ADVANCED PROGRAMMING TECHNIQUES

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Group members	Gopala krishna mohan rao J - **10623900** Santosh Panaganti -**10616013** Omer mukthar:- **10625847** Arat Gouda:- **10576455** Bakare folashade Abisoye:- **10609000**

	NAMES	CONTRIBUTION IN PROJECT
1	JONNALAGADDA GOPALA KRISHNA MOHAN RAO	I have created the server along with the settings and urls that needs to be used in the website.
2	SANTOSH PANAGANTI	I have created migrations for the website along with the tested pycache results for the website.
3	OMER MUKTHAR	I have created the Django framework and few templates for the website
4	ARAT GOUDA	I have created the views for the website along with few templates
5	BAKARE FOLASHADE ABISOYE	I have created few templates and a small part of Django framework that needed for the website

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Introduction:

Ecommerce website is mainly used for Online business for a company or a person to sell the products online. In 2022 there are many website that are used to sell products online. This process made people to shop products from anywhere any time just from a single place without searching all the shops. There are various types of services that are available online today. One can sell his services online just by sitting at home. This is one of the most effective freelancing services that are going online.

The current project is a small ecommerce website that sells products online.

Technologies used:

Front-end technologies used:

- HTML

  Hyper Text Markup language (HTML) helps displays contents on web page. The most fundamental component of the Web is HTML (HyperText Markup Language). It describes the purpose and organization of web content. The appearance/presentation (CSS) and functionality/behavior (JS) of a web page are typically described using technologies other than HTML (JavaScript).

  Links that join online pages together, either within a single website or between websites, are referred to as "hypertext." An essential component of the Web are links. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web.
  To annotate text, images, and other content for display in a Web browser, HTML uses "markup." HTML markup comprises unique "elements" including "head," "title," "body," "header," and "footer," as well as "article," "section," "p," "div," "span," "img," "aside," "audio," "canvas," "datalist," "details," "embed," "nav," "output," "progress," "video," "ul," "ol," and "li," among many more.
  "Tags," which consist of the element name enclosed by "" and ">," are used to distinguish HTML elements from other content in a page. Case is not relevant when naming an element inside a tag. In other words, it can be written in uppercase, lowercase, or a combination of the two. The title> tag, for instance, can be expressed in a variety of ways, such as Title> or TITLE>. Tags should be written in lowercase, as is customary and advised.

- BOOTSTRAP

  I It helps html, CSS and JavaScript framework used to build responsive websites.

The most popular CSS framework for creating responsive and mobile-first websites is Bootstrap. A responsive grid structure, global CSS settings, a large number of pre-built components, such as buttons, navbars, and forms, as well as optional JavaScript plugins to expedite development are all included in this free and open-source toolkit.

Developers only need to place the code into a pre-defined grid system because Bootstrap is a framework that already includes the fundamentals for developing responsive websites. Hypertext Markup Language (HTML), cascading style sheets (CSS), and JavaScript serve as the foundation for the Bootstrap framework. By using Bootstrap, web designers may create websites much more quickly without having to spend time worrying about fundamental commands and functions.

Bootstrap makes responsive site design a reality. It enables a website or app to recognize the size and orientation of the visitor's screen and automatically adjust the display. The mobile-first strategy presupposes that employees' main tools for accomplishing their work are smartphones, tablets, and task-specific mobile apps. Bootstrap provides UI elements, layouts, JavaScript tools, and an implementation framework to handle the design requirements of those technologies. The program is offered both precompiled and as source code.

Back-end technologies used:

- Python

We used python as the base language to write the code and connect the codes. Python first appeared thirty years ago. It was created by Dutch programmer Guido van Rossum, who gave it the name Monty Python's Flying Circus in honor of his favorite comedy troupe at the time. After that,

It has attracted a thriving community of enthusiasts who seek to eliminate any problems and increase the code's functionality.

Python is renowned for being strong, quick, and for enhancing the fun of programming. Python programmers can type variables dynamically without having to specify what the variable is meant to be. Python is available for free download, and users can begin learning to code using it right away. The source code is publicly accessible and ready for reuse and modification. Python is widely used because of its understandable syntax and readability. Python produces code that is simple to read, comprehend, and pick up in the fields of data analytics, machine learning (ML), and web development. Python's source statement indentation guidelines contribute to the code's consistency and readability. Python-based software tends to be more compact than programs created using Java-based programming languages. Typically, less code has to be typed by programmers.

Python programming is still widely used because the interpreter is so good at finding errors and raising exceptions. In this situation, erroneous inputs never result in a segmentation fault. Users won't have to worry about any potential conflicts because the debugger is based on Python.

- Django

  Django and Django framework is used for web development framework. Python is widely used because of its understandable syntax and readability. Python produces code that is simple to read, comprehend, and pick up in the fields of data analytics, machine learning (ML), and web development. Python's source statement indentation guidelines contribute to the code's consistency and readability. Python-based software tends to be more compact than programs created using Java-based programming languages. Typically, less code has to be typed by programmers.

  Python programming is still widely used because the interpreter is so good at finding errors and raising exceptions. In this situation, erroneous inputs never result in a segmentation fault. Users won't have to worry about any potential conflicts because the debugger is based on Python.

  Python continues to expand and is actively used by:

  Complete Django offers nearly everything developers would need "out of the box" and adheres to the "Batteries included" principle. Everything you require is included in the same "product," so everything functions in unison, adheres to the same design principles, and has comprehensive and current documentation.

  Versatile Django can be (and has been) used to develop practically every form of website – from content management systems and wikis, through to social networks and news sites. It can send material in practically any format and integrate with any client-side framework (including HTML, RSS feeds, JSON, and XML).

  Internally, it offers options for nearly any capability you could require (such as a number of well-known databases, templating engines, etc.), but it also has the ability to be expanded to incorporate additional components if necessary

- Database

  Database is used to store the logged in credentials and the data that is used in the website.

  A database is a collection of data that has been organized to make it simple to manage and update. Data records or files containing information, including as

sales transactions, customer information, financial data, and product information, are often aggregated and stored in computer databases.

Any type of data can be stored, maintained, and accessed using databases. They gather data on individuals, locations, or objects. It is gathered in one location so that it can be seen and examined. You might think of databases as a well-organized collection of data.

Businesses use the data kept in databases to make wise decisions about their operations. The following are just a few applications for databases in organizations:

Streamline company procedures. Businesses gather information on operational procedures, including sales, order processing, and customer service. They use that data analysis to enhance these procedures, grow their firm, and increase revenue.

Keep track of customers. Information on people, such that of clients or users, is frequently stored in databases. Social media networks, for instance, use databases to store user data including names, email addresses, and usage patterns. The information is put to use to enhance user experience and propose content to users.

Protected personal health data. Databases are used by healthcare providers to safely preserve patient information that will help them provide better treatment.

In the 1960s, databases were initially developed. Each record in these early databases is connected to numerous other primary and secondary records via network models. Among the earliest models were hierarchical databases. They have tree schemas with a record-filled root directory connected to numerous subdirectories.

In the 1970s, relational databases were created. Next, in the 1980s, came Object-Oriented Databases. These days, we employ cloud databases, NoSQL, and Structured Query Language (SQL).

Requirements:

We require a working browser and python installed on your computer. To install Django we need cmd/terminal and run the command " pip install Django "

If you are using Visual studio code we need few extensions

- Python
- Live server
- Dbsqlite
- Html
- CSS

PROJECT:

The project is based on the python and Django along with html and very small amount of java framework along with CSS.

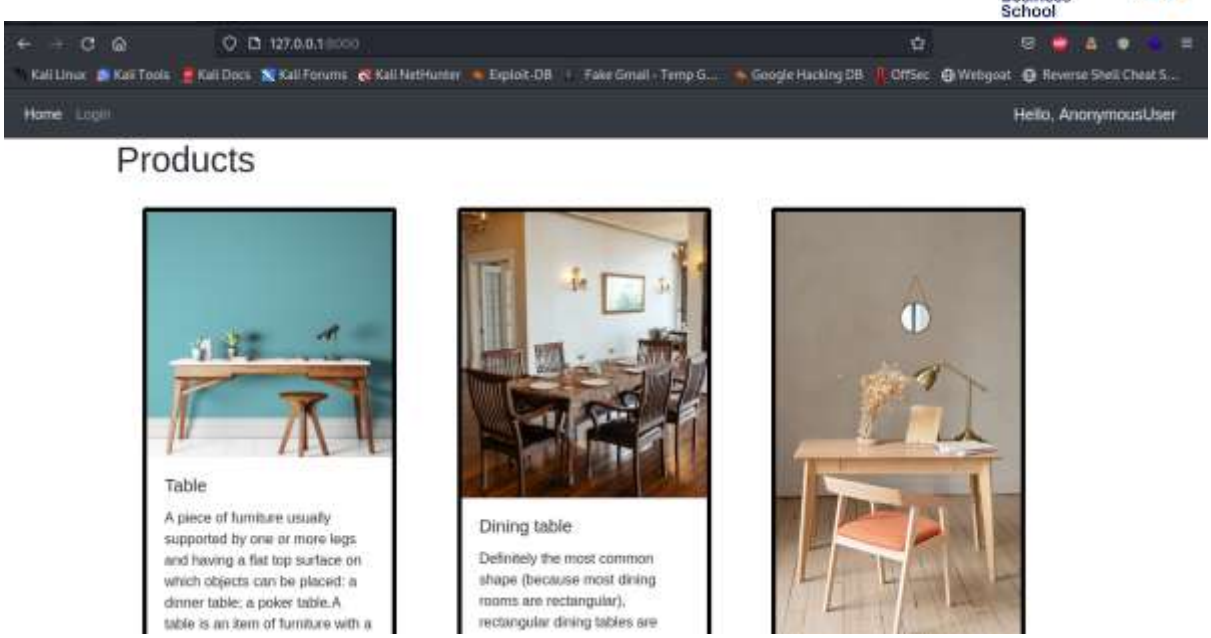
The manage.py is the server file that runs the server on the system.

To run the server " python manage.py runserver " command to run the server.

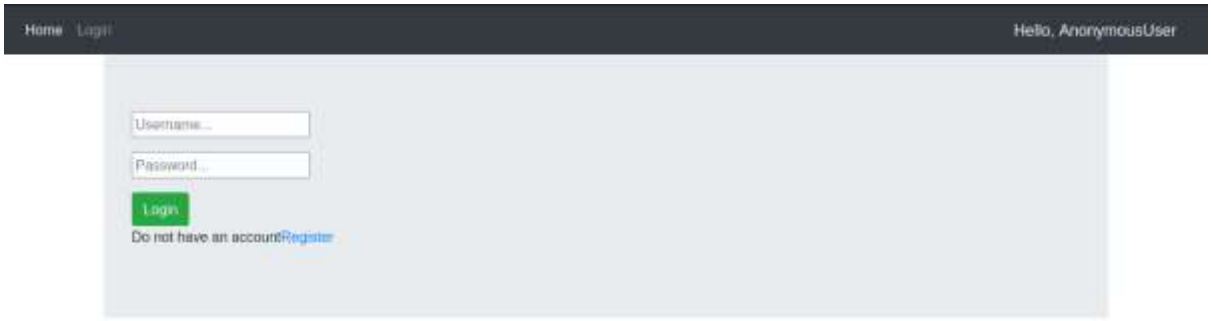
```
┌──(kali㉿kali)-[~/ca=python/ecommerce-python-code]
└─$ python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...

System check identified some issues:

WARNINGS:
website.Customer: (models.W042) Auto-created primary key used when not defining a
 primary key type, by default 'django.db.models.AutoField'.
        HINT: Configure the DEFAULT_AUTO_FIELD setting or the WebsiteConfig.defau
lt_auto_field attribute to point to a subclass of AutoField, e.g. 'django.db.mode
ls.BigAutoField'.
website.Order: (models.W042) Auto-created primary key used when not defining a pr
imary key type, by default 'django.db.models.AutoField'.
        HINT: Configure the DEFAULT_AUTO_FIELD setting or the WebsiteConfig.defau
lt_auto_field attribute to point to a subclass of AutoField, e.g. 'django.db.mode
ls.BigAutoField'.
website.Product: (models.W042) Auto-created primary key used when not defining a
primary key type, by default 'django.db.models.AutoField'.
        HINT: Configure the DEFAULT_AUTO_FIELD setting or the WebsiteConfig.defau
lt_auto_field attribute to point to a subclass of AutoField, e.g. 'django.db.mode
ls.BigAutoField'.

System check identified 3 issues (0 silenced).
December 19, 2022 - 05:20:52
Django version 3.2.16, using settings 'OnlineShopping.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
```

The command creates a local server. Copy the URL and paste it in the browser.

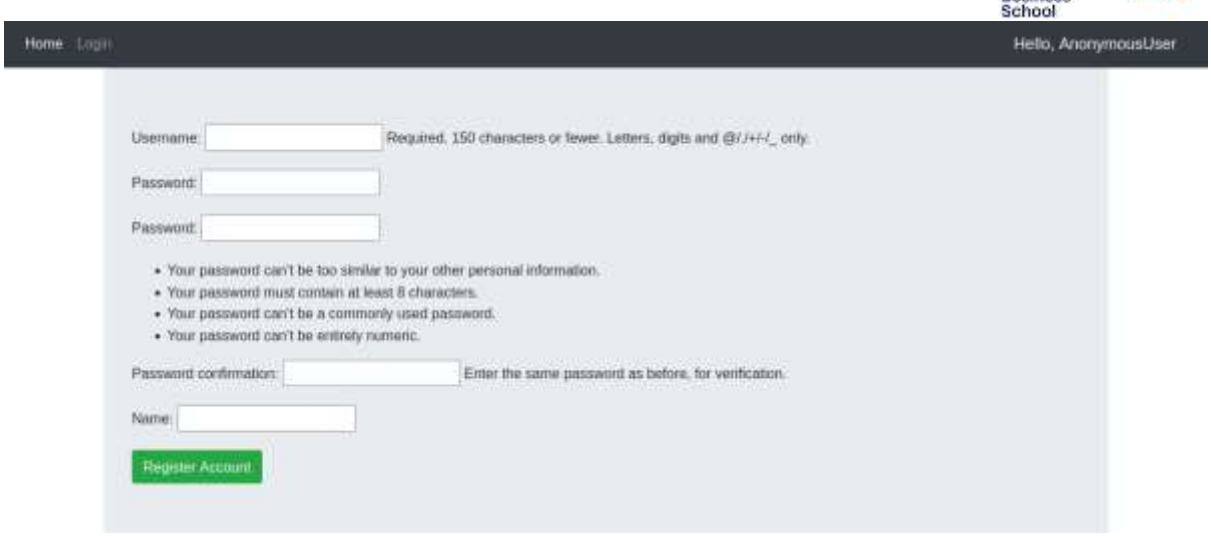
When the url is run in the browser the output is shown as below:



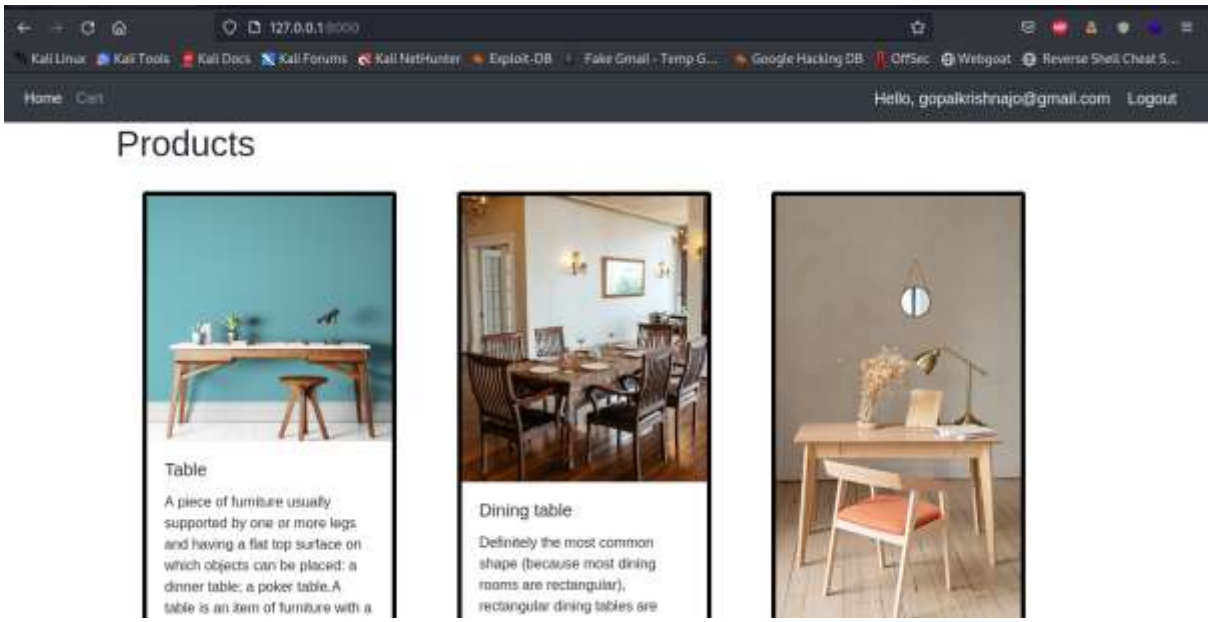
We have created a login page for the existed users to login in to the website.



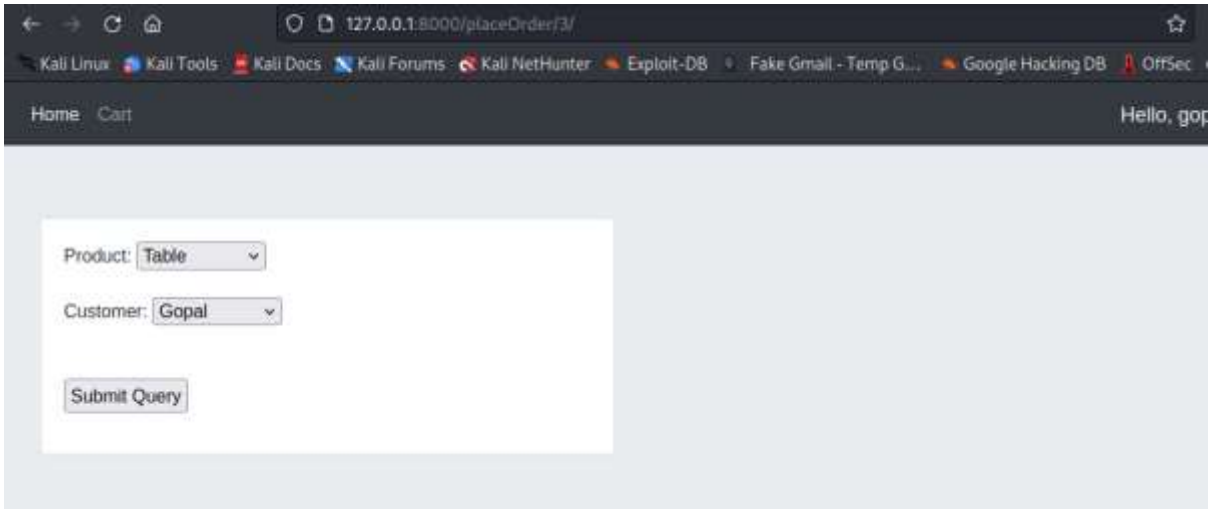
If you are a new user we have created a register form to the website.



Once you are registered you can login to your account.



Once you are logged in, you can add the products in the cart as shown below:



CODE EXPLAINATION:

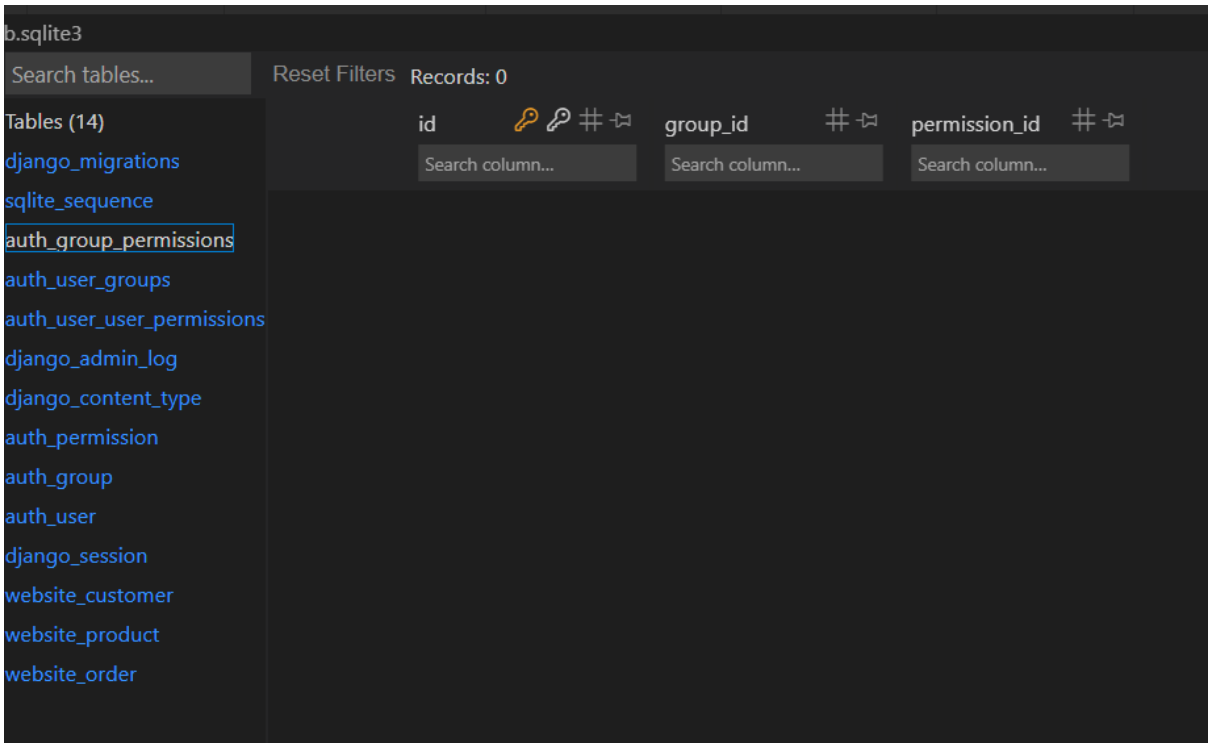
For starting the project we need to go to the path where manage.py is present and run the command " python manage.py runserver "

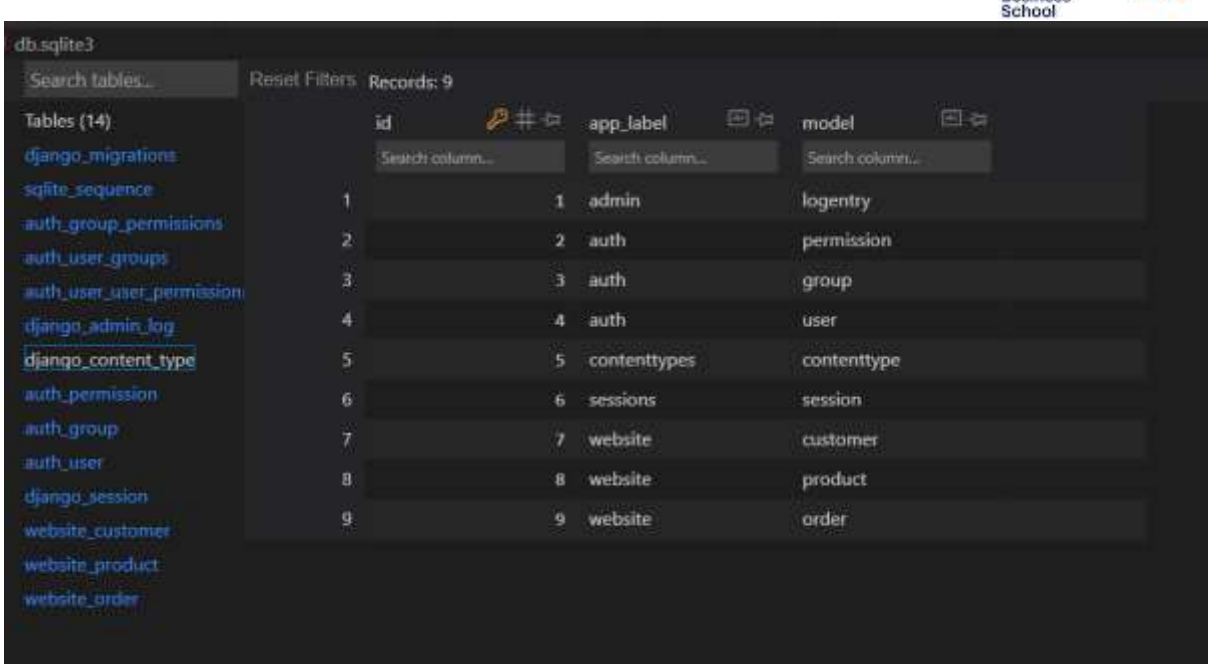
This starts all the website that is present in the project on the server.

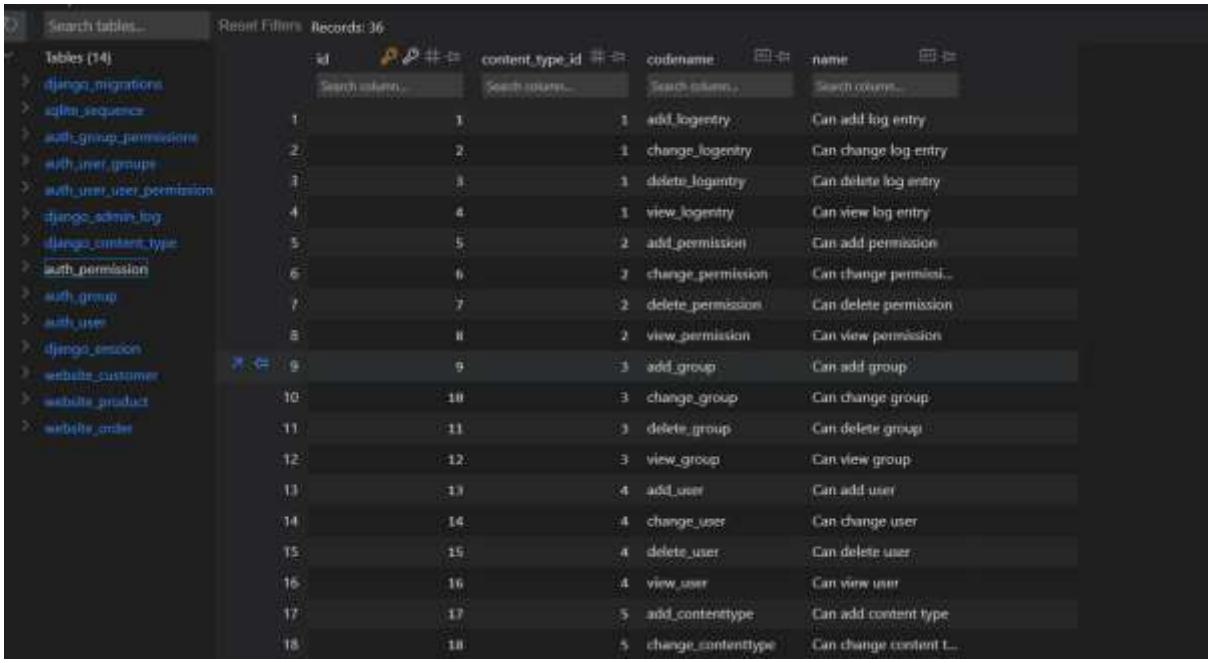
This is the server module that runs all the website in the module.

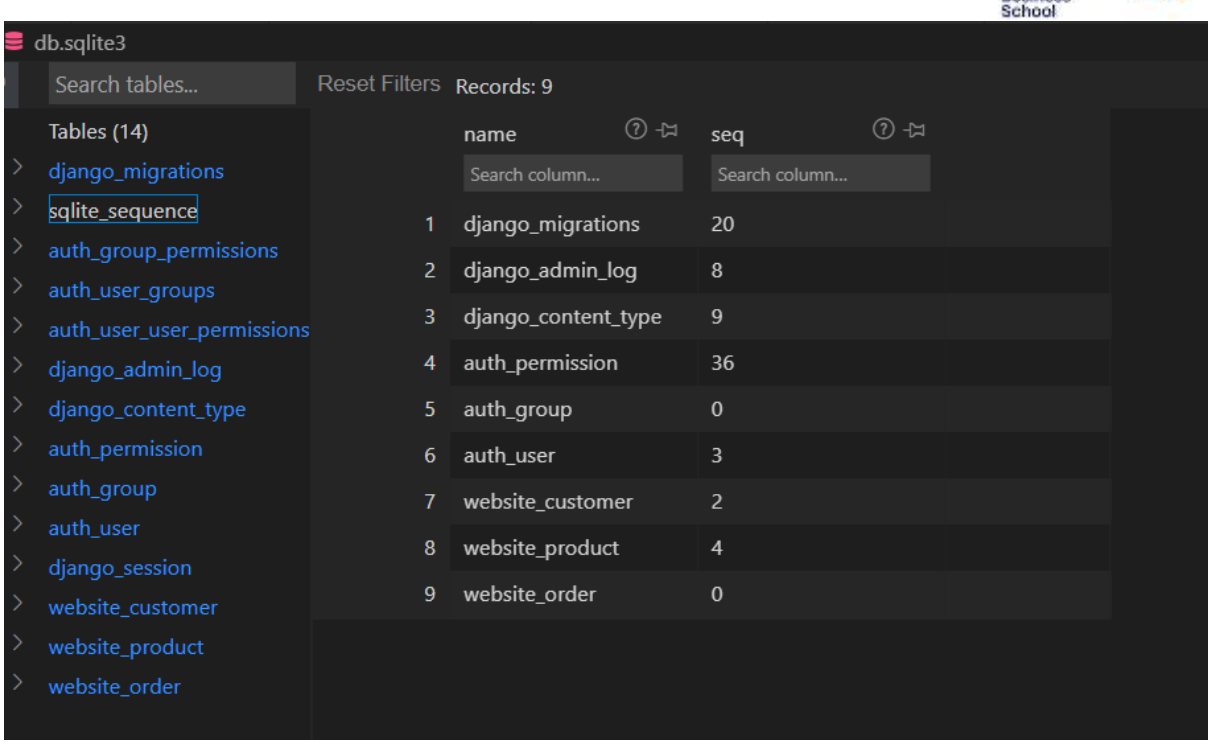
Database:

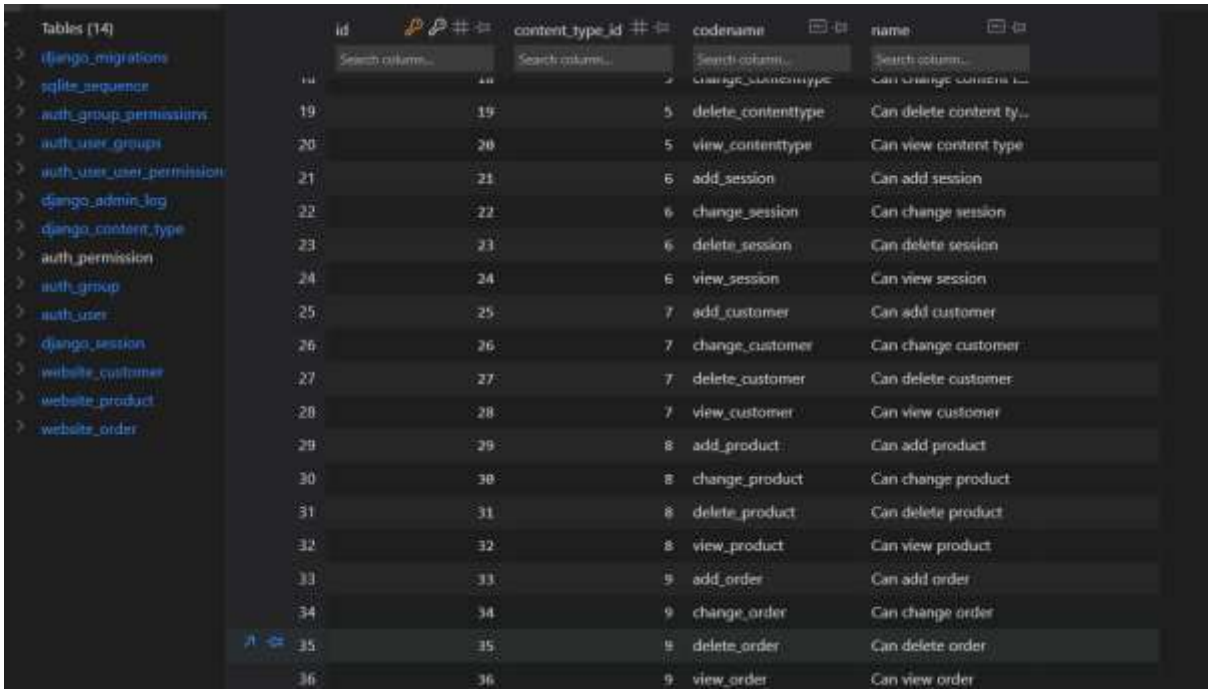
All the logins and updations on the website are updated in the database. It is shown as follows:

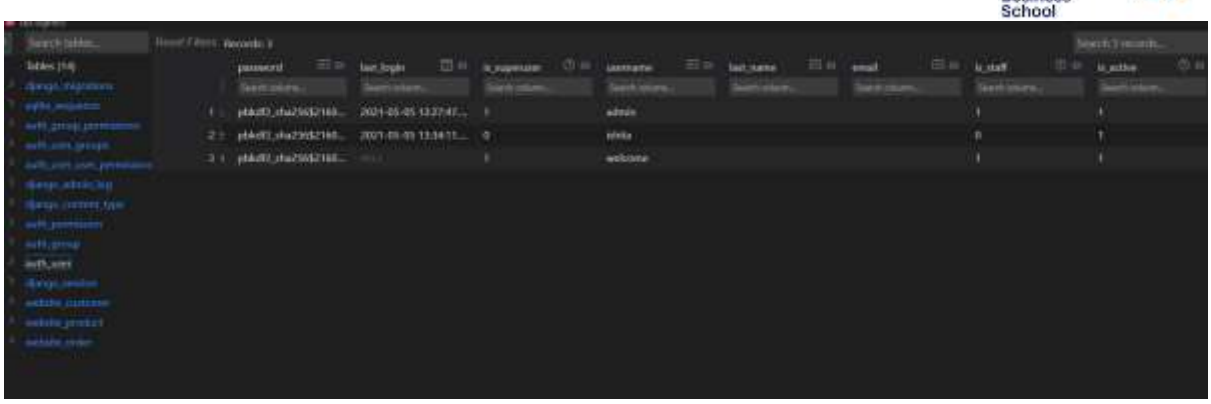


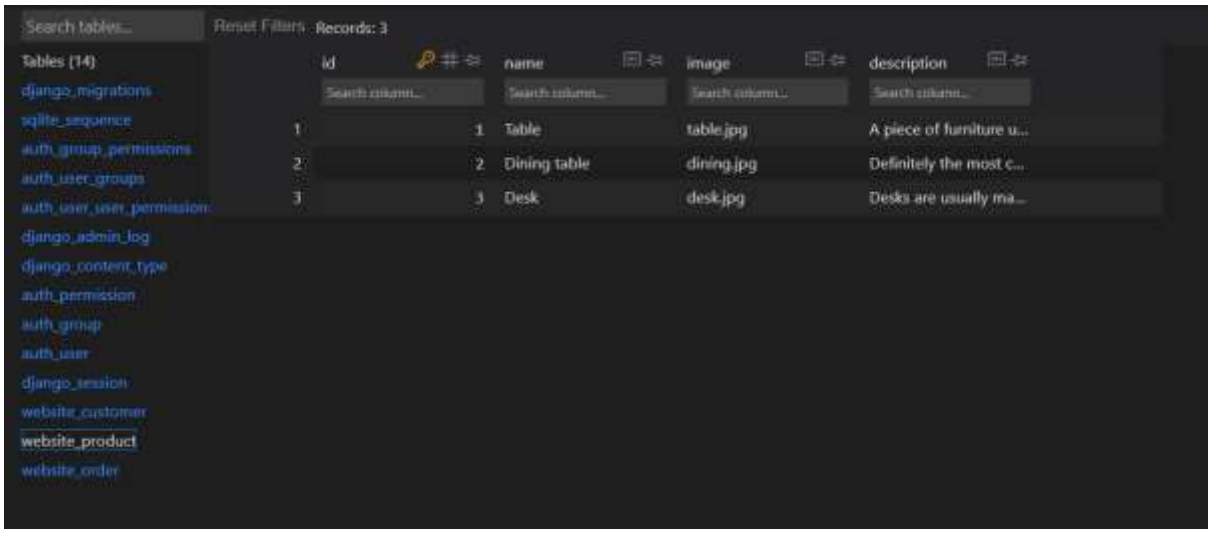

db.sqlite3
Search tables...
Reset Filters
Records: 9
Tables (14)
django_migrations
sqlite_sequence
auth_group_permissions
auth_user_groups
auth_user_user_permission
django_admin_log
django_content_type
auth_permission
auth_group
auth_user
django_session
website_customer
website_product
website_order
id
app_label
model
1 1 admin logentry
2 2 auth permission
3 3 auth group
4 4 auth user
5 5 contenttypes contenttype
6 6 sessions session
7 7 website customer
8 8 website product
9 9 website order

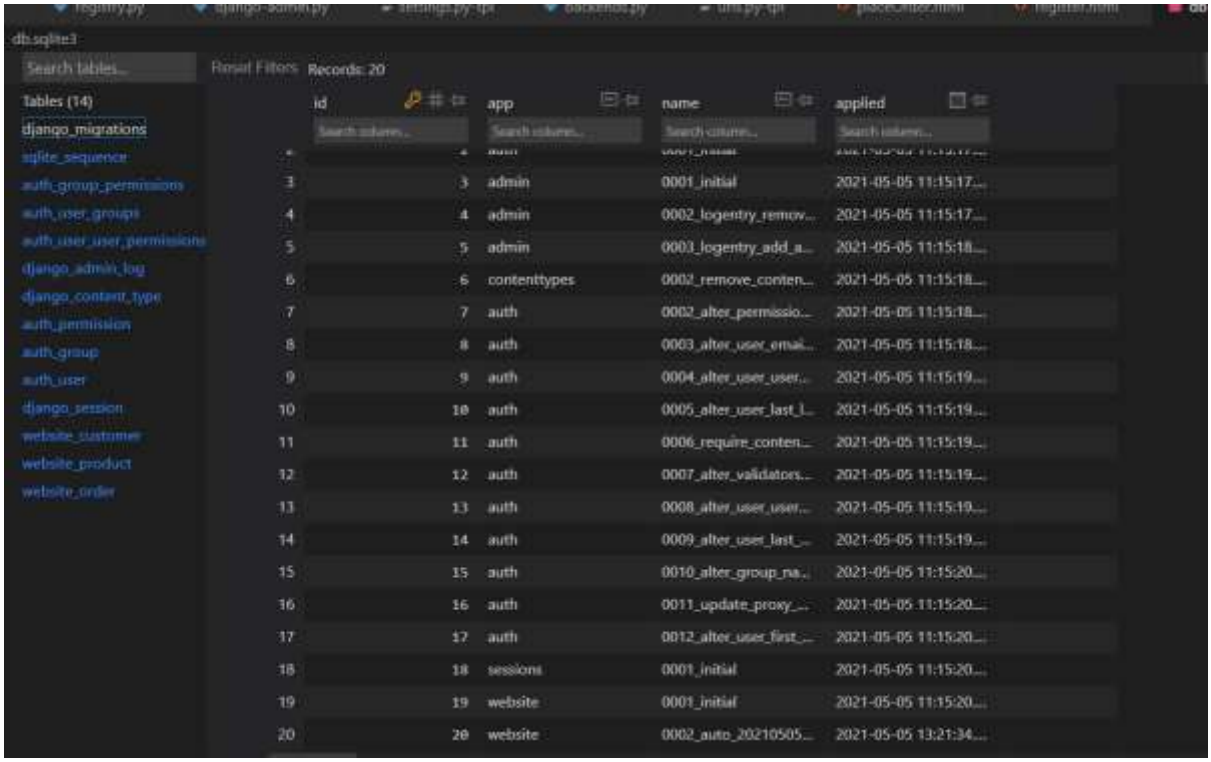

Search tables...
Reset Filters
Records: 36
Tables (14)
id
content_type_id
codename
name
1 1 1 add_logentry Can add log entry
2 2 1 change_logentry Can change log entry
3 3 1 delete_logentry Can delete log entry
4 4 1 view_logentry Can view log entry
5 5 2 add_permission Can add permission
6 6 2 change_permission Can change permissi...
7 7 2 delete_permission Can delete permission
8 8 2 view_permission Can view permission
9 9 3 add_group Can add group
10 10 3 change_group Can change group
11 11 3 delete_group Can delete group
12 12 3 view_group Can view group
13 13 4 add_user Can add user
14 14 4 change_user Can change user
15 15 4 delete_user Can delete user
16 16 4 view_user Can view user
17 17 5 add_contenttype Can add content type
18 18 5 change_contenttype Can change content t...


db.sqlite3
Search tables...
Reset Filters
Records: 9
Tables (14)
django_migrations
sqlite_sequence
auth_group_permissions
auth_user_groups
auth_user_user_permissions
django_admin_log
django_content_type
auth_permission
auth_group
auth_user
django_session
website_customer
website_product
website_order
name
seq
Search column...
Search column...
1 django_migrations 20
2 django_admin_log 8
3 django_content_type 9
4 auth_permission 36
5 auth_group 0
6 auth_user 3
7 website_customer 2
8 website_product 4
9 website_order 0


Tables (14)
id
content_type_id
codename
name
19 19 5 delete_contenttype Can delete content ty...
20 20 5 view_contenttype Can view content type
21 21 6 add_session Can add session
22 22 6 change_session Can change session
23 23 6 delete_session Can delete session
24 24 6 view_session Can view session
25 25 7 add_customer Can add customer
26 26 7 change_customer Can change customer
27 27 7 delete_customer Can delete customer
28 28 7 view_customer Can view customer
29 29 8 add_product Can add product
30 30 8 change_product Can change product
31 31 8 delete_product Can delete product
32 32 8 view_product Can view product
33 33 9 add_order Can add order
34 34 9 change_order Can change order
35 35 9 delete_order Can delete order
36 36 9 view_order Can view order







NOTE: The pictures of database are shown just in case if you are unable to open the file your system. You either require a proper extensuion in your vscode or run it in the mysql.

MODELS.PY:

We have used Django's default database which is sqlite3. We have created three models in this file.

- Product:

  This model stores product details like images, name, description.

- Customer:

  Model stores customer details.

- Order:

  This model stores the information related orders such as buyer's information, product's information, date of order, and the order status (pending, packed, deliverd, cancelled,etc).

FORMS.PY:

It imports the data from the files that are present in the models. The crud functionality such as creating, updating or deleting entries from the database is done using this file.

ADMIN.PY:

This module is used to register the models on the admin panel. This admin has access to create or delete data on the system.

SETTINGS.PY:

There are some images that are used in the project to update them or their static path there is a static path in the settings.py.

URLS.PY:

In this module we specify the static folder path. So, our module can detect them.

The urls.py must contain the following things:

Function views

1. Add an import: from my_app import views
2. Add a URL to urlpatterns: path('', views.home, name='home')

Class-based views

1. Add an import: from other_app.views import Home
2. Add a URL to urlpatterns: path('', Home.as_view(), name='home')

Including another URLconf

1. Import the include() function: from django urls import include, path
2. Add a URL to urlpatterns: path('blog/', include('blog.urls'))

VIEWS.PY:

This module is made to merge all the code and make visuals friendly to the user. It has sevral views whch admin can make the changes backend.

This manages the above shown outputs (such as login, register, logout,etc)

TEMPLATES.PY:

This module contains all the templates (html) output files in the website.

We also have some of .pyc files in the files that are produced when the python files are run.

CONCLUSION:

The ecommerce is a small version of the actual websites we use in our day to day life such as Amazon, Ebay, etc. This is a simple website, as there is no heavy database an individual can host this in his own system. The entire project was run on our regular laptops and on a private network. This website can be connected with the online server and can be hosted in the internert.

The full code is available on the github repository :

https://github.com/gopal-krish/DBS_Python

This document is a reference version on how to run the code on your local laptop.

REFERENCES:

https://www.python.org/

https://www.djangoproject.com/

https://www.sqlite.org/docs.html