E-Commerce Product Management System Implementation Report

1. Introduction

This report details the step-by-step implementation of an E-Commerce Product Management System using Django.
The system allows managing product listings and categories via the Django Admin interface and displays products using Django's ListView.
Additionally, a database migration was performed to introduce a discount field after initial development.

2. Step-by-Step Implementation

2.1 Setting Up Django Project and App

1. Install Django:
   pip install django
2. Create a new Django project and app:
   django-admin startproject ecommerce
   cd ecommerce
   django-admin startapp products

2.2 Define Models

models.py

```python
from django.db import models

class Category(models.Model):
    name = models.CharField(max_length=255, unique=True)

    def __str__(self):
        return self.name

class Product(models.Model):
    name = models.CharField(max_length=255)
    description = models.TextField()
    price = models.DecimalField(max_digits=10, decimal_places=2)
```

```
    stock = models.PositiveIntegerField()
    category = models.ForeignKey(Category, on_delete=models.CASCADE, related_name="products")

    def __str__(self):
        return self.name
```

2.3 Register Models in Django Admin

admin.py

```python
from django.contrib import admin
from .models import Product, Category

@admin.register(Product)
class ProductAdmin(admin.ModelAdmin):
    list_display = ('name', 'price', 'stock', 'category')
    search_fields = ('name', 'category__name')
    list_filter = ('category',)

@admin.register(Category)
class CategoryAdmin(admin.ModelAdmin):
    list_display = ('name',)
```

2.4 Apply Migrations

```sh
python manage.py makemigrations
python manage.py migrate
```

2.5 Implement Product List View

views.py

```python
```

```
from django.views.generic import ListView
from .models import Product

class ProductListView(ListView):
    model = Product
    template_name = "products/product_list.html"
    context_object_name = "products"
```

templates/products/product_list.html

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

{% block content %}
<h2>Product List</h2>
<ul>
    {% for product in products %}
    <li>
        <strong>{{ product.name }}</strong> - {{ product.price }} USD<br>
        <em>Category:</em> {{ product.category.name }} <br>
        <em>Stock:</em> {{ product.stock }}
    </li>
    {% endfor %}
</ul>
{% endblock %}
```

2.6 Configure URL Patterns

urls.py

```python
from django.urls import path
from .views import ProductListView

urlpatterns = [
    path('products/', ProductListView.as_view(), name='product-list'),
```

]
```

### 2.7 Add Discount Field via Migrations

#### Modify `models.py`

```python
class Product(models.Model):
    name = models.CharField(max_length=255)
    description = models.TextField()
    price = models.DecimalField(max_digits=10, decimal_places=2)
    stock = models.PositiveIntegerField()
    category = models.ForeignKey(Category, on_delete=models.CASCADE, related_name="products")
    discount = models.DecimalField(max_digits=5, decimal_places=2, default=0.00)  # New Field
```

Run Migration

```sh
python manage.py makemigrations
python manage.py migrate
```

2.8 Run the Server and View Products

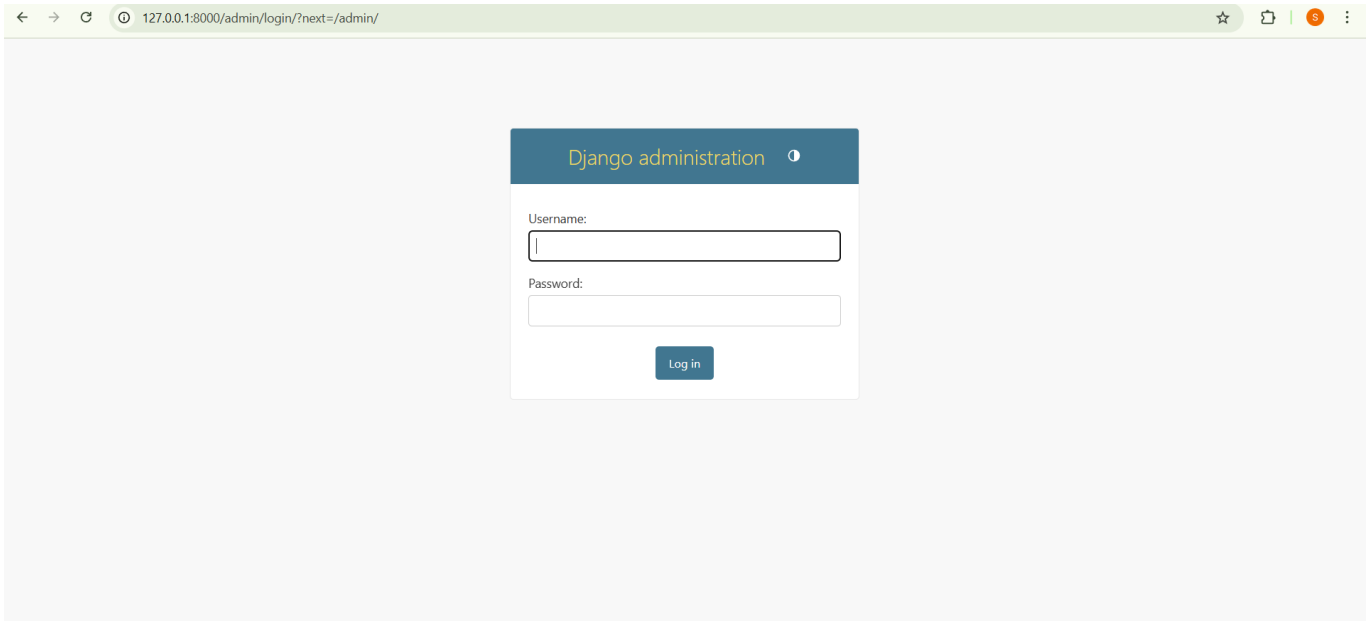
```sh
python manage.py runserver
```

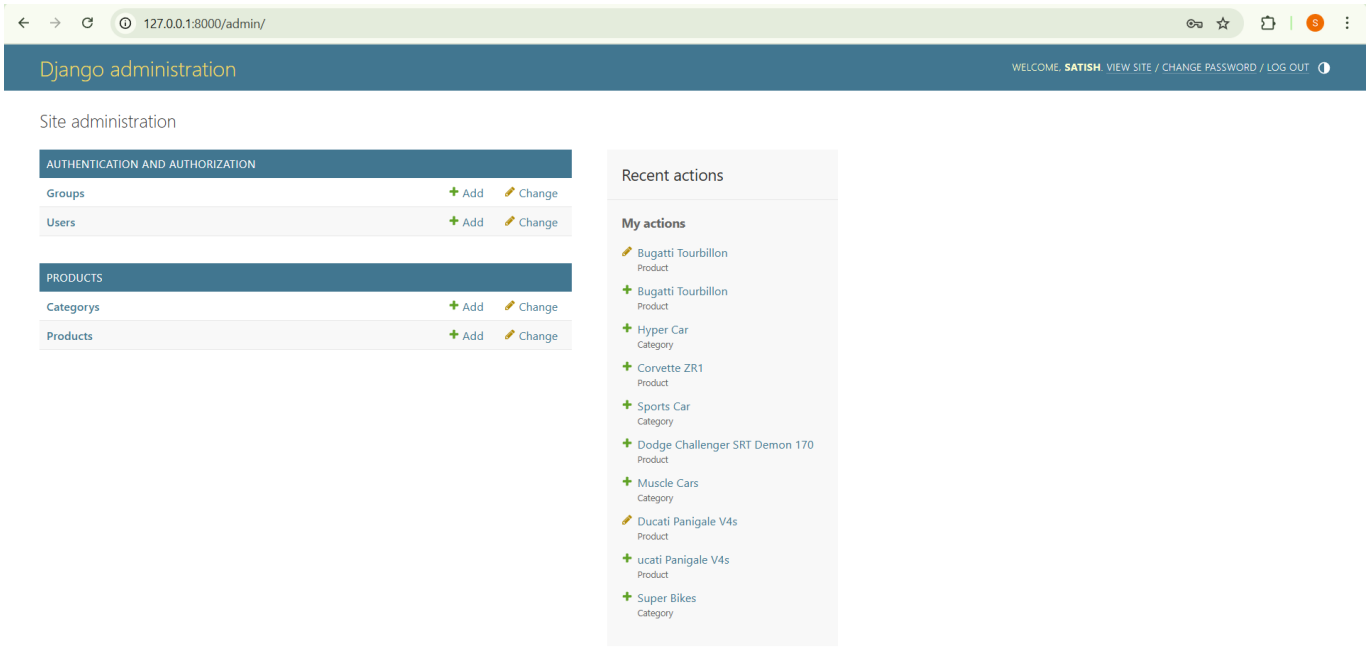
Visit http://127.0.0.1:8000/products/ to see the product list.

3. Screenshots

(Screenshots of the implemented code, web pages, and output results are attached below.)

Screenshots
```


127.0.0.1:8000/admin/login/?next=/admin/
Django administration
Username:
Password:
Log in


127.0.0.1:8000/admin/
Django administration
WELCOME, SATISH. VIEW SITE / CHANGE PASSWORD / LOG OUT
Site administration
AUTHENTICATION AND AUTHORIZATION
Groups + Add Change
Users + Add Change
PRODUCTS
Categorys + Add Change
Products + Add Change
Recent actions
My actions
Bugatti Tourbillon
Product
Bugatti Tourbillon
Product
Hyper Car
Category
Corvette ZR1
Product
Sports Car
Category
Dodge Challenger SRT Demon 170
Product
Muscle Cars
Category
Ducati Panigale V4s
Product
ucati Panigale V4s
Product
Super Bikes
Category


127.0.0.1:8000/admin/logout/
Click to go back, hold to see history
Django administration
Home
Logged out
Thanks for spending some quality time with the web site today.
Log in again

127.0.0.1:8000/products/

Product List

- Ducati Panigale V4s - $6400000.00 (Stock: 500)
- Dodge Challenger SRT Demon 170 - $18000000.00 (Stock: 5)
- Corvette ZR1 - $20000000.00 (Stock: 5)
- Bugatti Tourbillon - $11000000.00 (Stock: 2)