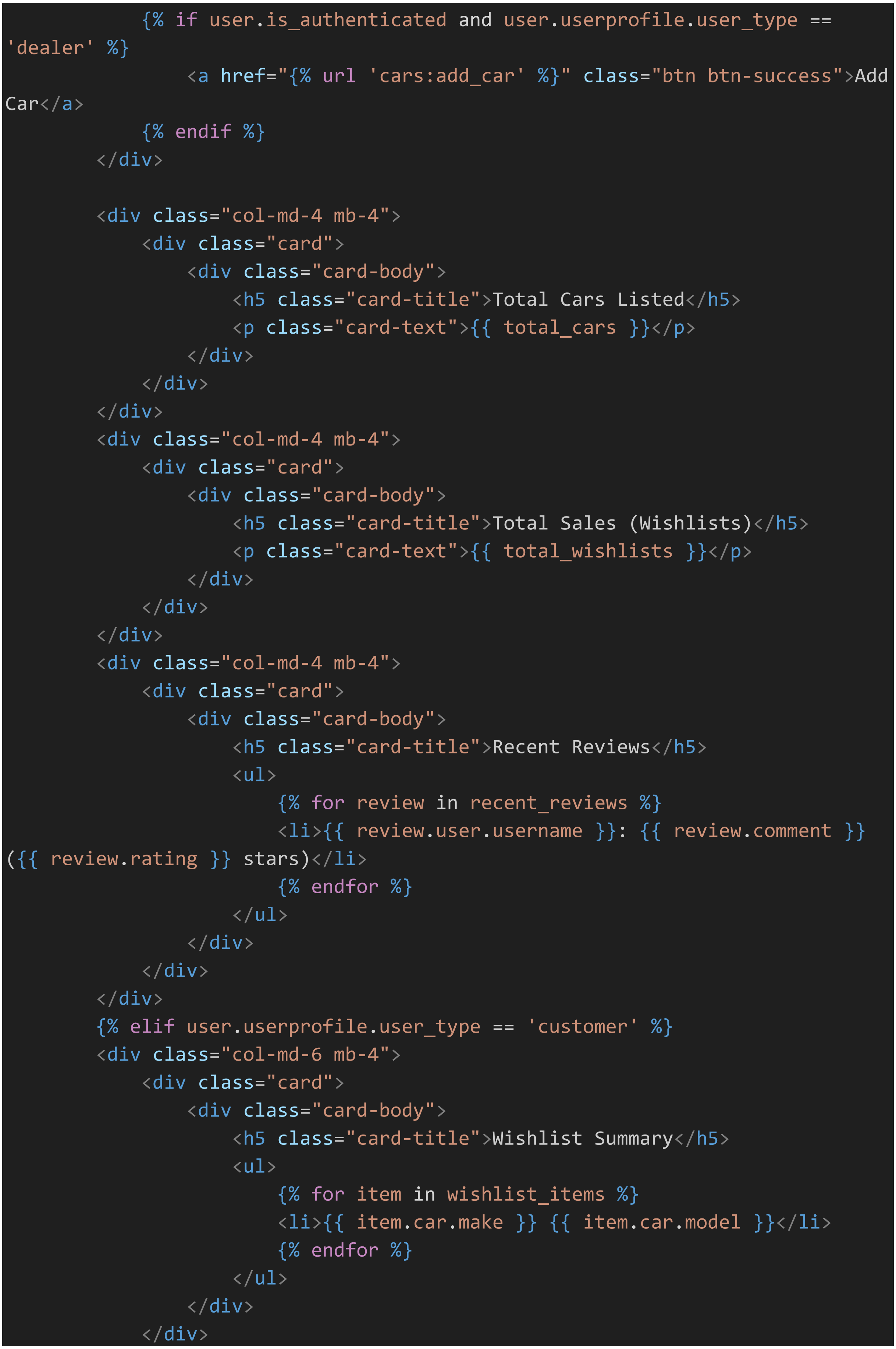
```
    <div class="container-fluid">
        <div class="row flex-nowrap">
            {% if user.is_authenticated %}
            <div id="leftNavBar" class="col-auto">
                <div class="d-flex flex-column pt-2">
                    <ul class="nav nav-pills flex-column ml-auto">
                        <li class="nav-item">
                            <a href="/" class="nav-link {% if
request.resolver_match.url_name == "dashboard" %}active{% endif %}">
                                Dashboard
                            </a>
                        </li>
                        {% if user.userprofile.user_type == 'customer' %}
                        <li class="nav-item">
                            <a href="{% url 'cars:showroom' %}" class="nav-
link {% if request.resolver_match.url_name == "showroom" %}active{% endif %}">
                                Showroom
                            </a>
                        </li>
                        <li class="nav-item">
                            <a href="{% url 'cars:wishlist' %}" class="nav-
link {% if request.resolver_match.url_name == "wishlist" %}active{% endif %}">
                                My Wishlist
                            </a>
                        </li>
                        <li class="nav-item">
                            <a href="{% url 'dealers:dealer_list' %}"
class="nav-link {% if request.resolver_match.url_name ==
"dealer_list" %}active{% endif %}">
                                List of Dealers
                            </a>
                        </li>
                        {% elif user.userprofile.user_type == 'dealer' %}
                        <li class="nav-item">
                            <a href="{% url 'dealers:manage_cars' %}"
class="nav-link {% if request.resolver_match.url_name ==
"manage_cars" %}active{% endif %}">
                                Manage Car Listings
                            </a>
                        </li>
                        <li class="nav-item">
                            <a href="{% url 'dealers:update_profile' %}"
class="nav-link {% if request.resolver_match.url_name ==
"update_profile" %}active{% endif %}">
                                Update Dealer Profile
                            </a>
                        </li>
                        {% endif %}
                    </ul>
                </div>
            </div>
            {% endif %}
            <div id="mainContent" class="col py-3">
                {% block content %}
                {% endblock %}
            </div>
        </div>
    </div>

    <footer class="text-center mt-4">
        <p>&copy; 2024 CarHub Inc. | Student Name: Lee Xing Yii | Student ID: 23072493</p>
    </footer>

    <!-- Bootstrap JavaScript and dependencies -->
    <script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.3/dist/umd/popper.min.js"></script>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.min.js"></script>
</body>
</html>
```

## 2.2 Index Template

Purpose:

- To serves as the homepage or dashboard for users after logging in.
- Displays different information based on whether the user is a dealer or a customer.

```
{% extends "base.html" %}
{% load static %}

{% block title %}Dashboard{% endblock %}

{% block content %}
<div class="container mt-4">
    <div class="row">
        <div class="col-md-12 mb-4">
            <h1 class="mb-4">Dashboard</h1>
        </div>
    </div>
    <div class="row">
        {% if user.userprofile.user_type == 'dealer' %}

        <div class="container">
```



```
            {% if user.is_authenticated and user.userprofile.user_type ==
'dealer' %}
                <a href="{% url 'cars:add_car' %}" class="btn btn-success">Add
Car</a>
            {% endif %}
        </div>

        <div class="col-md-4 mb-4">
            <div class="card">
                <div class="card-body">
                    <h5 class="card-title">Total Cars Listed</h5>
                    <p class="card-text">{{ total_cars }}</p>
                </div>
            </div>
        </div>
        <div class="col-md-4 mb-4">
            <div class="card">
                <div class="card-body">
                    <h5 class="card-title">Total Sales (Wishlists)</h5>
                    <p class="card-text">{{ total_wishlists }}</p>
                </div>
            </div>
        </div>
        <div class="col-md-4 mb-4">
            <div class="card">
                <div class="card-body">
                    <h5 class="card-title">Recent Reviews</h5>
                    <ul>
                        {% for review in recent_reviews %}
                        <li>{{ review.user.username }}: {{ review.comment }}
({{ review.rating }} stars)</li>
                        {% endfor %}
                    </ul>
                </div>
            </div>
        </div>
        {% elif user.userprofile.user_type == 'customer' %}
        <div class="col-md-6 mb-4">
            <div class="card">
                <div class="card-body">
                    <h5 class="card-title">Wishlist Summary</h5>
                    <ul>
                        {% for item in wishlist_items %}
                        <li>{{ item.car.make }} {{ item.car.model }}</li>
                        {% endfor %}
                    </ul>
                </div>
            </div>
        </div>
        <div class="col-md-6 mb-4">
            <div class="card">
                <div class="card-body">
                    <h5 class="card-title">Latest Reviews</h5>
                    <ul>
                        {% for review in latest_reviews %}
                        <li>{{ review.car.make }} {{ review.car.model }}: {{ review.comment }} ({{ review.rating }} stars)</li>
                        {% endfor %}
                    </ul>
                </div>
            </div>
        </div>
        {% endif %}
    </div>
</div>
{% endblock %}
```

### 2.3 Login Template

Purpose:
- Provides a form for users to log in to their accounts.

```
{% extends "base.html" %}
{% block title %}Login{% endblock %}
{% block content %}
<h2>Login</h2>
<form method="post">
    {% csrf_token %}
    {{ form.as_p }}
    <button type="submit">Login</button>
</form>
{% endblock %}
```

### 2.4 Logout Template

Purpose:
- Confirms the user's decision to log out.
- Typically redirects to the login page or homepage after logging out.

```
{% extends 'base.html' %}

{% block subtitle %}
    Log out
```

```
{% endblock %}

{% block content %}
    <div class="container">
        <h1>You have been logged out</h1>
        <p>Thank you for visiting. You have been successfully logged out of 
your account.</p>
        <div>
            <a href="/">Go to Home Page</a>
            <a href="{% url 'authentication:login' %}">Log in Again</a>
        </div>
    </div>

{% endblock %}
```

## 2.5 Register Template

Purpose:

- Provides a form for new users to register for an account.
- Allows users to choose their account type (dealer or customer).

```
<!-- templates/authentication/register.html -->
{% extends "base.html" %}
{% block title %}Register{% endblock %}
{% block content %}
<h2>Register</h2>
<form method="post">
    {% csrf_token %}
    {{ form.as_p }}
    <button type="submit">Register</button>
</form>
{% if form.errors %}
    <div class="errors">
        <ul>
        {% for field in form %}
            {% for error in field.errors %}
                <li>{{ error }}</li>
            {% endfor %}
        {% endfor %}
        {% for error in form.non_field_errors %}
            <li>{{ error }}</li>
        {% endfor %}
        </ul>
    </div>
```

```
{% endif %}
{% endblock %}
```

## 2.6 Dealers Update Profile Template

Purpose:

- Allows users (dealers) to update their profile information, such as company details and contact information.

```
{% extends "base.html" %}
{% block title %}Update Profile{% endblock %}
{% block content %}
<h2>Update Profile</h2>
<form method="post">
    {% csrf_token %}
    {{ form.as_p }}
    <button type="submit">Save Changes</button>
</form>
{% endblock %}
```

## 2.7 Add Car Listing Template

Purpose:

- Provides a form for dealers to add new car listings to the showroom.

```
{% extends 'base.html' %}

{% block content %}
<div class="container">
    <h1>Add Car</h1>
    <form method="post" enctype="multipart/form-data">
        {% csrf_token %}
        {{ form.as_p }}
        <button type="submit" class="btn btn-primary">Add Car</button>
    </form>
</div>
{% endblock %}
```

## 2.8 Add Review Template

Purpose:

- Allows customers to add reviews for a specific car.
- This form is typically included within car_detail.html rather than being a standalone page

```
<!-- templates/cars/add_review.html -->
{% extends 'base.html' %}
{% block title %}Add Review{% endblock %}
{% block content %}

<div class="container">
    <h1>Add Review for {{ car.make }} {{ car.model }}</h1>
    <form method="post">
        {% csrf_token %}
        {{ form.as_p }}
        <button type="submit" class="btn btn-primary">Submit Review</button>
    </form>
</div>
{% endblock %}
```

## 2.9 Car Confirm Delete Template

Purpose:

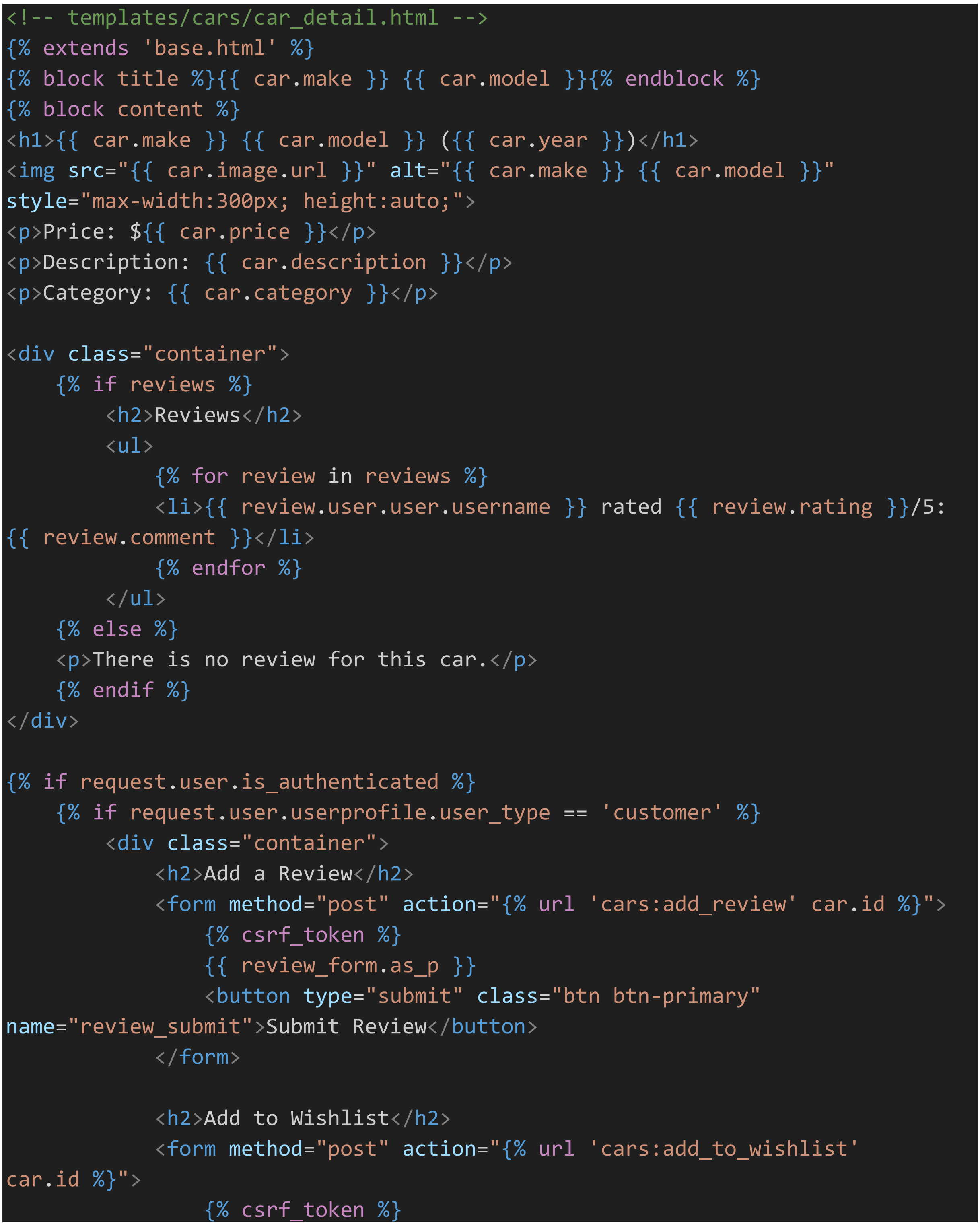
- Confirms the dealer's decision to delete a car listing.
- Ensures that the dealer does not accidentally delete a car listing.

```
{% extends 'base.html' %}

{% block content %}
<div class="container">
    <h1>Delete Car</h1>
    <p>Are you sure you want to delete the car {{ car.make }}
{{ car.model }}?</p>
    <form method="post">
        {% csrf_token %}
        <button type="submit">Confirm</button>
        <a href="{% url 'cars:showroom' %}">Cancel</a>
    </form>
</div>
{% endblock %}
```

## 2.10 Car Details Template

Purpose:

- Displays detailed information about a specific car.
- Shows car details, reviews, and options for adding a review or adding the car to the wishlist.



```
<!-- templates/cars/car_detail.html -->
{% extends 'base.html' %}
{% block title %}{{ car.make }} {{ car.model }}{% endblock %}
{% block content %}
<h1>{{ car.make }} {{ car.model }} ({{ car.year }})</h1>
<img src="{{ car.image.url }}" alt="{{ car.make }} {{ car.model }}"
style="max-width:300px; height:auto;">
<p>Price: ${{ car.price }}</p>
<p>Description: {{ car.description }}</p>
<p>Category: {{ car.category }}</p>

<div class="container">
    {% if reviews %}
        <h2>Reviews</h2>
        <ul>
            {% for review in reviews %}
            <li>{{ review.user.user.username }} rated {{ review.rating }}/5:
{{ review.comment }}</li>
            {% endfor %}
        </ul>
    {% else %}
    <p>There is no review for this car.</p>
    {% endif %}
</div>

{% if request.user.is_authenticated %}
    {% if request.user.userprofile.user_type == 'customer' %}
        <div class="container">
            <h2>Add a Review</h2>
            <form method="post" action="{% url 'cars:add_review' car.id %}">
                {% csrf_token %}
                {{ review_form.as_p }}
                <button type="submit" class="btn btn-primary"
name="review_submit">Submit Review</button>
            </form>

            <h2>Add to Wishlist</h2>
            <form method="post" action="{% url 'cars:add_to_wishlist'
car.id %}">
                {% csrf_token %}
                <button type="submit" class="btn btn-primary"
name="wishlist_submit">Add to Wishlist</button>
            </form>
        </div>

    {% else %}
        <p>User is not a customer, so you cannot add a review and add to
wishlist.</p>
    {% endif %}
{% else %}
    <p>User is not authenticated</p>
{% endif %}
{% endblock %}
```

### 2.11 Showroom Template

Purpose:

- Displays a list of all car listings.
- Provides search and filter options for users to find specific cars.

```
{% extends 'base.html' %}

{% block content %}
<div class="container">
    <div class="col-md-2 mb-4">
        {% if user.is_authenticated and user.userprofile.user_type ==
'dealer' %}
        <a href="{% url 'cars:add_car' %}" class="btn btn-success">Add Car</a>
        {% endif %}
    </div>

    <h1 class="mb-4">Showroom</h1>
    <div class="d-flex justify-content-between align-items-center mb-4">
        <form method="get" action="{% url 'cars:showroom' %}">
            {{ form.as_p }}
            <button type="submit" class="btn btn-primary">Search</button>
        </form>
    </div>

    <div class="car-listings row">
        {% for car in cars %}
        <div class="car-item col-md-4 mb-4">
            <div class="card">
                {% if car.image %}
                <img src="{{ car.image.url }}" class="card-img-top"
alt="{{ car.make }} {{ car.model }}">
                {% endif %}
                <div class="card-body">
                    <h5 class="card-title">{{ car.make }} {{ car.model }}</h5>
                    <p class="card-text">Year: {{ car.year }}</p>
                    <p class="card-text">Price: RM{{ car.price }}</p>
                    <p class="card-text">Category: {{ car.category.name }}</p>
                    <a href="{% url 'cars:car_detail' car.id %}" class="btn
btn-info mr-2">
                        <i class="fas fa-info-circle"></i> View Details
                    </a>
                    {% if user.is_authenticated and user.userprofile ==
car.dealer %}
                        <a href="{% url 'cars:update_car' car.id %}"
class="btn btn-warning mr-2">
                            <i class="fas fa-edit"></i> Edit
                        </a>
                        <a href="{% url 'cars:delete_car' car.id %}"
class="btn btn-danger">
                            <i class="fas fa-trash-alt"></i> Delete
                        </a>
                    {% endif %}
                </div>
            </div>
        </div>
        {% endfor %}
    </div>
</div>
{% endblock %}
```

## 2.12 Update Car Listing Template

Purpose:

- Allows dealers to update the details of an existing car listing.

```
{% extends 'base.html' %}

{% block content %}
<div class="container">
    <h1>Update Car</h1>
    <form method="post" enctype="multipart/form-data">
        {% csrf_token %}
        {{ form.as_p }}
        <button type="submit" class="btn btn-primary">Update Car</button>
    </form>
</div>
{% endblock %}
```

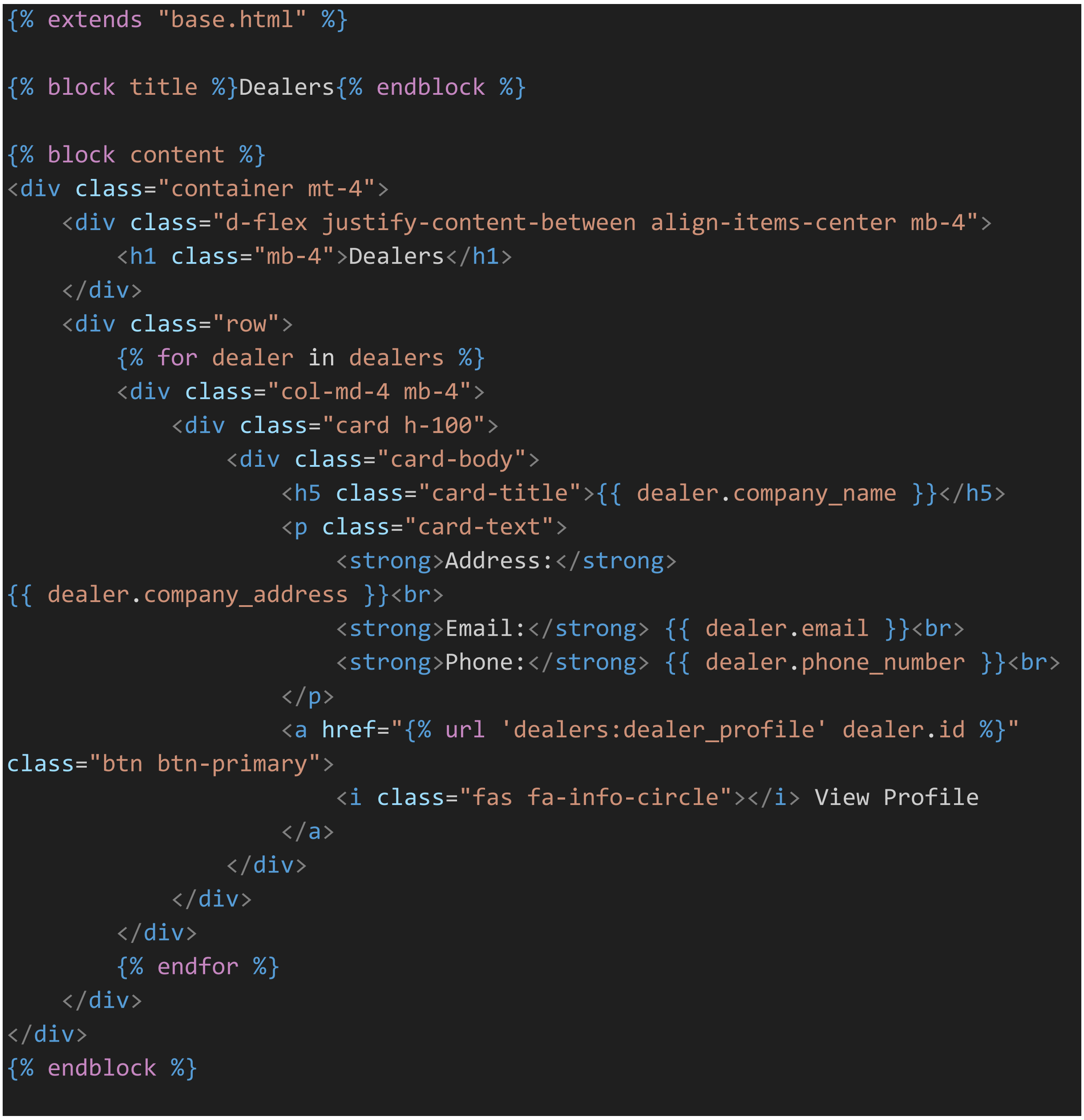
### 2.13 Wishlist Template

Purpose:
- Displays the list of cars that a customer has added to their wishlist.

```
{% extends "base.html" %}

{% block title %}My Wishlist{% endblock %}

{% block content %}
<div class="container mt-4">
    <h1>My Wishlist</h1>
    {% if wishlist_items %}
        <div class="row">
            {% for item in wishlist_items %}
                <div class="col-md-4">
                    <div class="card mb-4">
                        <img src="{{ item.car.image.url }}" class="card-img-top" alt="{{ item.car.make }} {{ item.car.model }}">
                        <div class="card-body">
                            <h5 class="card-title">{{ item.car.make }} {{ item.car.model }}</h5>
                            <p class="card-text">{{ item.car.description }}</p>
                            <a href="{% url 'cars:car_detail' item.car.id %}" class="btn btn-primary">View Details</a>
                        </div>
                    </div>
                </div>
            {% endfor %}
        </div>
    {% else %}
        <p>You have no items in your wishlist.</p>
    {% endif %}
</div>
{% endblock %}
```

## 2.14 Dealer List Template

Purpose:
- Displays a list of all dealers.
- Allows users to browse and select a dealer to view more details.



```
{% extends "base.html" %}

{% block title %}Dealers{% endblock %}

{% block content %}
<div class="container mt-4">
    <div class="d-flex justify-content-between align-items-center mb-4">
        <h1 class="mb-4">Dealers</h1>
    </div>
    <div class="row">
        {% for dealer in dealers %}
        <div class="col-md-4 mb-4">
            <div class="card h-100">
                <div class="card-body">
                    <h5 class="card-title">{{ dealer.company_name }}</h5>
                    <p class="card-text">
                        <strong>Address:</strong>
{{ dealer.company_address }}<br>
                        <strong>Email:</strong> {{ dealer.email }}<br>
                        <strong>Phone:</strong> {{ dealer.phone_number }}<br>
                    </p>
                    <a href="{% url 'dealers:dealer_profile' dealer.id %}"
class="btn btn-primary">
                        <i class="fas fa-info-circle"></i> View Profile
                    </a>
                </div>
            </div>
        </div>
        {% endfor %}
    </div>
</div>
{% endblock %}
```

## 2.15 Dealer Profile Template

Purpose:
- Displays detailed information about a specific dealer.
- Shows the dealer's profile and the list of cars they have listed.

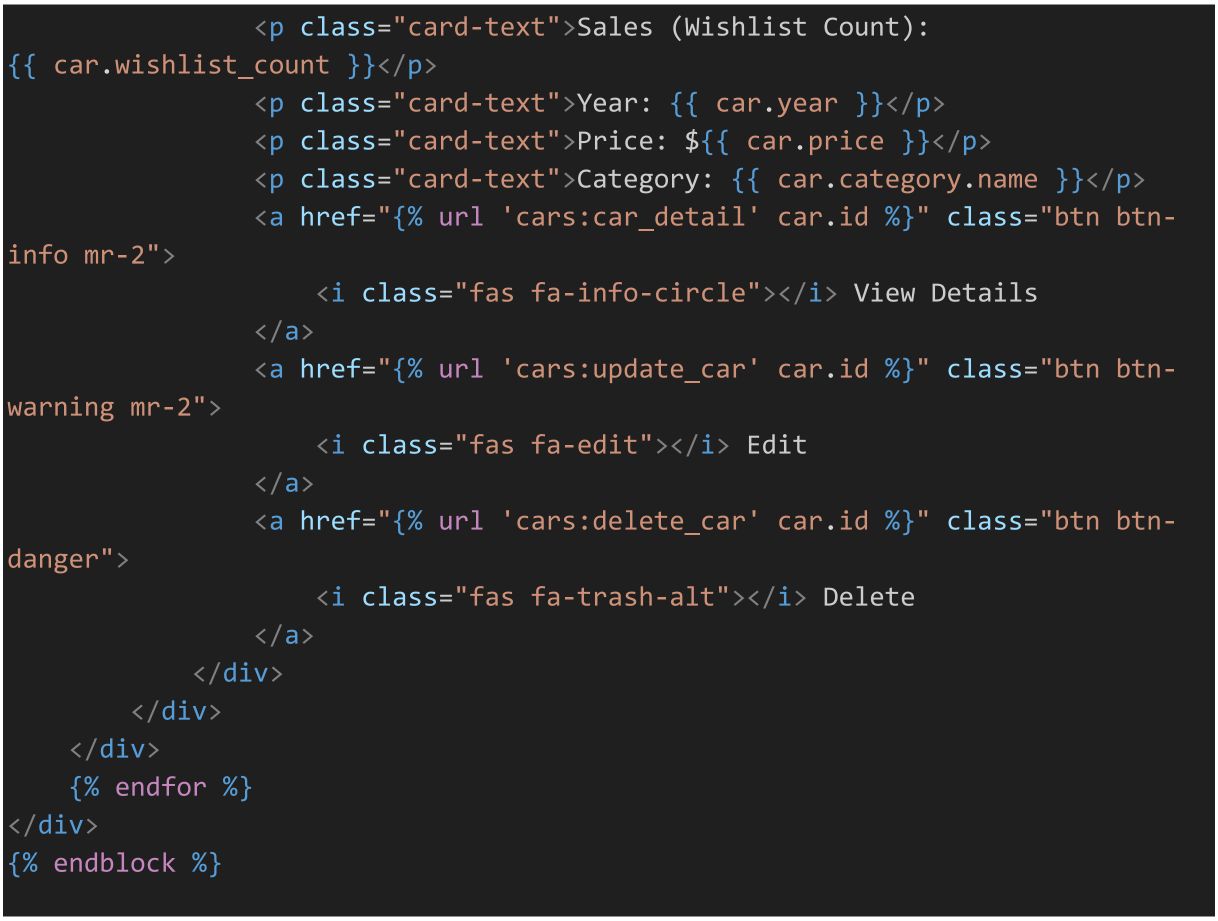
```
{% extends "base.html" %}

{% block title %}Dealer Profile{% endblock %}

{% block content %}
<h1>{{ dealer_profile.company_name }}</h1>
<p>{{ dealer_profile.company_address }}</p>
<p>{{ dealer_profile.email }}</p>
<p>{{ dealer_profile.phone_number }}</p>
<p>{{ dealer_profile.bio }}</p>
<p>{{ dealer_profile.contact_info }}</p>

<h2>Cars</h2>
<ul>
    {% for car in cars %}
        <li>
            {{ car.make }} {{ car.model }} - Wishlist Count:
{{ wishlist_counts.car.id }}
        </li>
    {% endfor %}
</ul>
{% endblock %}
```

## 2.16 Manage Car Listings Template

Purpose:

- Allows dealers to manage their car listings.
- Provides options to view, edit, or delete their car listings.

```
<!-- templates/dealers/manage_cars.html -->
{% extends 'base.html' %}

{% block title %}Manage Cars{% endblock %}

{% block content %}
<h1>Manage Cars</h1>
<div class="car-listings row">
    {% for car in cars %}
    <div class="car-item col-md-4 mb-4">
        <div class="card">
            <img src="{{ car.image.url }}" class="card-img-top"
alt="{{ car.make }} {{ car.model }}">
            <div class="card-body">
                <h5 class="card-title">{{ car.make }} {{ car.model }}</h5>
```



```
                <p class="card-text">Sales (Wishlist Count):
{{ car.wishlist_count }}</p>
                <p class="card-text">Year: {{ car.year }}</p>
                <p class="card-text">Price: ${{ car.price }}</p>
                <p class="card-text">Category: {{ car.category.name }}</p>
                <a href="{% url 'cars:car_detail' car.id %}" class="btn btn-
info mr-2">
                    <i class="fas fa-info-circle"></i> View Details
                </a>
                <a href="{% url 'cars:update_car' car.id %}" class="btn btn-
warning mr-2">
                    <i class="fas fa-edit"></i> Edit
                </a>
                <a href="{% url 'cars:delete_car' car.id %}" class="btn btn-
danger">
                    <i class="fas fa-trash-alt"></i> Delete
                </a>
            </div>
        </div>
    </div>
    {% endfor %}
</div>
{% endblock %}
```

## Question 3

3. Draw a navigation diagram using the base template and templates in Q2 to show the navigation flow of CarHub Online Showroom. The diagram should include all the pages and functionalities of the web application.

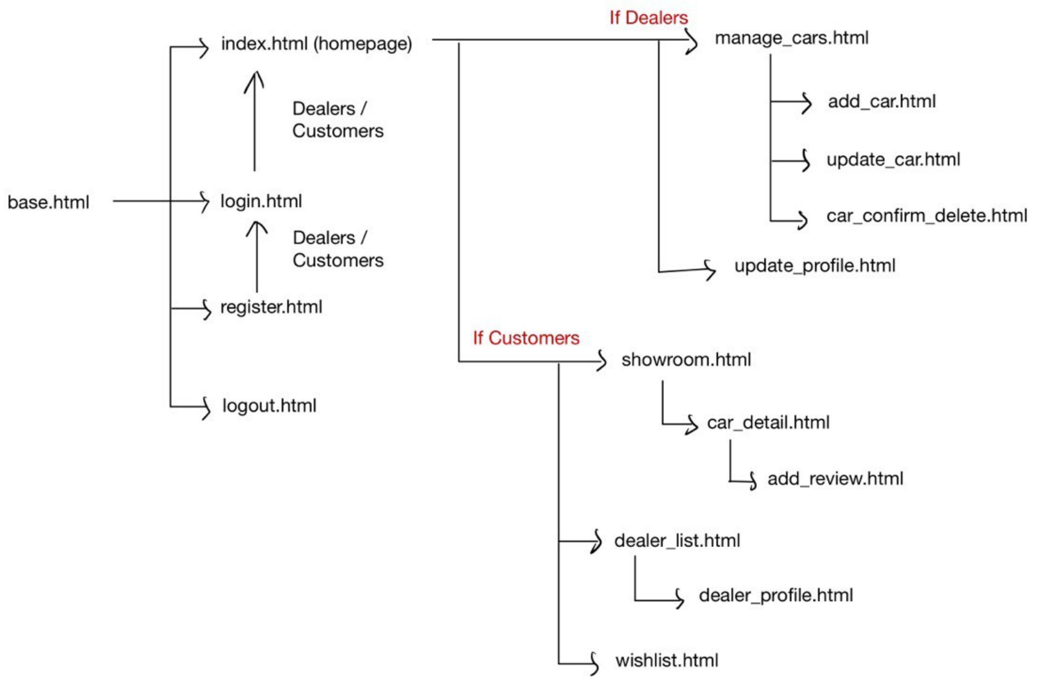


*Figure 1: Navigation Diagram*

## Question 4

4. Create a Django project named CarHub. You are tasked with developing the "CarHub Online Showroom" web application in this project.

    a) Do you plan to split the project into one or multiple Django Apps? Share your reasons and specify your plan here.

    Ans:

    Yes, I plan to split the project into multiple Django apps. This is because breaking down the project into smaller and focused apps can help in organizing the codebase better. Also, it promotes reusability as the apps can be reused in other projects. For example, the authentication can be reused in other projects.
    I plan to split the project into authentication app, dealers app and cars app.

    b) Do you plan to use RESTful API in this project? Explain and justify your answer.

Ans:

Yes, I plan to use RESTful API in this project. However, due to the time constraints, I do not use RESTful API in this submission. I suggest using RESTful API because it allows the separation of the frontend and backend. This makes it easier to develop, test, and maintain both parts independently. Using RESTful APIs makes it easier to integrate with third-party services and other applications. It also facilitates the consumption of external APIs. RESTful APIs follow standard HTTP methods (GET, POST, PUT, DELETE), which makes them easy to use and understand for developers.

c) Briefly explain the testing procedures that you will use for this project.

Ans:

I will do the unit testing for this project to test individual components or functions in isolation. I will use Django's built-in testing framework ('unittest'), 'pytest' to perform unit testing. The unit testing allows me to test individual models, views and forms to ensure they work as expected. Also, I will do continuous integration (CI) testing to automate the testing process and ensure tests are run frequently by using GitHub

Actions. It is simple and faster. For example, I can set up CI pipelines to run tests automatically on code commits and pull requests.

## Question 5

5. Build your “CarHub Online Showroom” web application in the CarHub Django project. For each Python file, your file should start with a comment specifying your name and your student ID. The following are the marks allocated for successful implementation of the functions required in the given scenario using Django Model-View-Template web framework:

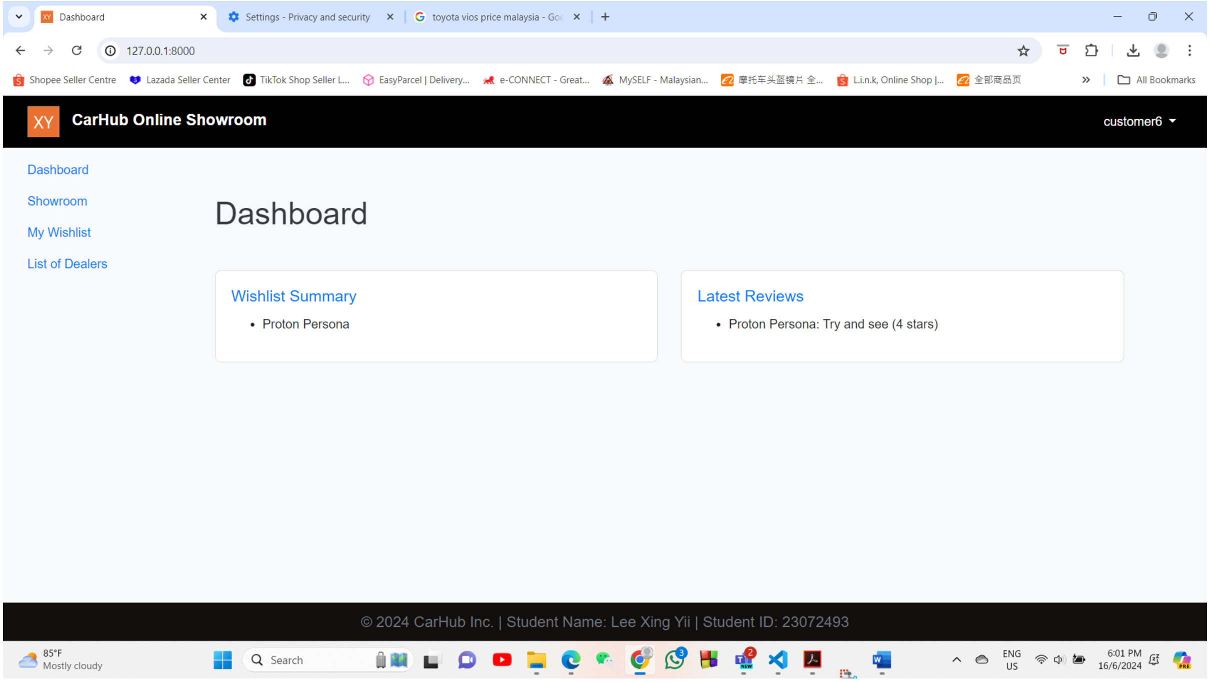
Ans:

requirements.txt is prepared in the Django folders.

To install the packages listed in the `requirements.txt` file on another machine, you can use the following command:

**pip install -r requirements.txt**

## UI (Customer Views)



Dashboard

Wishlist Summary

- Proton Persona

Latest Reviews

- Proton Persona: Try and see (4 stars)

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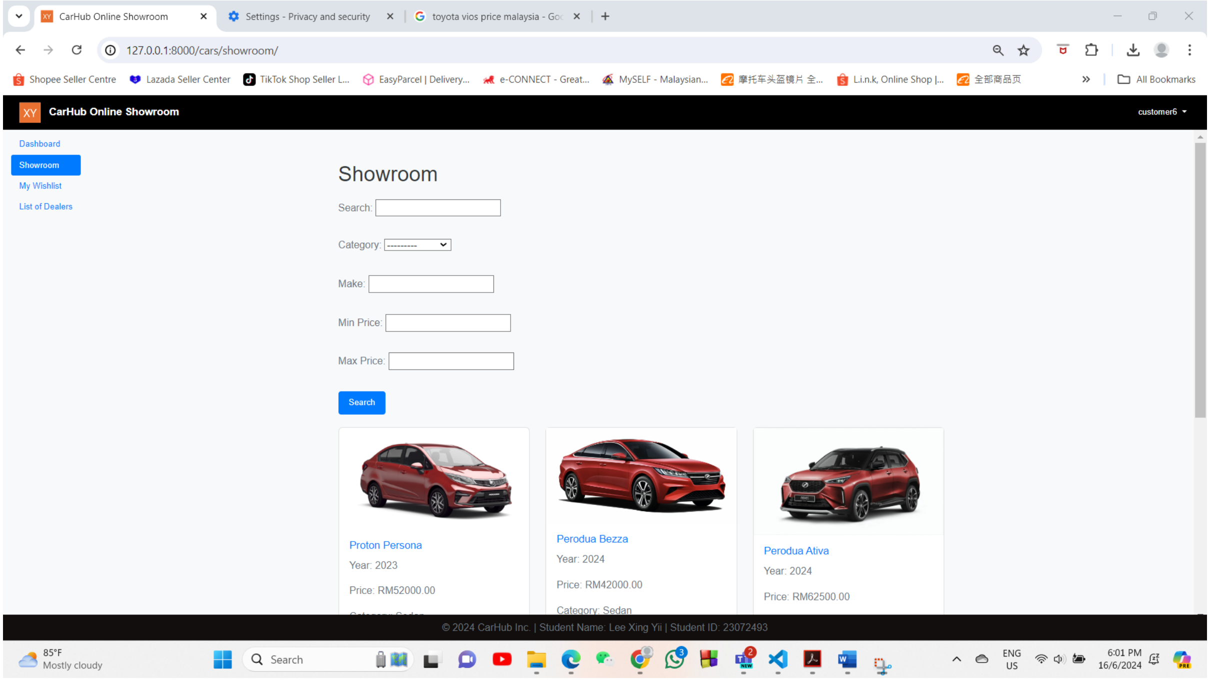

CarHub Online Showroom

Dashboard
Showroom
My Wishlist
List of Dealers

Showroom

Search:

Category: ---------

Make:

Min Price:

Max Price:

Search

Proton Persona
Year: 2023
Price: RM52000.00

Perodua Bezza
Year: 2024
Price: RM42000.00
Category: Sedan

Perodua Ativa
Year: 2024
Price: RM62500.00

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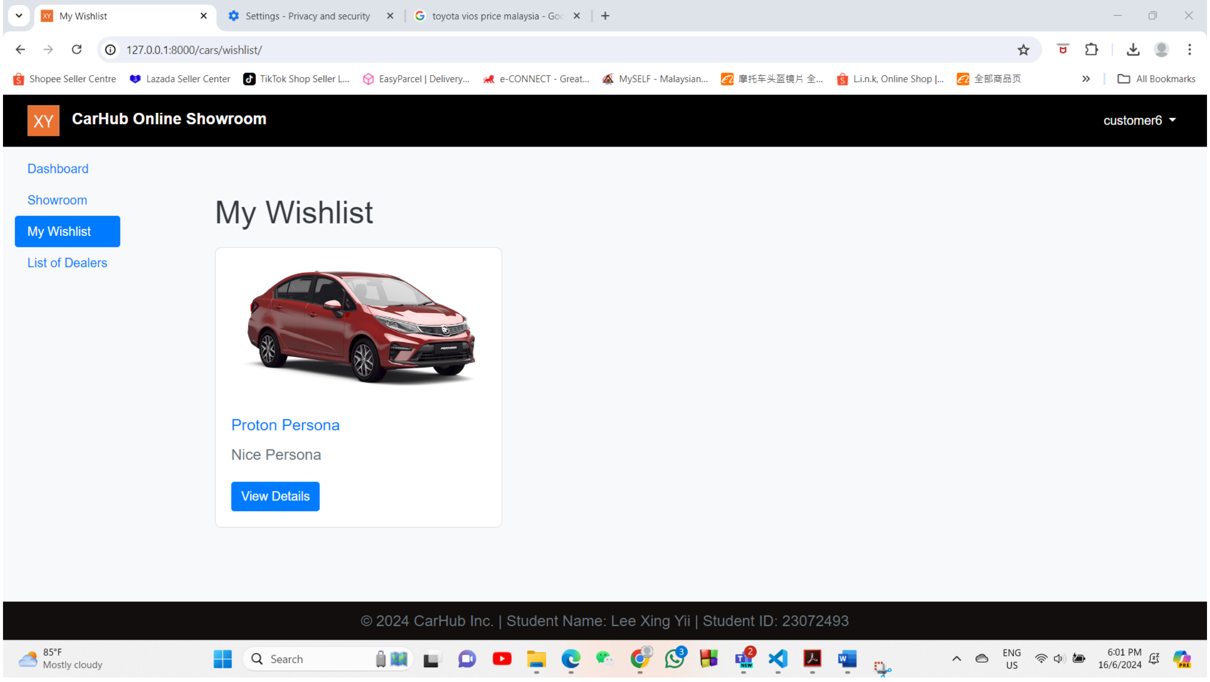

CarHub Online Showroom

Dashboard
Showroom
My Wishlist
List of Dealers

My Wishlist

Proton Persona
Nice Persona
View Details

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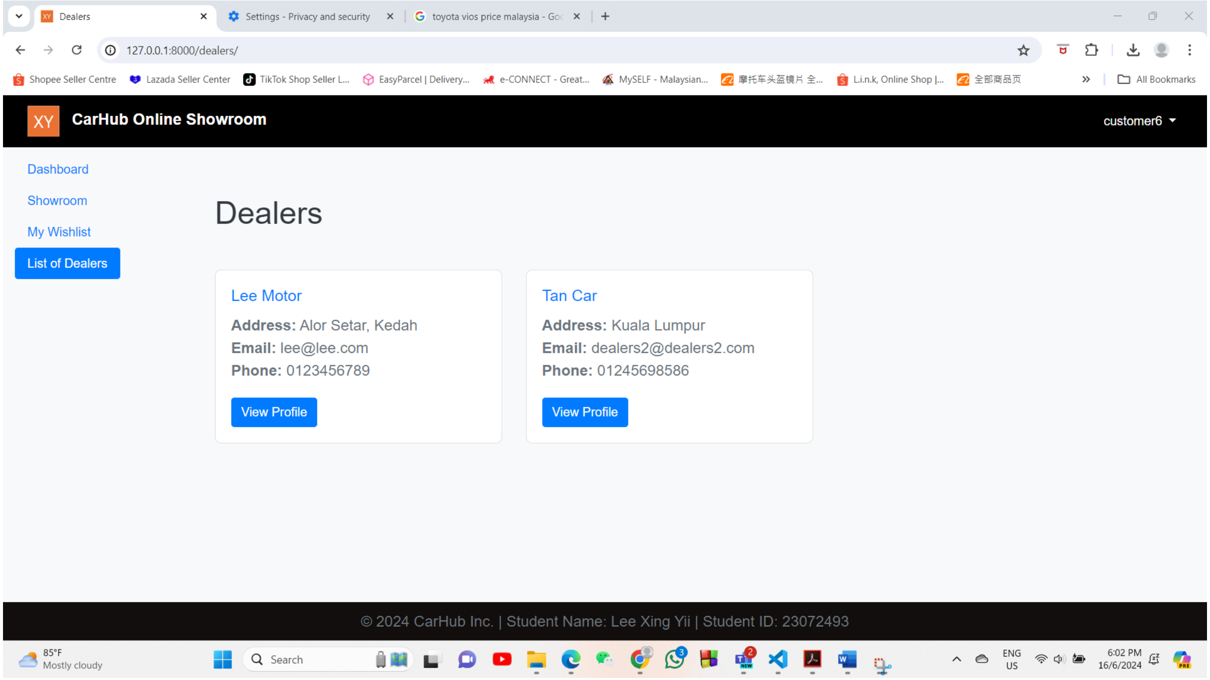

127.0.0.1:8000/dealers/

CarHub Online Showroom

customer6

Dashboard

Showroom

My Wishlist

List of Dealers

Dealers

Lee Motor

**Address:** Alor Setar, Kedah

**Email:** lee@lee.com

**Phone:** 0123456789

View Profile

Tan Car

**Address:** Kuala Lumpur

**Email:** dealers2@dealers2.com

**Phone:** 01245698586

View Profile

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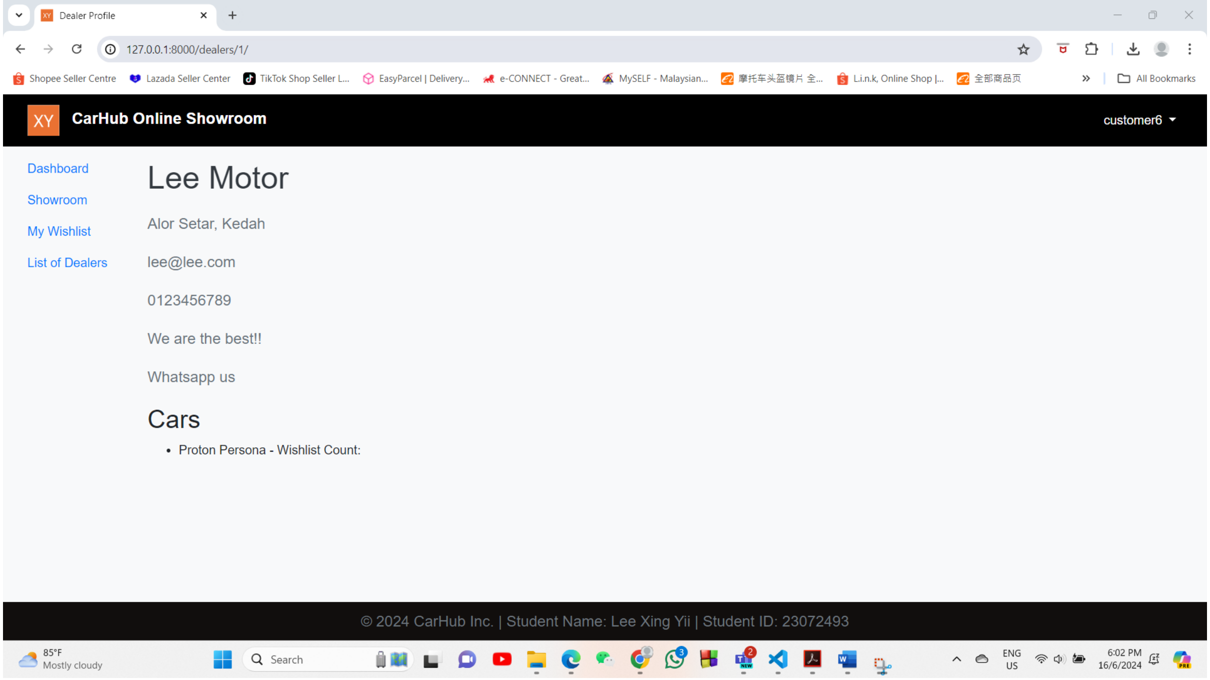

127.0.0.1:8000/dealers/1/

CarHub Online Showroom

customer6

Dashboard

Showroom

My Wishlist

List of Dealers

Lee Motor

Alor Setar, Kedah

lee@lee.com

0123456789

We are the best!!

Whatsapp us

Cars

- Proton Persona - Wishlist Count:

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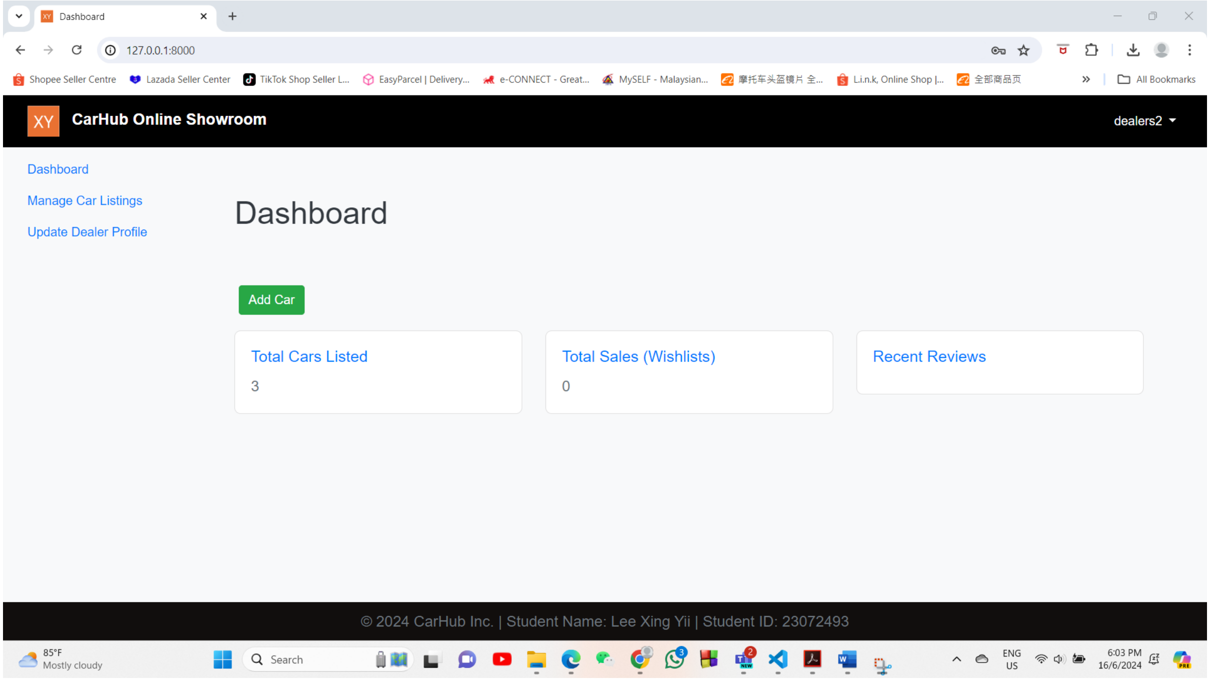
## UI (Dealers Views)



XY CarHub Online Showroom

dealers2

Dashboard

Manage Car Listings

Update Dealer Profile

Dashboard

Add Car

Total Cars Listed

3

Total Sales (Wishlists)

0

Recent Reviews

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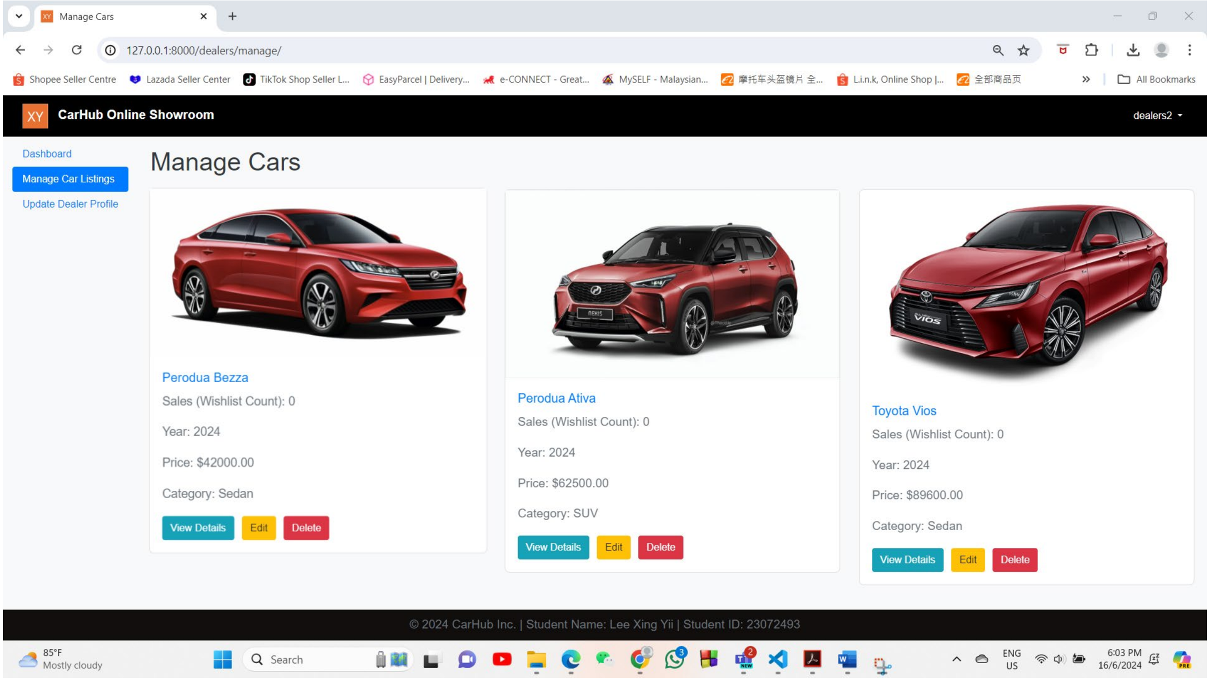

XY CarHub Online Showroom

dealers2

Dashboard

Manage Car Listings

Update Dealer Profile

Manage Cars

Perodua Bezza

Sales (Wishlist Count): 0

Year: 2024

Price: $42000.00

Category: Sedan

View Details Edit Delete

Perodua Ativa

Sales (Wishlist Count): 0

Year: 2024

Price: $62500.00

Category: SUV

View Details Edit Delete

Toyota Vios

Sales (Wishlist Count): 0

Year: 2024

Price: $89600.00

Category: Sedan

View Details Edit Delete

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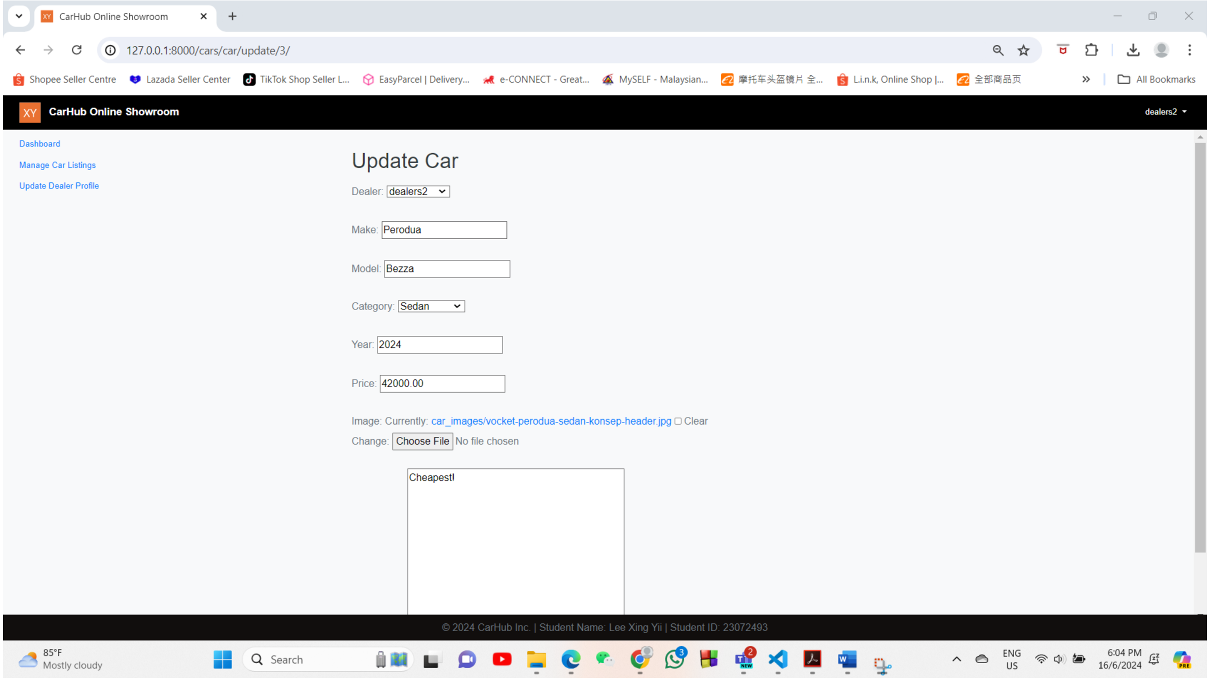

127.0.0.1:8000/cars/car/update/3/

XY CarHub Online Showroom

Update Car

Dealer: dealers2

Make: Perodua

Model: Bezza

Category: Sedan

Year: 2024

Price: 42000.00

Image: Currently: car_images/vocket-perodua-sedan-konsep-header.jpg □ Clear

Change: Choose File No file chosen

Cheapest!

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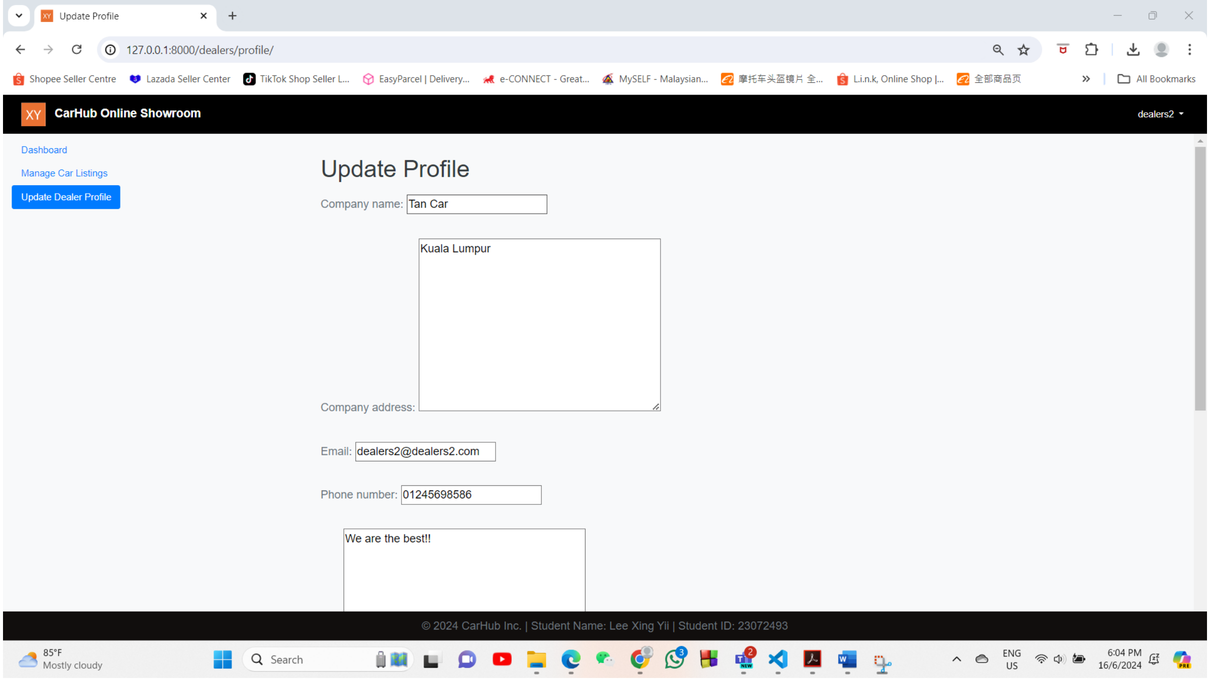

127.0.0.1:8000/dealers/profile/

XY CarHub Online Showroom

Update Profile

Company name: Tan Car

Company address: Kuala Lumpur

Email: dealers2@dealers2.com

Phone number: 01245698586

We are the best!!

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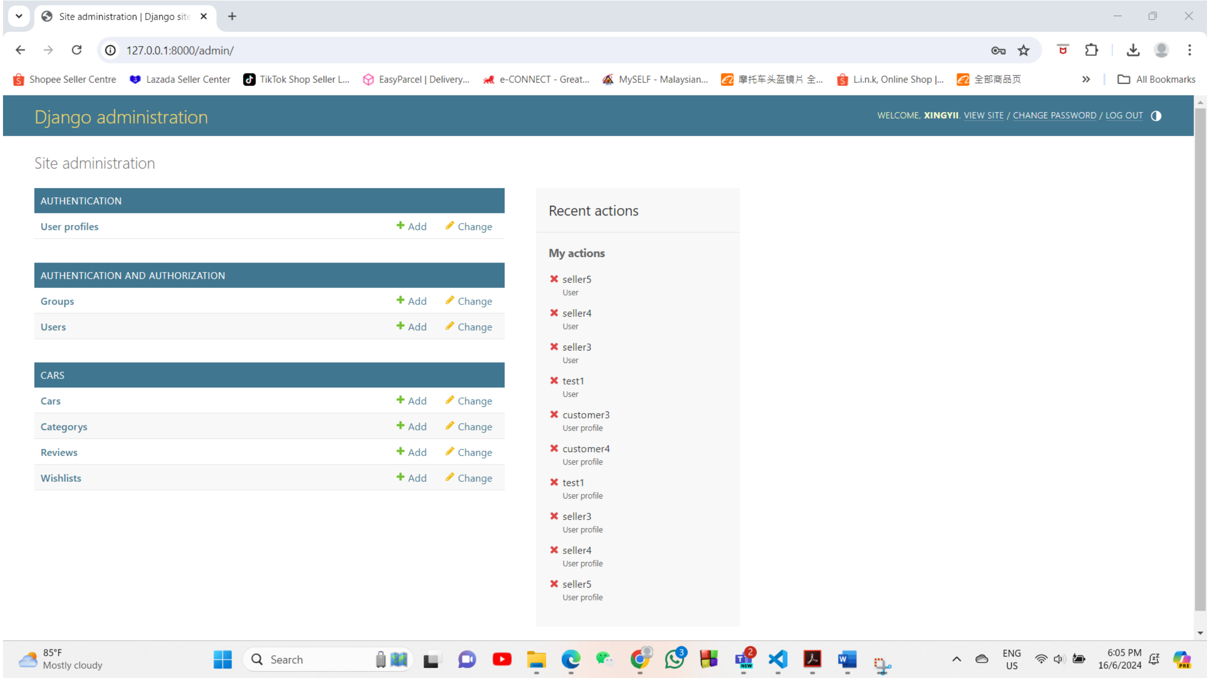
## UI (Admin Views)



Django administration

WELCOME, XINGYII. VIEW SITE / CHANGE PASSWORD / LOG OUT

Site administration

| AUTHENTICATION | | |
|---|---|---|
| User profiles | + Add | Change |

| AUTHENTICATION AND AUTHORIZATION | | |
|---|---|---|
| Groups | + Add | Change |
| Users | + Add | Change |

| CARS | | |
|---|---|---|
| Cars | + Add | Change |
| Categorys | + Add | Change |
| Reviews | + Add | Change |
| Wishlists | + Add | Change |

Recent actions

My actions

- ✖ seller5
  User
- ✖ seller4
  User
- ✖ seller3
  User
- ✖ test1
  User
- ✖ customer3
  User profile
- ✖ customer4
  User profile
- ✖ test1
  User profile
- ✖ seller3
  User profile
- ✖ seller4
  User profile
- ✖ seller5
  User profile