Learning flask

Date: 23.12.25

Error at terminal:

ashin\_Internship\Dyashin\_learning\Dyashin\_Flask\.venv\Scripts\python.exe c:/Users/Lenovo/Desktop/Dyashin\_Internship/Dyashin\_learning/Dyashin\_Flask/flask\_hello

Oops, something went wrong. Please report this bug with the details below.

Report on GitHub: https://github.com/lzybkr/PSReadLine/issues/new

-----------------------------------------------------------------------

Last 200 Keys:

p s 1 Enter

& Space C : \ U s e r s \ L e n o v o \ D e s k t o p \ D y a s h i n \_ I n t e r n s h i p \ D y a s h i n \_ l e a r n i n g \ D y a s h i n \_ F l a s k \ . v e n v \ S c r i p t s \ p y t h o n . e x e Space c : / U s e r s / L e n o v o / D e s k t o p / D y a s h i n \_ I n t e r n s h i p / D y a s h i n \_ l e a r n i n g / D y a s h i n \_ F l a s k / f l a s k \_ h e l l o \_ w o r l d . p y Enter

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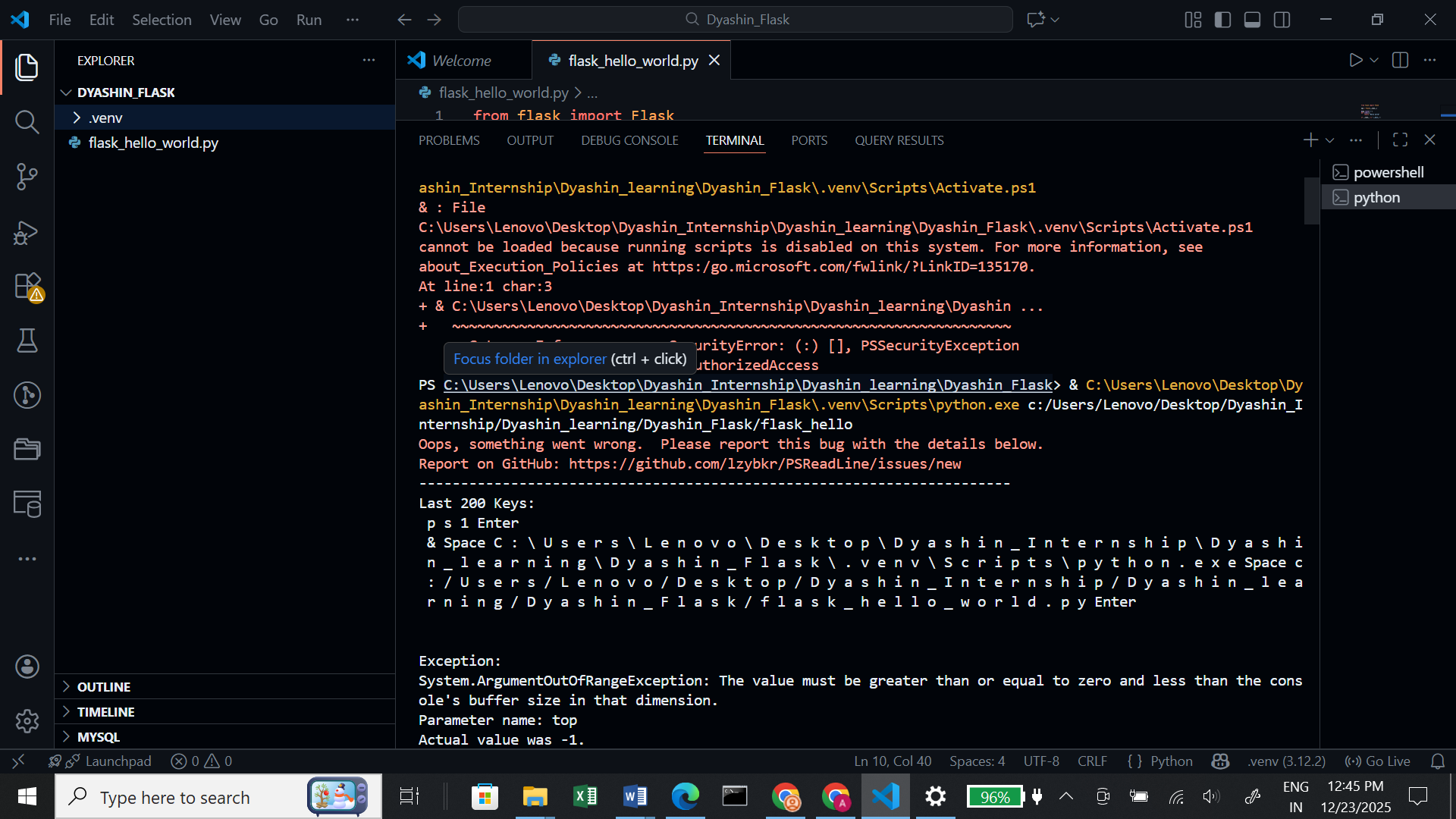
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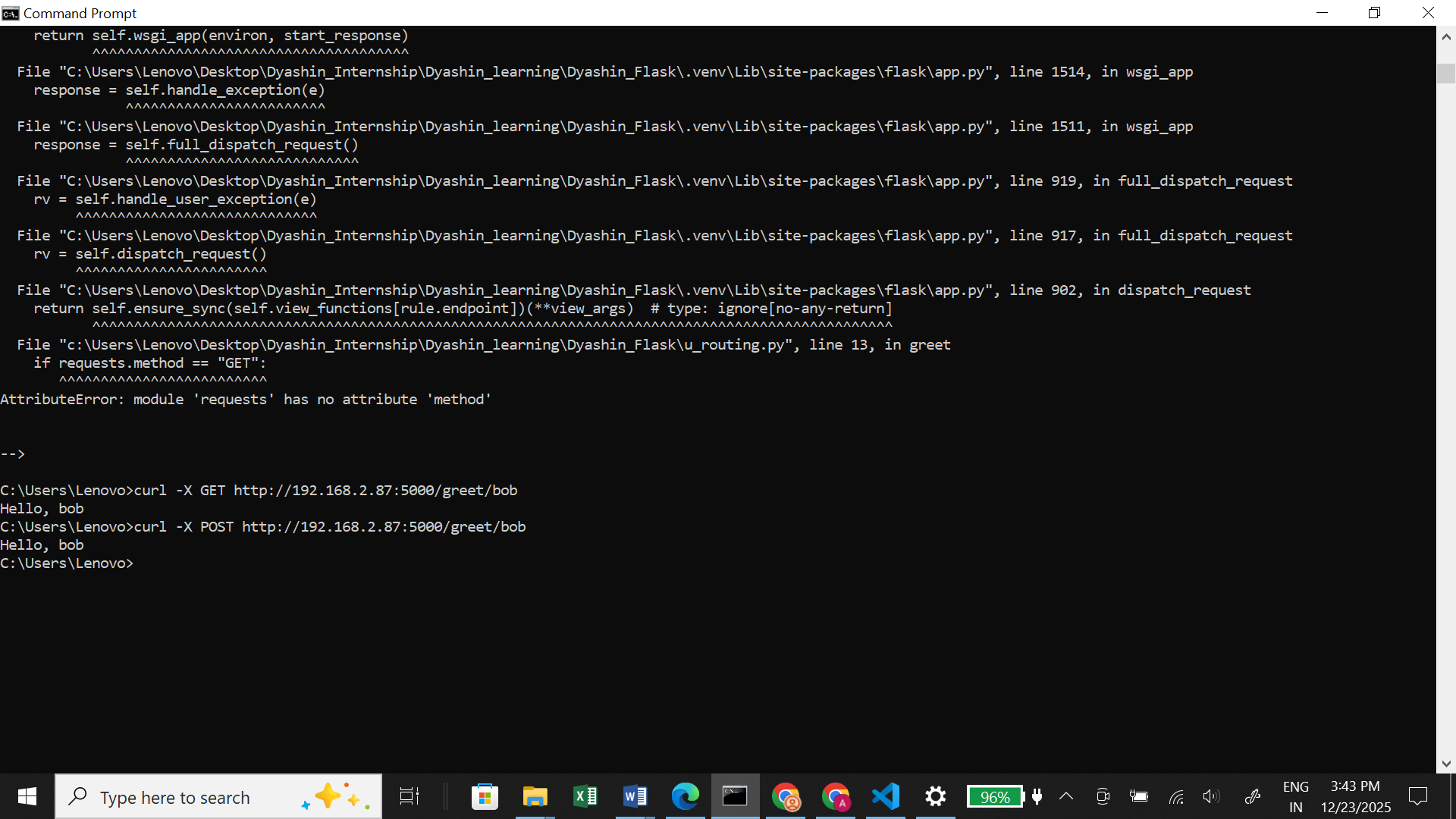
Blue printing

Atomic file structure

Python development server

curl.exe -X GET <http://192.168.2.87:5555/>

Curl is used send request



Date: 24.12.25

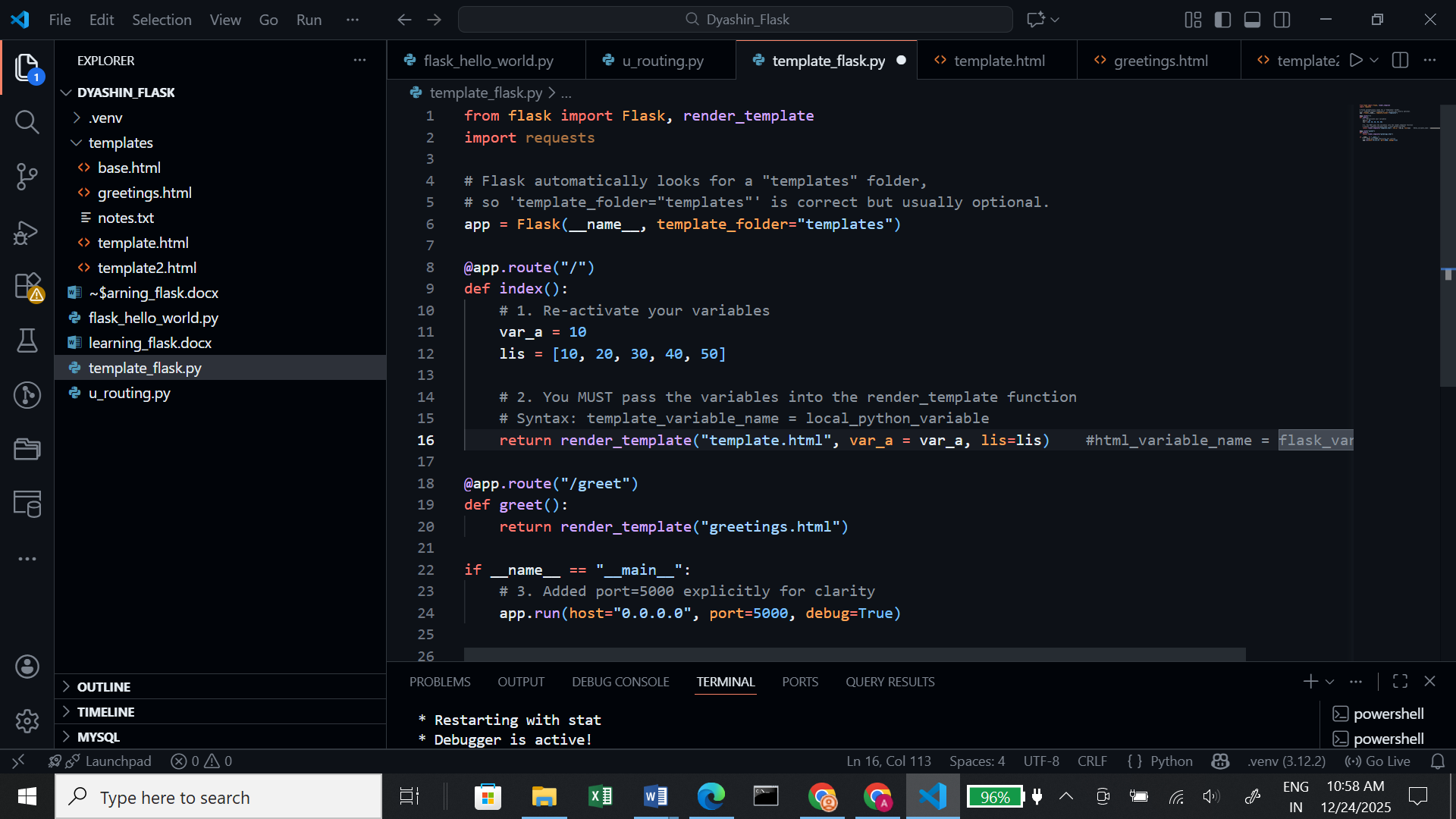
Youtube video link follow: https://youtu.be/oQ5UfJqW5Jo?si=gF6uTyHJXmr44QOK

**Decorators**

@app.route(“/”) is a decorator which helps in routing. What it does is it maps the URLs in the website to the python function

But in general a decorator elevates a function in python

The following is how a common flask program looks



**HTML templates**

In html single quotations for conditions statements and double quotations for variables

Example: {% for I in list %}

{% if I == 30%} //use single quotes for conditions

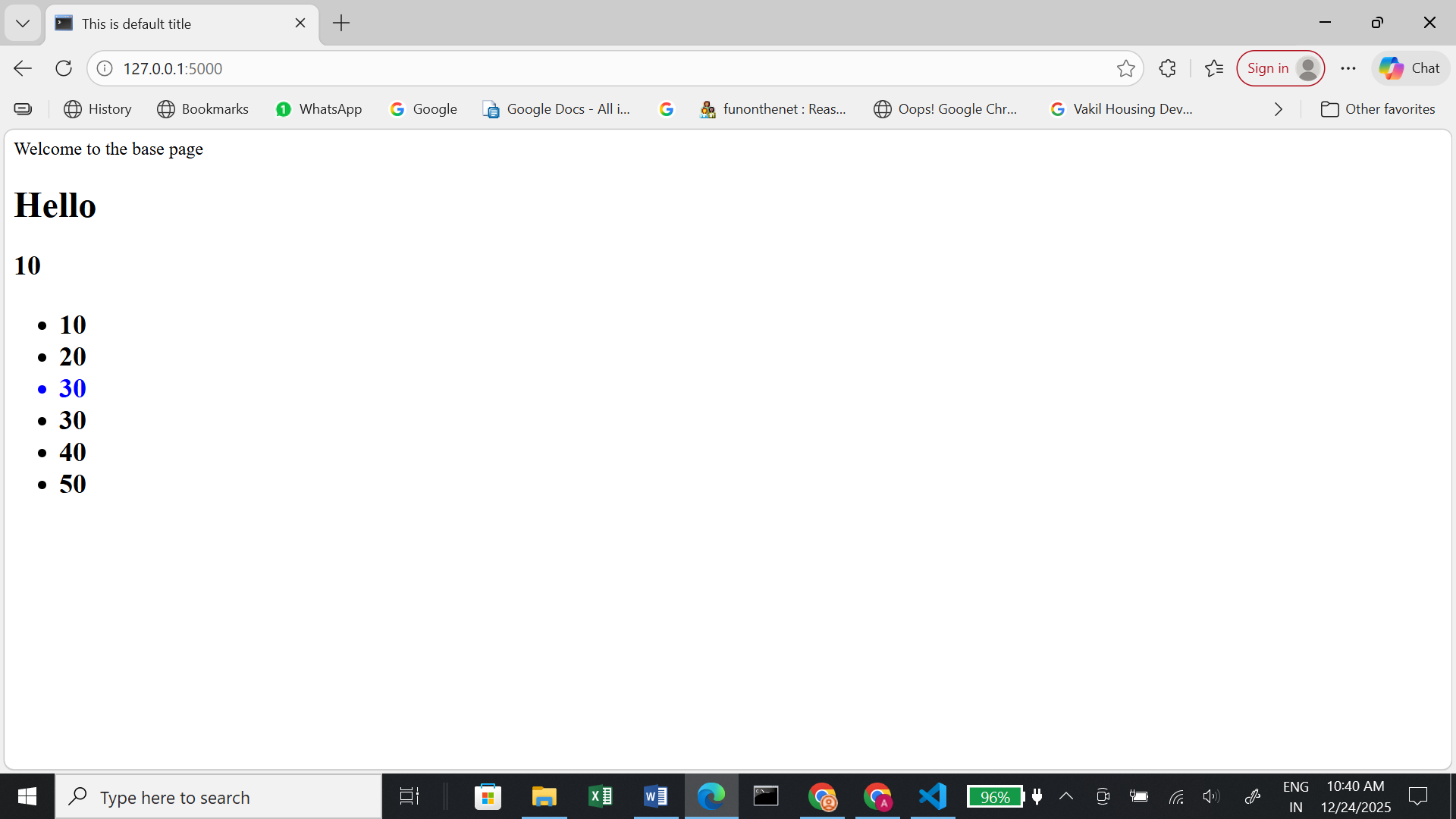
<li style=”color: red: > {{ I }} </li>

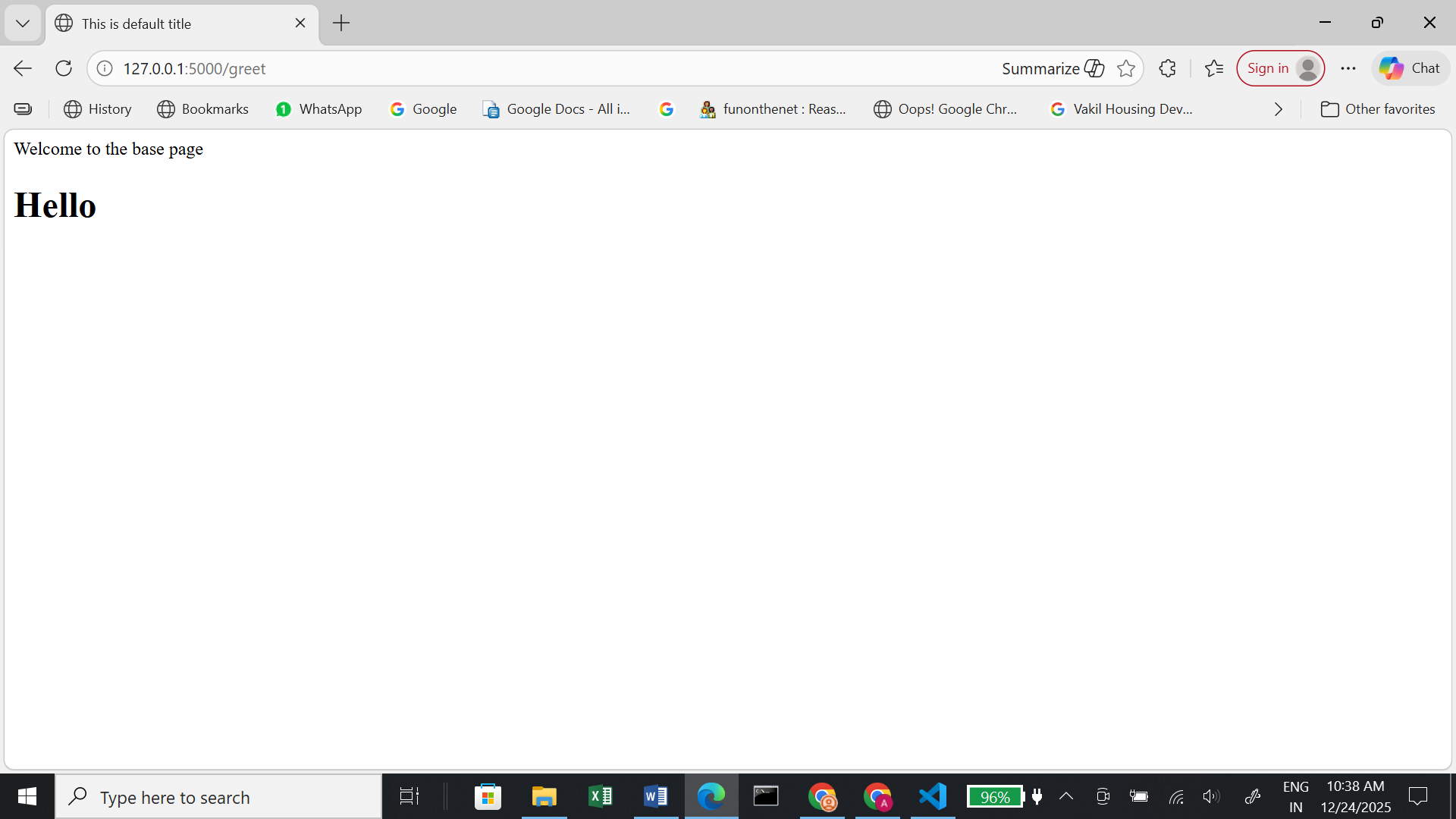
{% endif %}

<li> {{ I }} </li> //use double quotes of variables

{% endfor %}

We can use {% extends “given.html” %} and {%block content%} your content {% endblock %} and {% block title %} Your title{% endblock %}





Usually use {%block content%} {% endblock %} so that we don’t have manually change all the HTML files mostly used in Bootstrap

**HTML Filter**

Learnings till now:

What is the componets of starting blocks(building blocks) of flask

What is routing

* How to take variables from the URL
* How to make dictionary and take variables form the URL
* How to set methods like GET and POST

In templates

* How to import HTML templates and pass in our variables
* How add filters and how to make our custom filters
* How to redirect and URL for dynamically changing URLs(By using redirects(url\_for(:function\_name”))

**FORMS**

While learning forms and in the html of <form> always keep name sure that name variable in html matchs the variable name in the flask file

#HTML file

<input type="text" name="username" placeholder="Usename"><br>

#flask file

username = request.form.get("username")

**Response:**

Response uses POST method and gets the file from the user already defined in the HTML “forms.html” file. We import Response and convert the file to required filetype and send a response to the client

@app.route("/convert\_csv", methods=["POST"])

def convert\_csv():

    file = request.files.get("file")

    if not file:

        return "No file uploaded", 400

    df = pd.read\_excel(file)

    # Create the Response object

    return Response(

        #csv\_data

        df.to\_csv(index=False),

        mimetype="text/csv",

        headers={

            "Content-Disposition": "attachment; filename=forms\_result\_csv.csv"

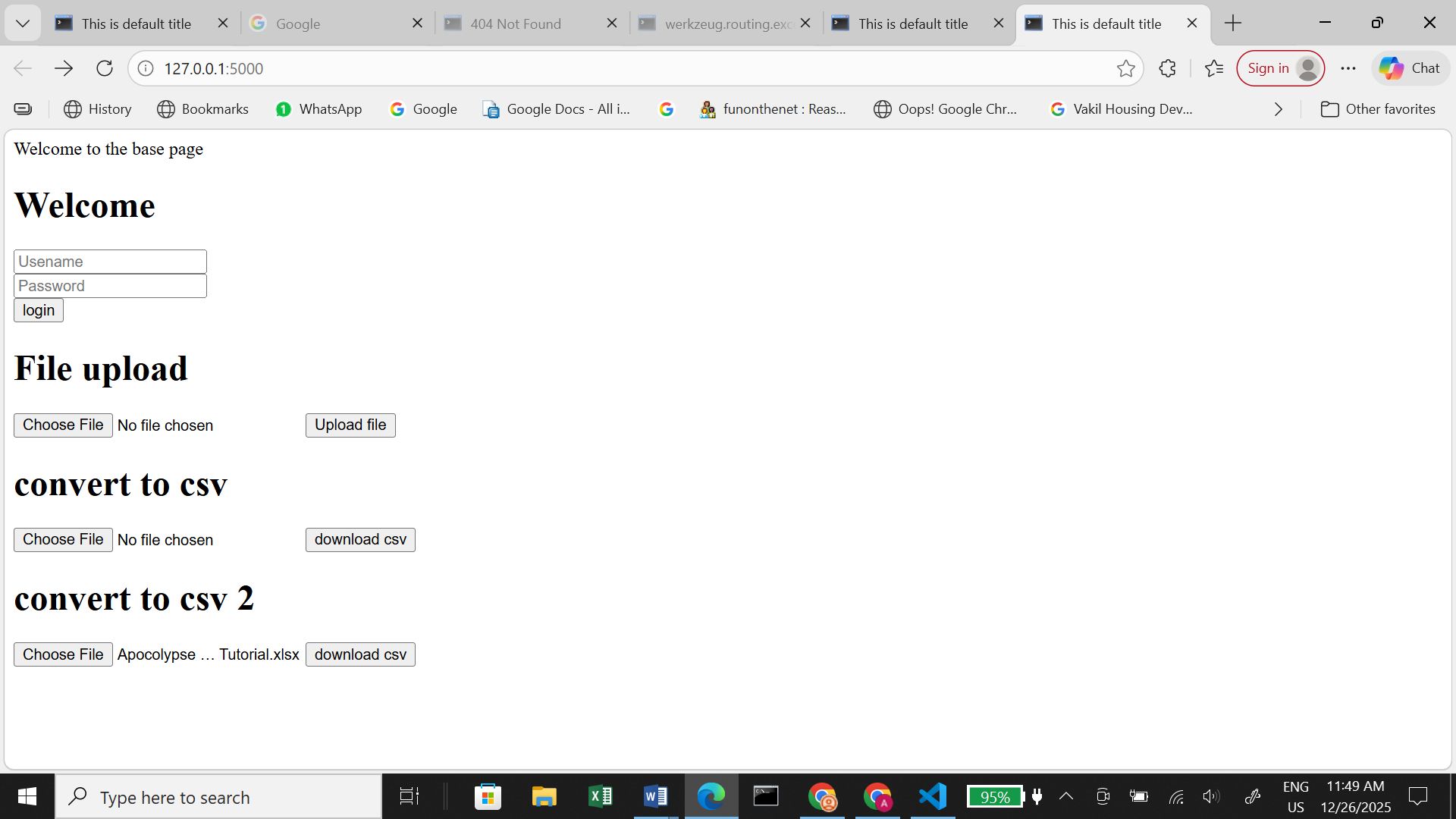
        }

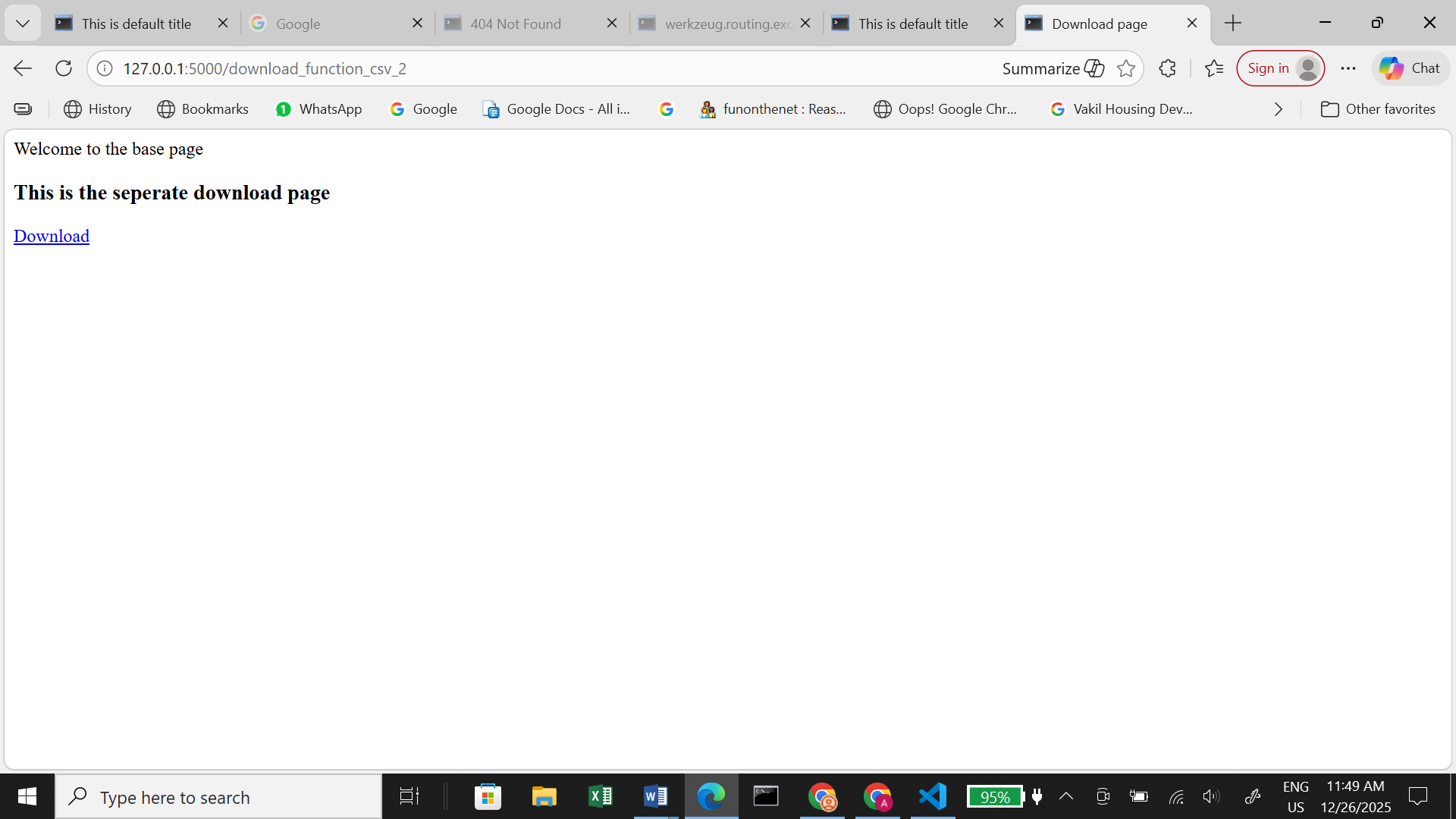
    )

Power shell temporary administrative control and activating virtual environment simultaneously:

Set-ExecutionPolicy -ExecutionPolicy Bypass -Scope Process; .venv\Scripts\Activate.ps1

To redirect to a separate download page like following:





@app.route("/download\_function\_csv\_2", methods=["POST"])

def download\_function():

    file = request.files.get("file")

    if not file:

        return "No file uploaded", 400

    df = pd.read\_excel(file)

    # Ensure download directory exists

    download\_folder = "downloads"

    if not os.path.exists(download\_folder):

        os.makedirs(download\_folder)

    # Generate unique filename

    filename = f"{uuid.uuid4()}.csv"

    file\_path = os.path.join(download\_folder, filename)

    df.to\_csv(file\_path, index=False)

    return render\_template("5\_download\_page.html", filename=filename)

@app.route("/get\_file/<filename>")

def get\_file(filename):

    # as\_attachment=True forces the browser to download the file

    return send\_from\_directory("downloads", filename, download\_name="result.csv")

main index page:

<h1> convert to csv 2</h1>

    <form method="POST" action="{{url\_for("download\_function")}}" enctype="multipart/form-data">

        <input type="file" name="file" accept=".xls, .xlsx, application/vnd.ms-excel,

                   application/vnd.openxmlformats-officedocument.spreadsheetml.sheet">

        <input type="submit" value="download csv">

    </form>

Download\_page.html

{% extends "base.html" %}

{%block title%} Download page {%endblock%}

{% block content%}

<h3> This is the seperate download page </h3>

<a href="{{url\_for("get\_file", filename = filename)}}"> Download </a>

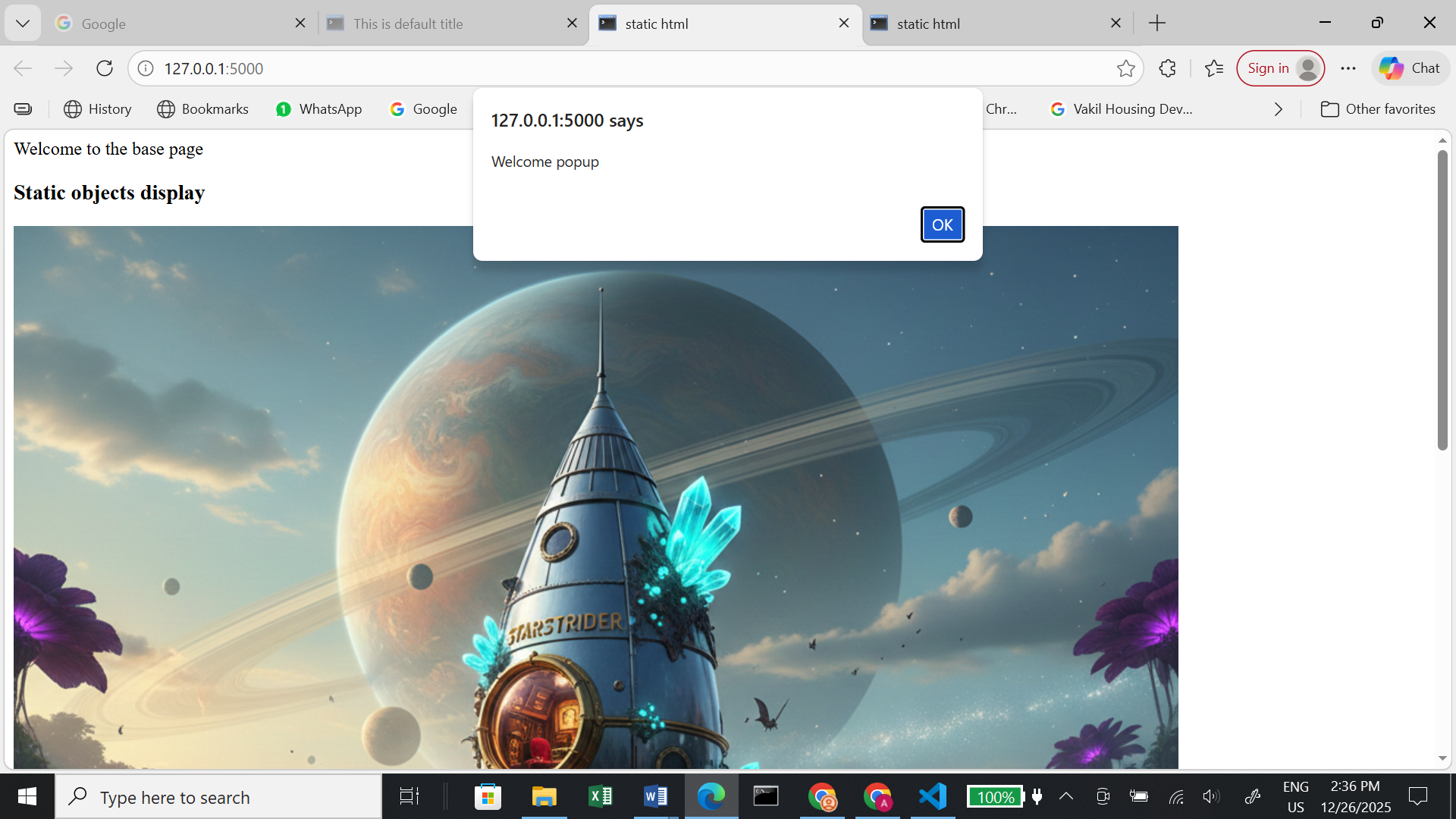
{% endblock%}

Json, javascript post request skipped: from 1:22:23 to 1:28:17

Static files and bootstaps:

We have to always define the static file

We learned about how to handle static files such as images, css and javascript

Image of the popup:

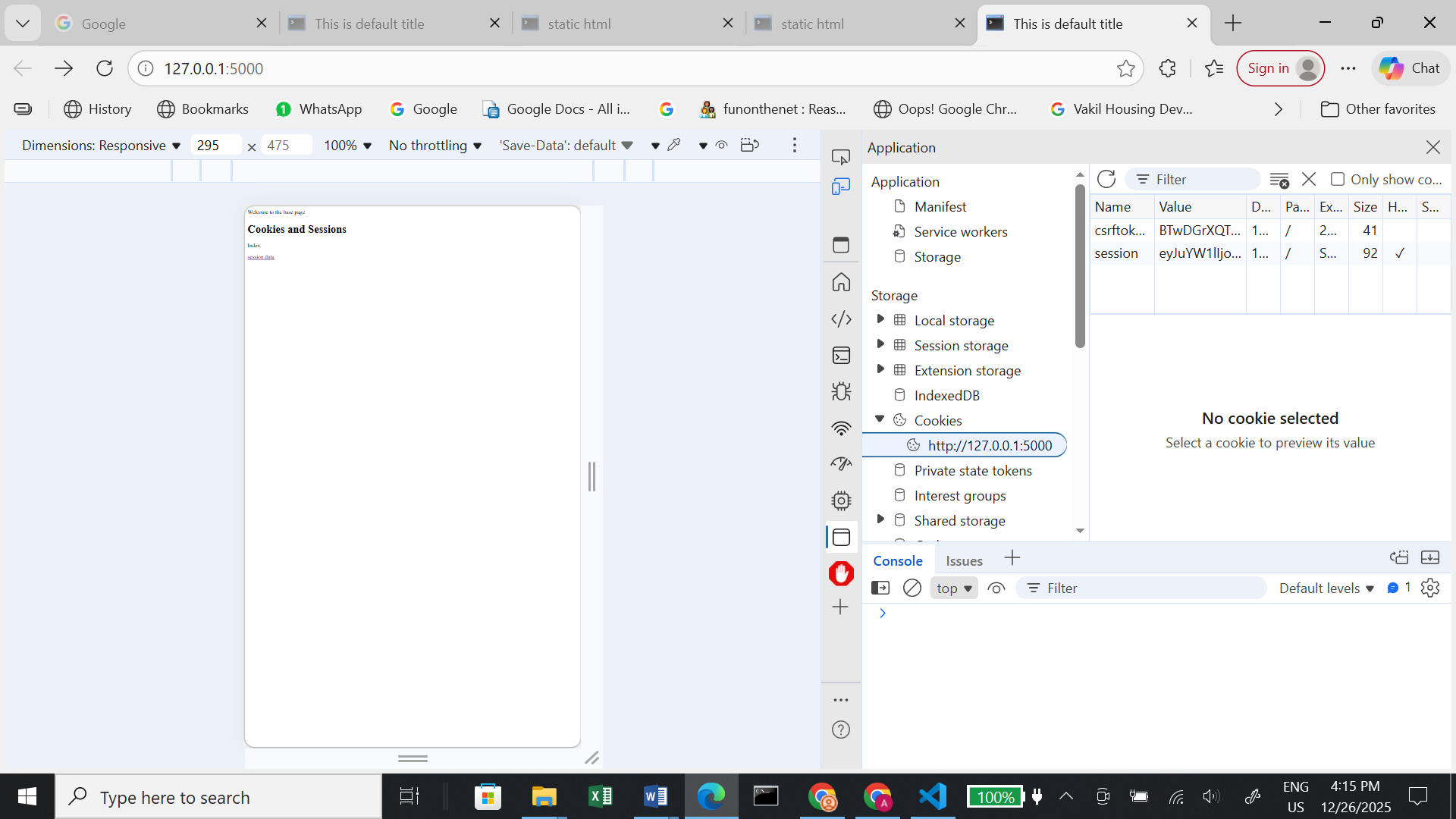
Bootstrap skipped: 1:35:29 to 1:38:48

Session and cookies

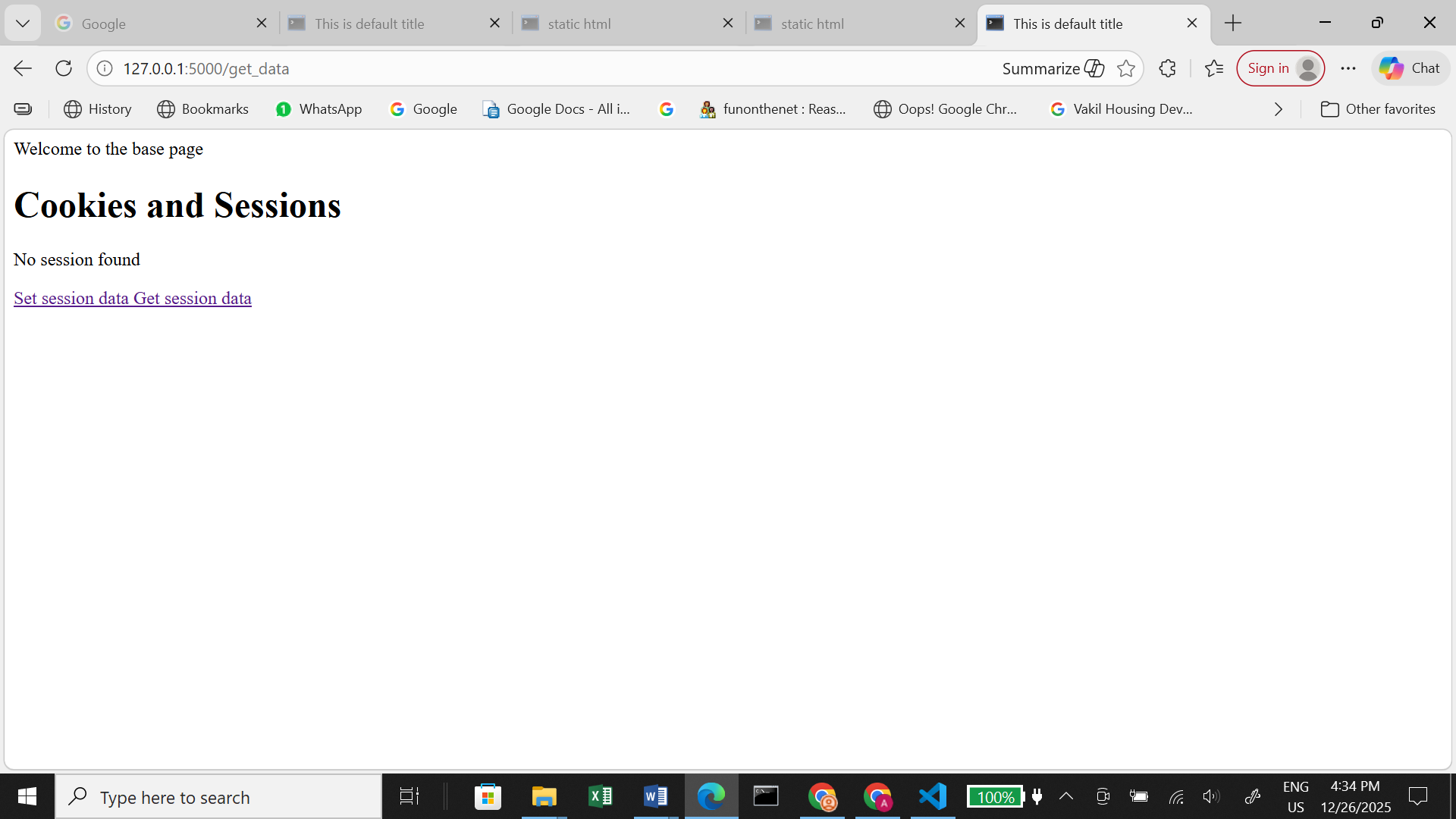
Difference between session and cookies:

Cookies is stored in the session is stored in the server side

JWT authentication

Below show session set as displayed the cookies are unreadable

If no session found:



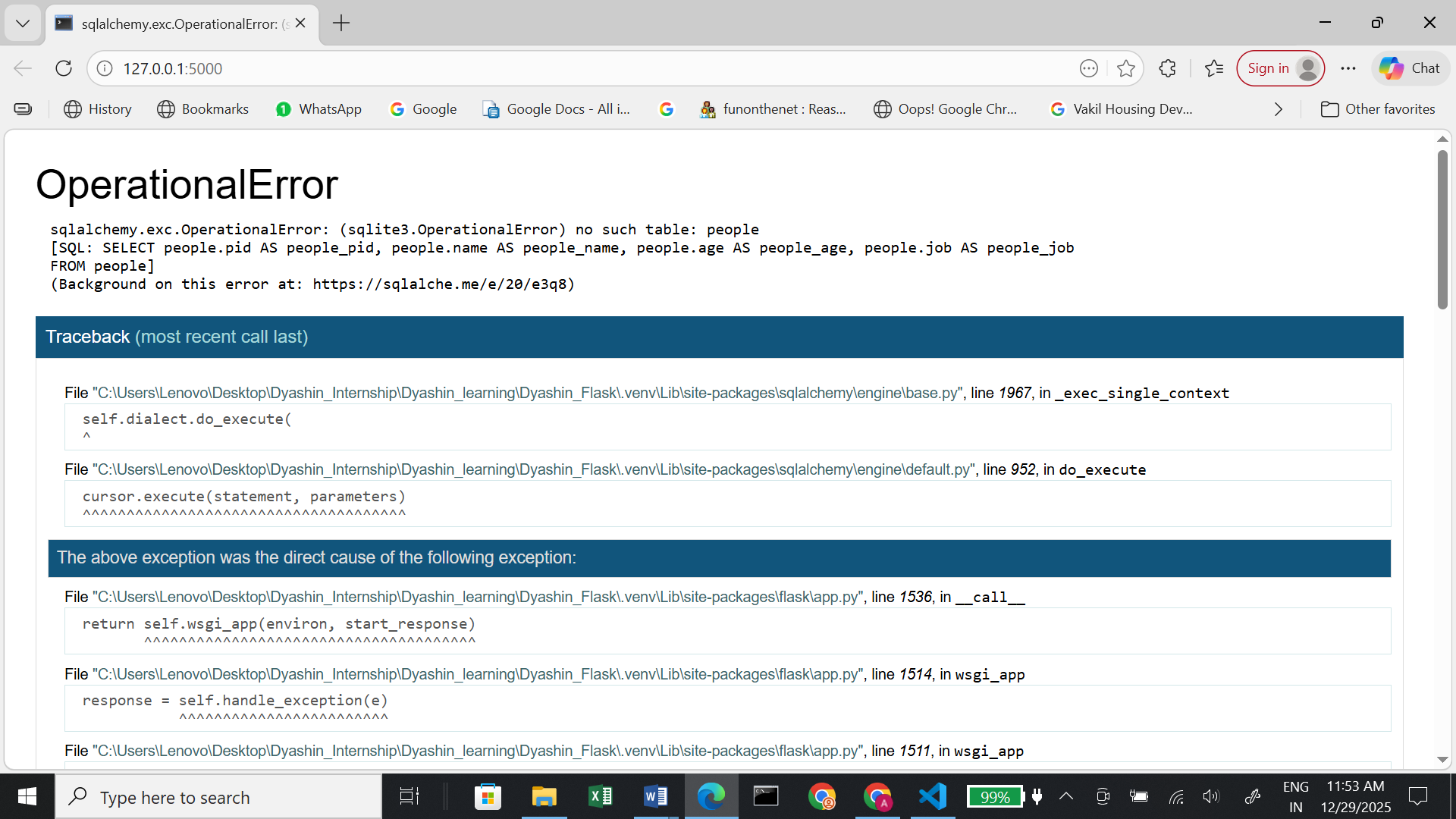
1:47:00 to 1:59:00 cookies skipped

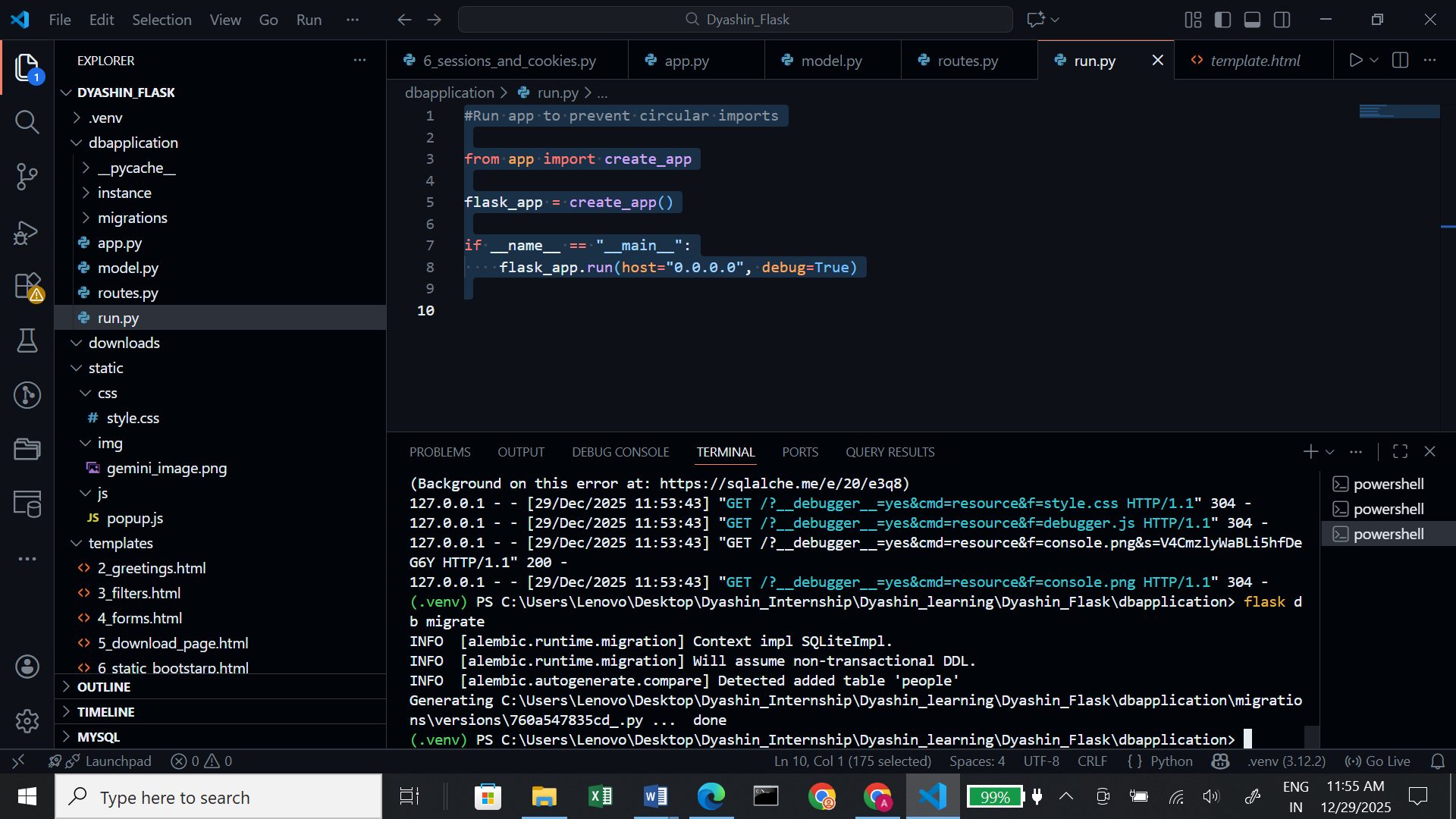
**SQL alchemy and databases**

Start with importing SQL-alchemy and SQL-migrate

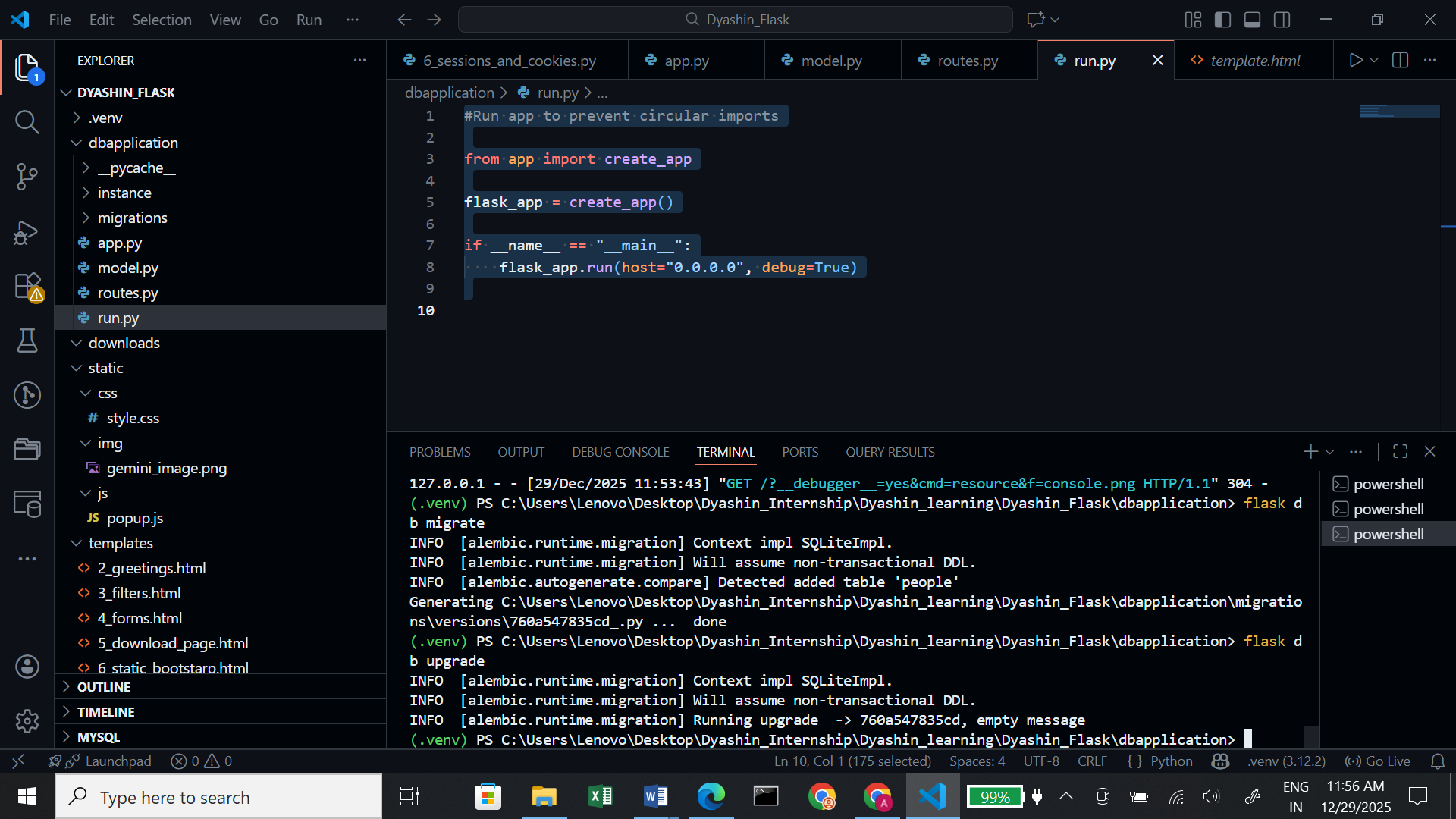
Note:SQL alchemy is an ORM

No such table because we have not yet initialized, migrated and updated yet



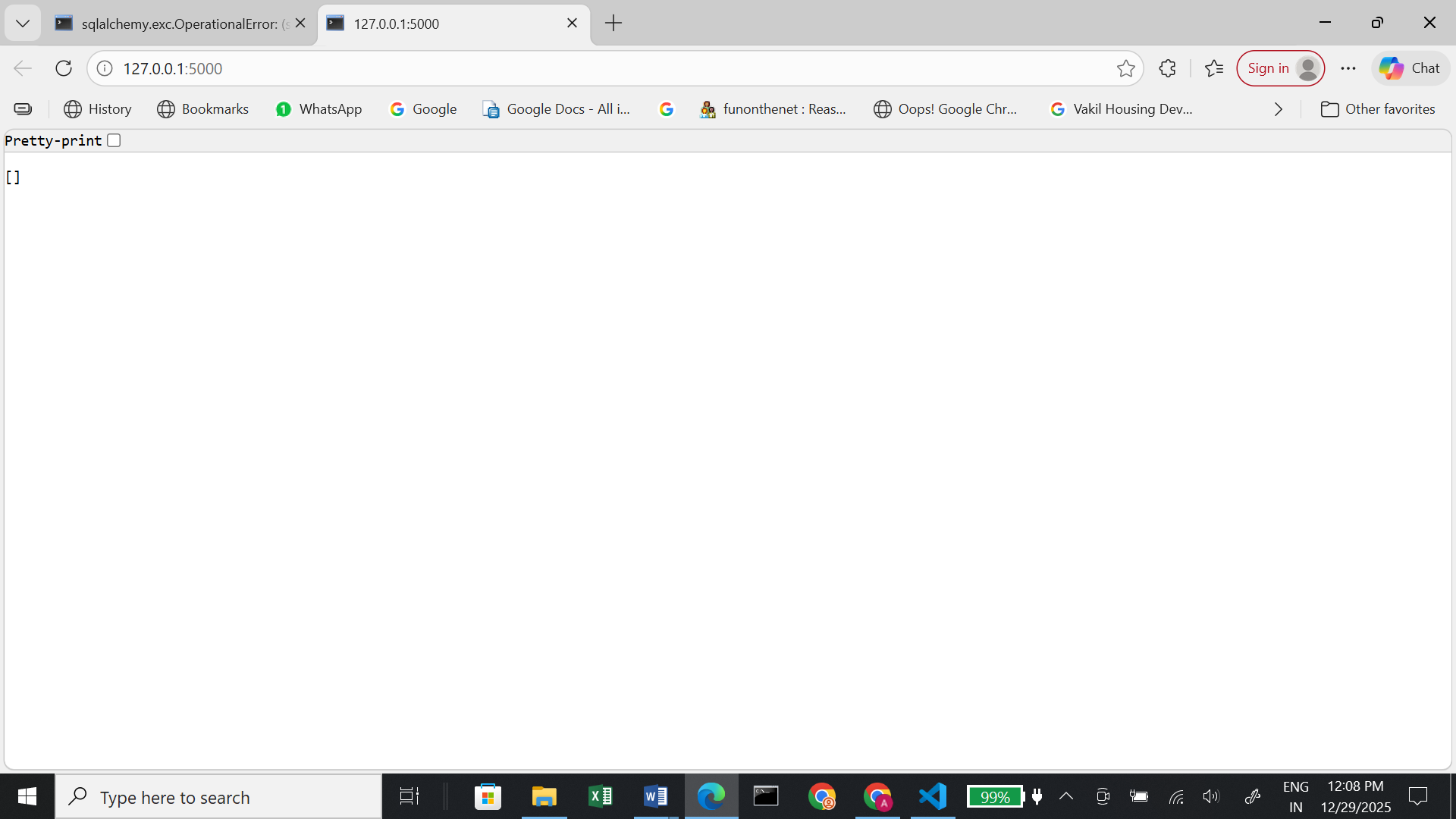
Now migrated:

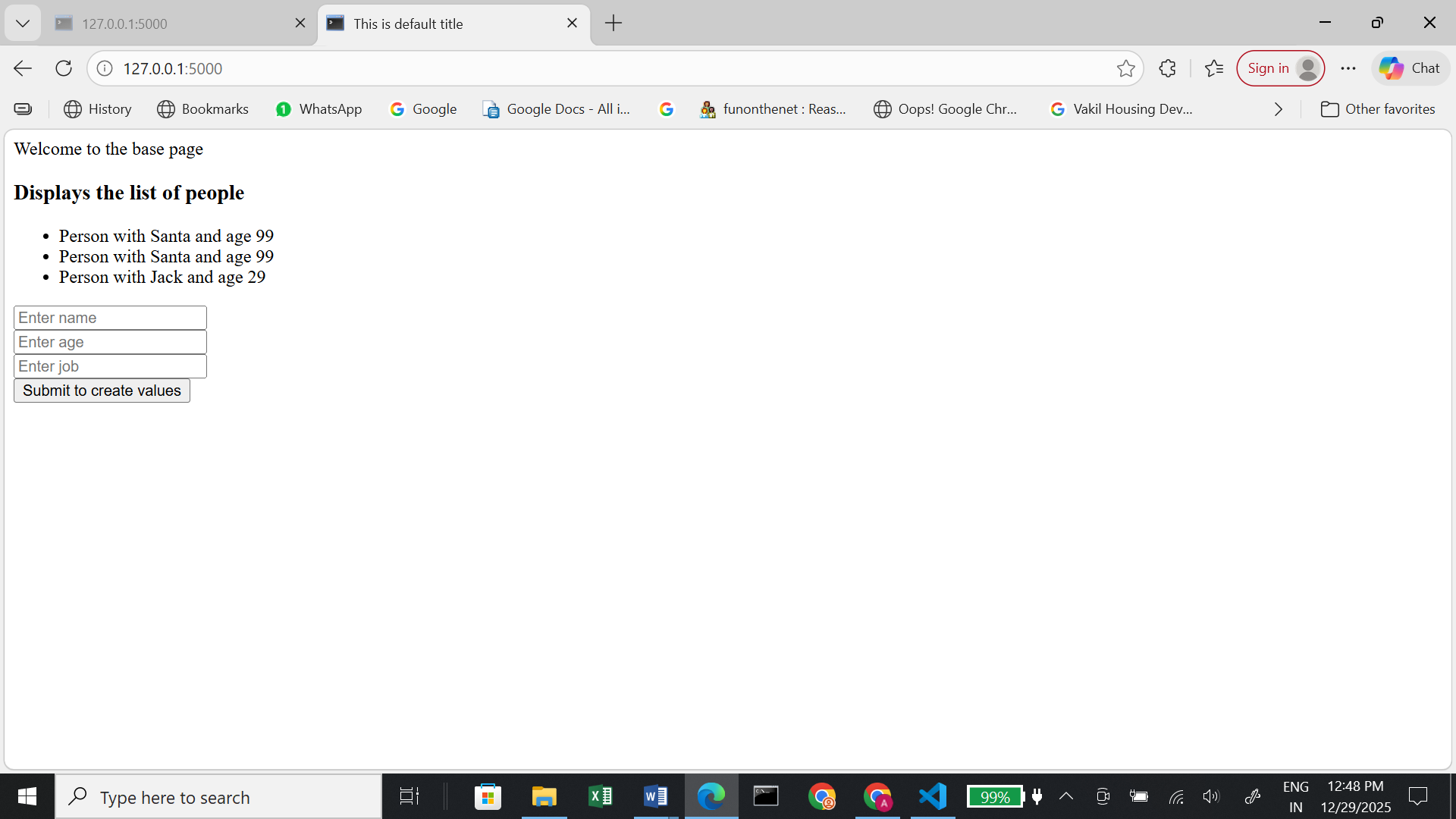
Now upgraded:



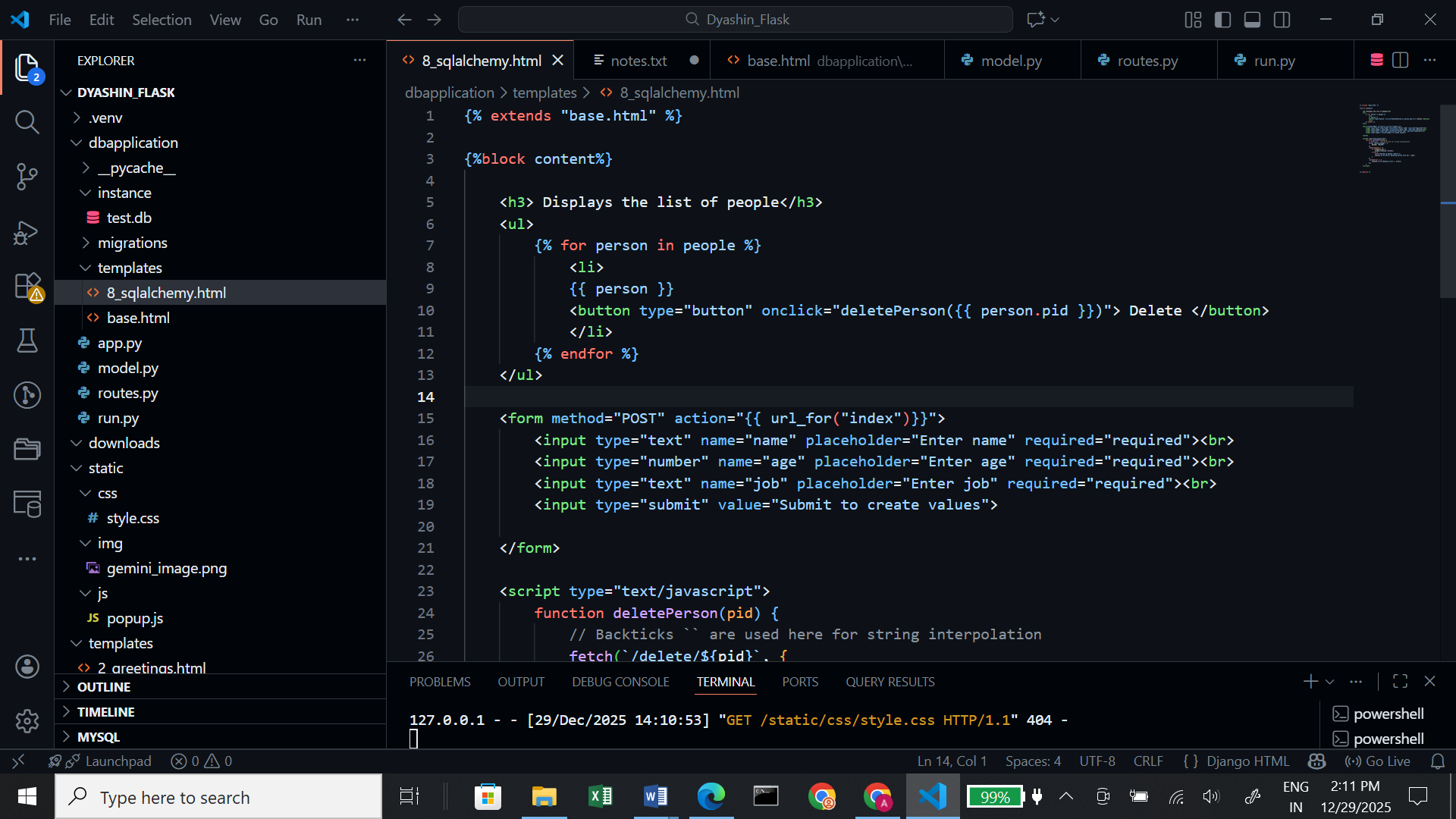
Set-ExecutionPolicy -ExecutionPolicy Bypass -Scope Process; .venv\Scripts\Activate.ps1

After migrate returns an empty people table list:





Note:Even though I changed the name of the table from “people” to “person” the programs seems to work fine

  
  
the javascript function was not written properly   
{% for person in people %}

            <li>

            {{ person }}

            <button type="button" onclick="deletePerson({{ person.pid }})"> Delete </button>

            </li>

        {% endfor %}

The function(deletePerson) was was not written properly

With this we learned that we need to create classes in flask as flask doesn’t support true database directly. Here classes act as table. We need to just initialize just once and need to migrate and upgrade everytime when there is a change in the schema

flask db init

flask db migrate -m "Initial migration

flask db upgrade

**JWT and Authentication:**

Before we go into Authentication we have to first explore JWT

What is JWT?

It is a way of secretly and securely sending information between parties by using a json object. JWT can be both encrypted as well as digitally signed. If digitally signed we can be assured that only the sender has sent it because of the private key signing

Main uses of JWT:

Authentication many by single sign on feature

Information exchange

* There are 3 components for JWT –head, -payload, -secretkey
* 3 types of claims in payload- registered claim, public claim, private claim.
* Signature: contains all 3 BaseURL64 string

Store the web tokens in a secure place and depose of it as soon as possible

Authentication vs Authorization

1. Authentication: To check if the person is them or not(is the person we are trying to check or not)

2. Authorization: Permission to allow resource access

When access token gets expired we use refresh token to get another access token

Stateless: use tokens

Stateful: Use state mechanism(Like sessions)

The whole goal of JWT is to minimize the IO operations(like read writes to database while using sessions) hence we use tokens. Only if we have private key can decrypt the message from the sender

To start with JWT implementation in flask tomorrow(30.12.25)

**JWT implementation**

Note: Flask stores it’s sqlite database in the “instance” library

Building a flask app that takes in user registration and login only then application allows the user into the home page

Two main components:

* Registration
* Login

Registration api endpoint

@app.route('/register', methods=['POST'])

def register():

    data = request.get\_json()

    hashed\_pw = generate\_password\_hash(data['password'], method='pbkdf2:sha256')

    if User.query.filter\_by(username=data['username']).first():

        return jsonify({"msg": "User already exists"}), 400

    new\_user = User(username=data['username'], password=hashed\_pw)

    db.session.add(new\_user)     #Adding the registered user to the database

    db.session.commit()

    return jsonify({"msg": "Registered successfully"}), 201

Login api endpoint

@app.route('/login', methods=['POST'])

def login():

    data = request.get\_json()

    user = User.query.filter\_by(username=data['username']).first()

    if user and check\_password\_hash(user.password, data['password']):

        token = create\_access\_token(identity=user.username)   #Creates the JWT tokens which are serverless

        return jsonify(access\_token=token), 200

    return jsonify({"msg": "Invalid credentials"}), 401

ecomerese website

Proper authentication and authorization(Only the Admin should use Admin log in)

Admin should add and delete items in the database

The users should add and buy the products

(Approx 10 api endpoints)

JWT validation:

Will be done when build the ecommerce website

Difference between Route and a API endpoint:

When a route is designed to be consumed by a program (like your JavaScript fetch call) rather than just a human typing in a browser, and it returns data (like JSON) rather than a full HTML webpage, it is called an API Endpoint.

**Blueprints**

The aim behind blueprints is that it can be modualerised like how we use {% extends “base.html” %} to connect multiple HTML files.

Blueprints should be used like packages.

Blueprint file structure:

Blueprint(folder)

|-core(this folder is similar to base.html file)

|- \_\_init\_\_.py

|- routes.py

|- project

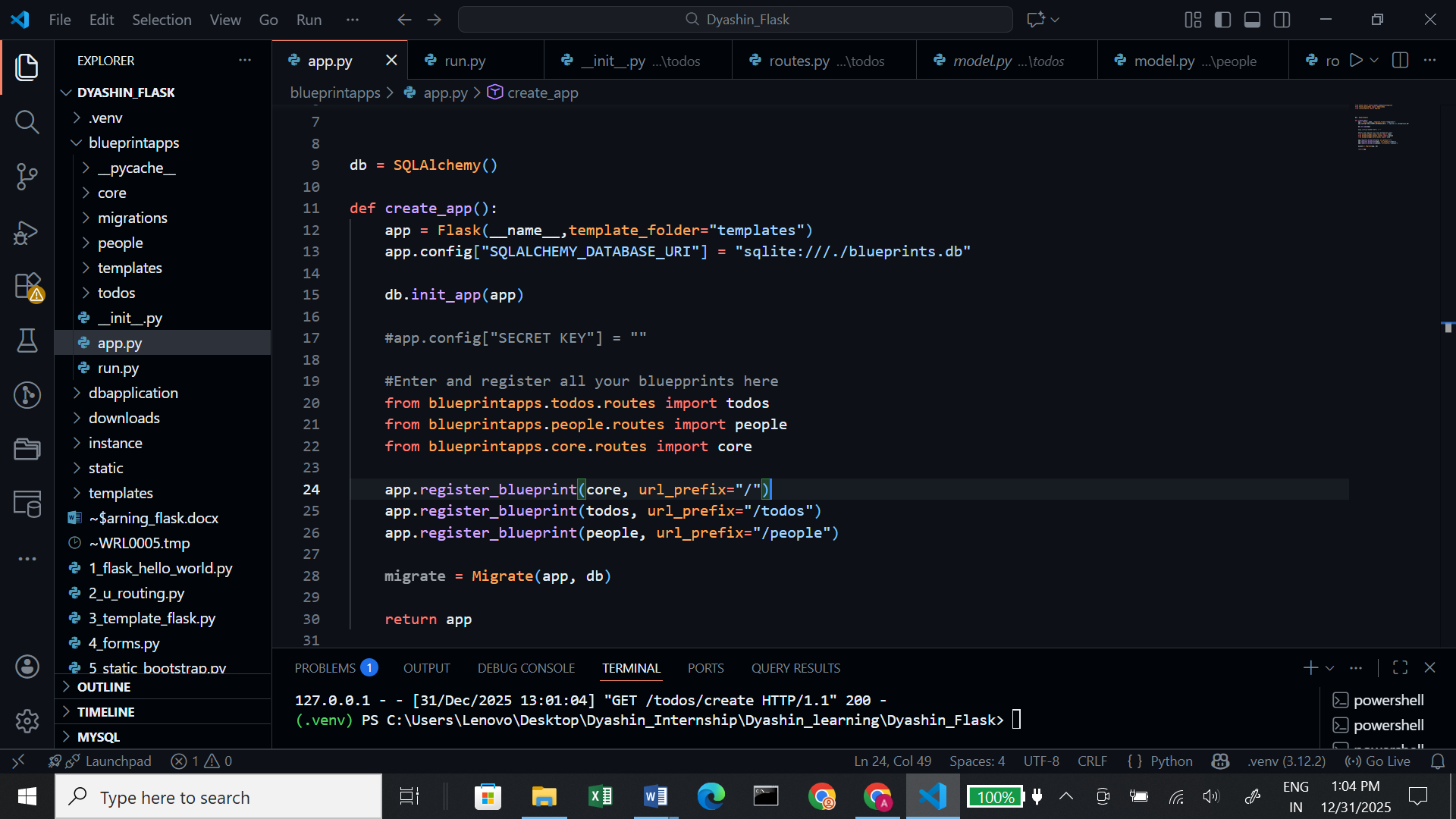
|-\_\_init\_\_.py

|- routes.py  
 |- models.py

|-\_\_init\_\_.py(file, to treat blueprints as a package)

|-App.py(Main app file)

Registering the blueprints:



Blueprints are completed

Note: \*arg are positional arguments and \*kwarg are keyword arguments

Create: Post

Read: Get

Update: Put

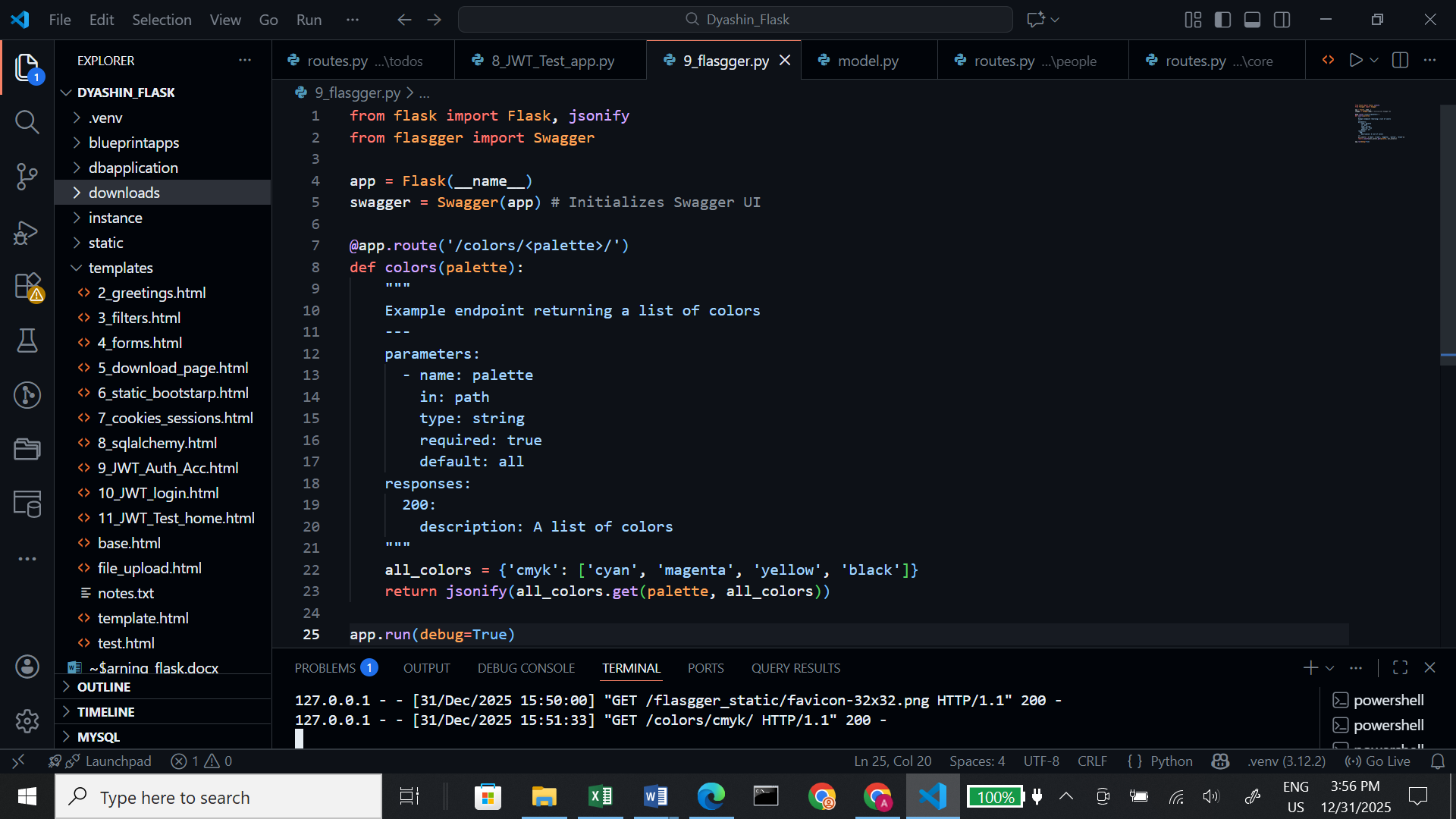
Delete: Delete

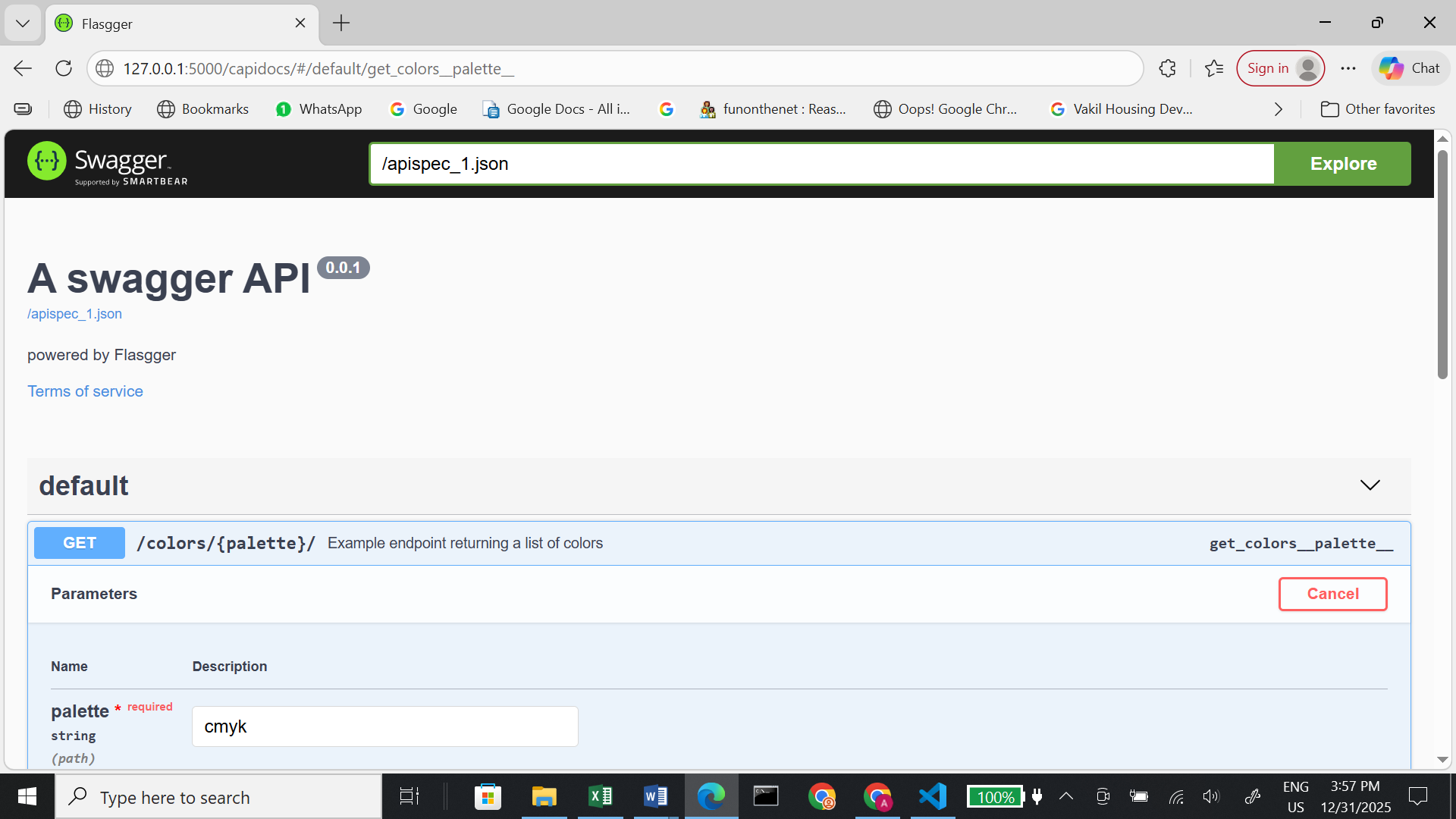
**Swagger**

What is swagger?

It is the popular open source software for designing, build, documenting and consuming REST APIS(POST,GET,PUT,DELETE) where it gives us a ready made **frontend** **like user interface** where we can just develop the backend without writing frontend code(like forms) to check the responses and give requests

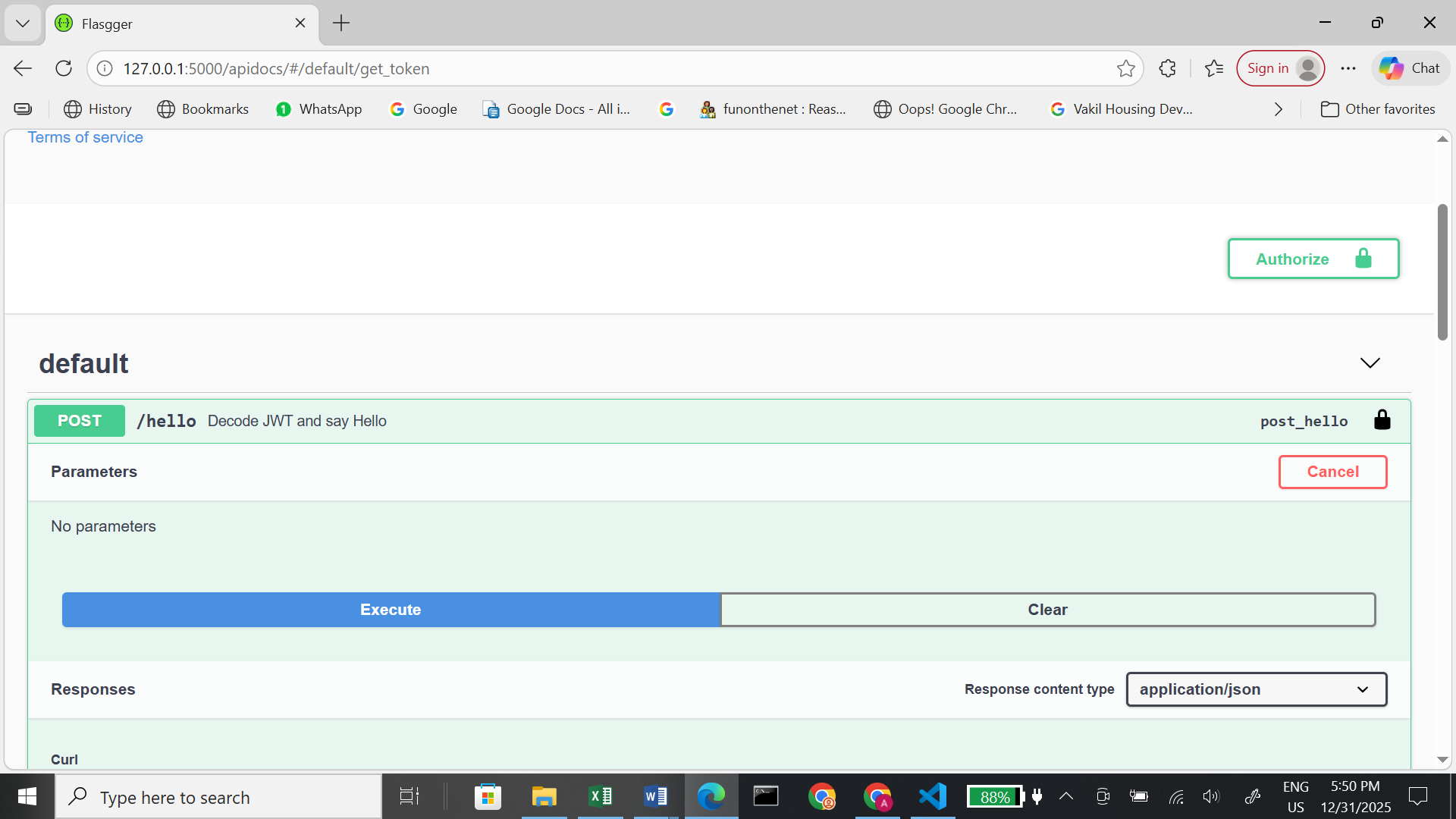
Use <http://127.0.0.1:5000/apidocs> to get to the swagger page and use “tryout” to pass in request and check the responses





The user is getting JWT tokenized but when it comes to display\_hello it is not is not getting accessed

Creating the jwt tokens



In the above application we are trying to understand Swaggers using JWTs

We are trying to build an application where we already already have

?? What if don’t want to hard code the values

**Ecommerce backend**

Flaskgger

Requirements of the project:

Ecommerse backend

JWT Token generate without forms

User registering, login, logout and delete account

Admin can view all the registered user

Admin can add and remove products

Customer can add products to carts and can remove products from cart and checkout

Customer should view all listed products

Prompt to Gemini:

from flask import Flask

from flask\_sqlalchemy import SQLAlchemy

from flask\_migrate import Migrate

#signin

#Login(Once log in create JWT token and use that for validation everywhere after login and expire it exceeded time limit or logout)

    #if admin

        #should be redirected to view people list and product list api endpoint and add product and remove product from the store

    #elif user

        #should have his own cart where he can add product and should be a redirect to the cart after the entire code

#Update(PUT)

#delete

#product list

#people registed list

#cart

#In cart there should be checkout to calculate the total prise and buy the complete product

This is some of the functionalities I need in the app. Give me the flasgger frontend and backend in flask

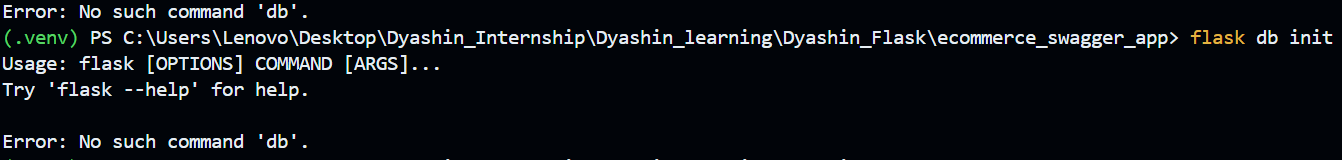
We are not directly going to add “add to cart” feature in get\_product endpoint since in form we use href or button url\_for(“add\_to\_cart”) function inside the product\_list.html page

Interesting find:

Error if we don’t write this code :

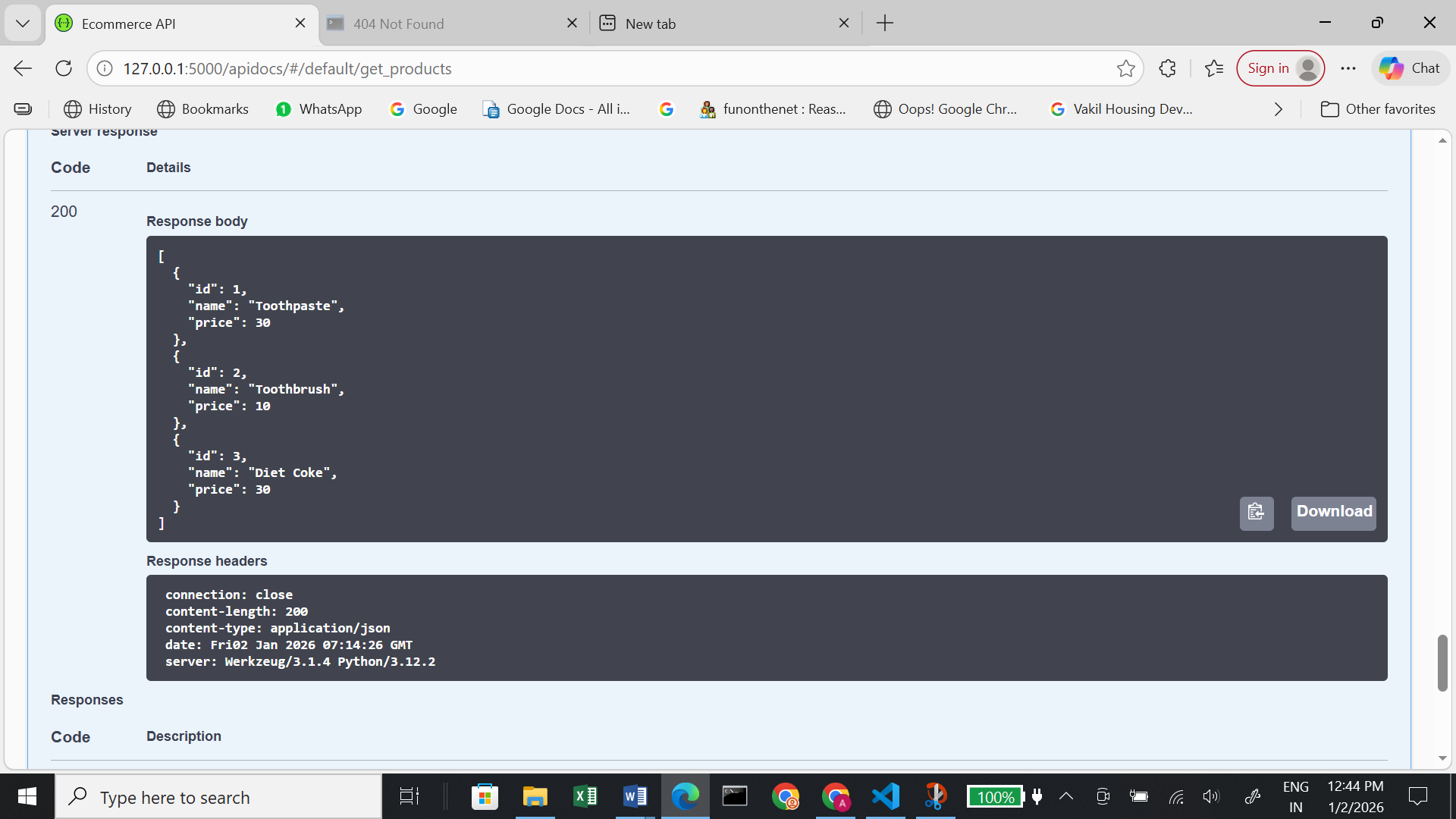
db.init\_app(app)

migrate = Migrate(app, db)

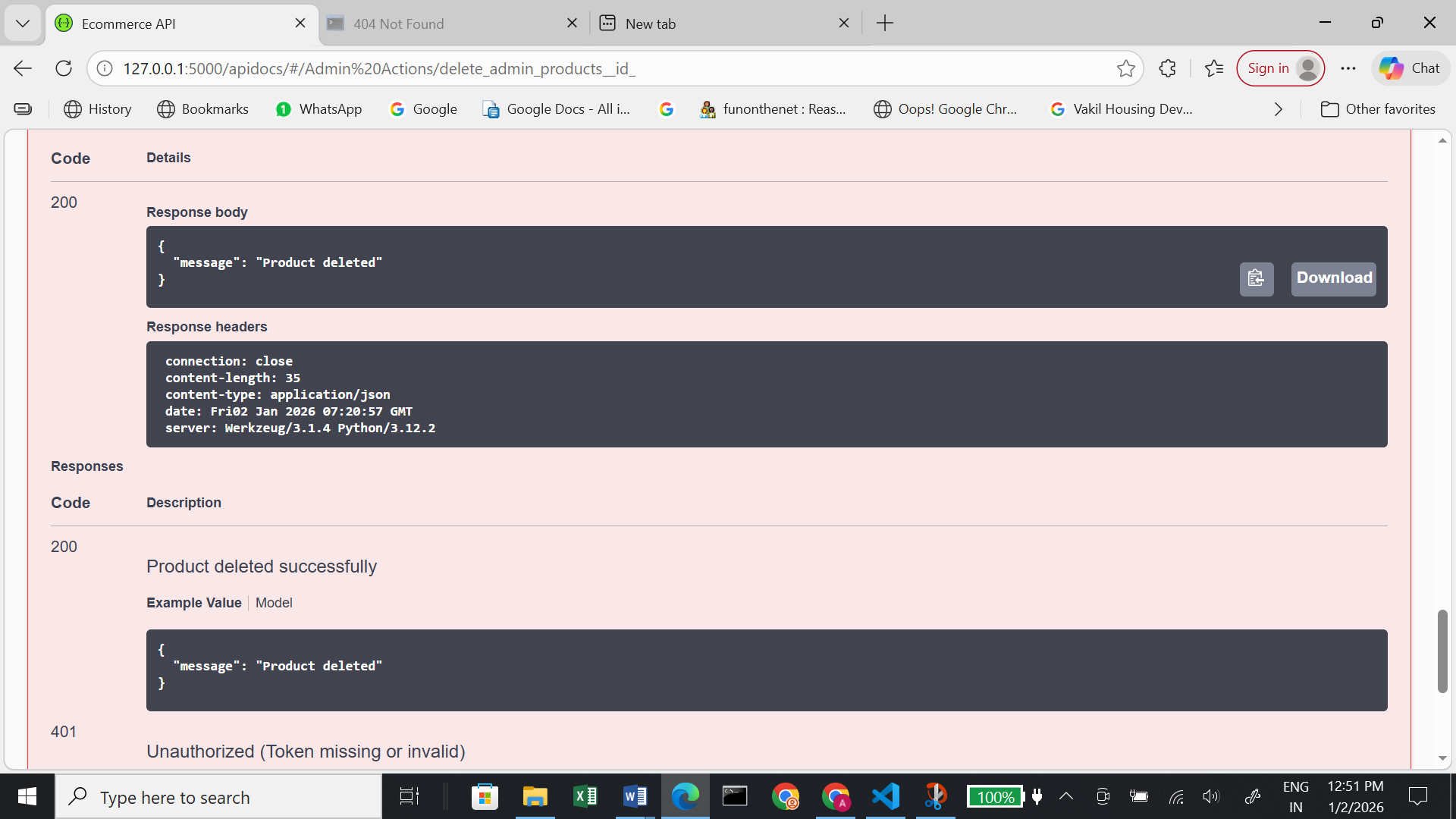


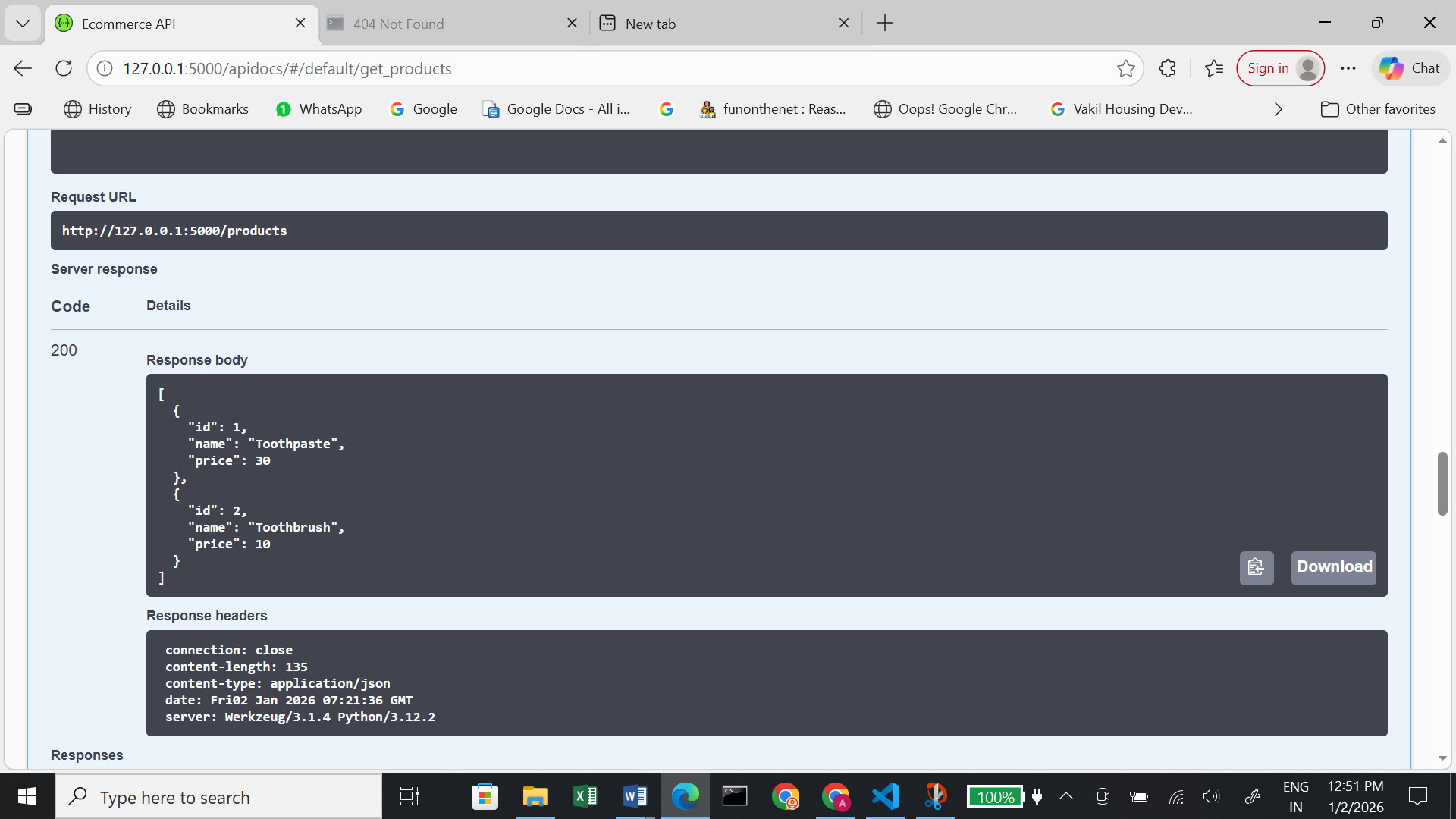
Bearer **eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJmcmVzaCI6ZmFsc2UsImlhdCI6MTc2NzMzNDMxMCwianRpIjoiNjUyY2I5MWQtOTZkZC00ZjhkLWE3NjctMmJmNzFlYjBmNDlhIiwidHlwZSI6ImFjY2VzcyIsInN1YiI6eyJ1c2VybmFtZSI6ImFkbWluX3VzZXIiLCJpc19hZG1pbiI6dHJ1ZX0sIm5iZiI6MTc2NzMzNDMxMCwiY3NyZiI6Ijk2YjRjZThlLTU1YmMtNDVjMy1hNzM5LTdlOTI0MGZmOGRiNiIsImV4cCI6MTc2NzMzNTIxMH0.3\_WoxfuXHQj0x6x4gKXa4wQlkjmXKbZnSSv6AYNXYJs**

**eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJmcmVzaCI6ZmFsc2UsImlhdCI6MTc2NzMzNDQ4NywianRpIjoiMTcyZWYxZGUtMDg3Ny00MmZkLWJiOGMtMmU3ZDMyNGJhYTljIiwidHlwZSI6ImFjY2VzcyIsInN1YiI6eyJ1c2VybmFtZSI6IkpvZSIsImlzX2FkbWluIjpmYWxzZX0sIm5iZiI6MTc2NzMzNDQ4NywiY3NyZiI6ImIwZWVjY2ZkLTdjMTYtNGIxMC05MzQxLTU3ZWFlNzU4NzY3ZCIsImV4cCI6MTc2NzMzNTM4N30.i66lvILP5Q8bsd7l1SNYgDeoDcgXWxH24j0kpSbUAyQ**

  
  
Added diet coke and will be deleting it

Diet coke deleted:





parameters:

          - name: id

            in: path

            type: integer

            required: true

            description: The ID of the product to delete

Have to learn MongoDB(filters)

Ecommerce website with state of the art error handling

User:Admin

Password: password123

User:Joe

Password: password67

Two endpoints should be added

Quantity updating: At the starting the admin should feed the product name and quantity of the product to inventory and when the user is asked to enter the quantity in add\_to\_cart then the amount should be subtracted from the inventory

User credential changing: The user must be able to change the his credentials like name, email and password.

Login flasgger response

New app integration steps:

Product restock response

File structure

Rate limiting

WSGI servers

MongoDB

Courser  
MongoDB, FastAPI, Dockers, AI roadmap from Mukund

**File structures:**

We use file structure because to maintain modularity and preserve the old user. It is mainly made of 2 directories. The App and Core.

The Core defines the “rules of the house”. It contains everything other than api endpoints, schema and web pages, like config file, database, security files, etc.

The app contains all the versions of the application developed. Version are made so that if an old user is not compactible with the new version the old user can still use the previous versions

Inside app we have api endpoints where it acts like doors to different resources. And schema where it check the format of the data going in and coming out of a database like security guard.

Pictorial representation of file structure:

/project\_root

├── core/ # System-wide logic (Config, Logging, DB setup)

|── \_\_init\_\_.py

├── config.py # Move configuration logic from app.py here

└── logging.py # New logging setup

├── app/

│ ├── v1/ # API Version 1

│ │ ├── routes/ # Login, Cart, Products (v1 logic)

│ │ └── schemas/ # Validation for v1

│ └── v2/ # API Version 2 (Future updates)

│ ├── routes/

│ └── schemas/

├── models/ # Database Tables (User, Product)

├── migrations/ # (Keep as is - managed by Flask-Migrate)

├── instance/ # (Keep as is - for local DB/secrets)

└── run.py # The "Power Switch" that starts the app

**WSGI(Web Server Gateway Interface)**

It acts as an interface between the apache webservers and the Pyhon frameworks because The apache servers can’t directly process HTTP responses. It is similar to the concepts of CUDAs for machine learning

Run the following command for Linux

pip install gunicorn

gunicorn --workers 4 run:app

Run this following command for running it on windows:

pip install waitress

waitress-serve --host=127.0.0.1 --port=5000 run:app

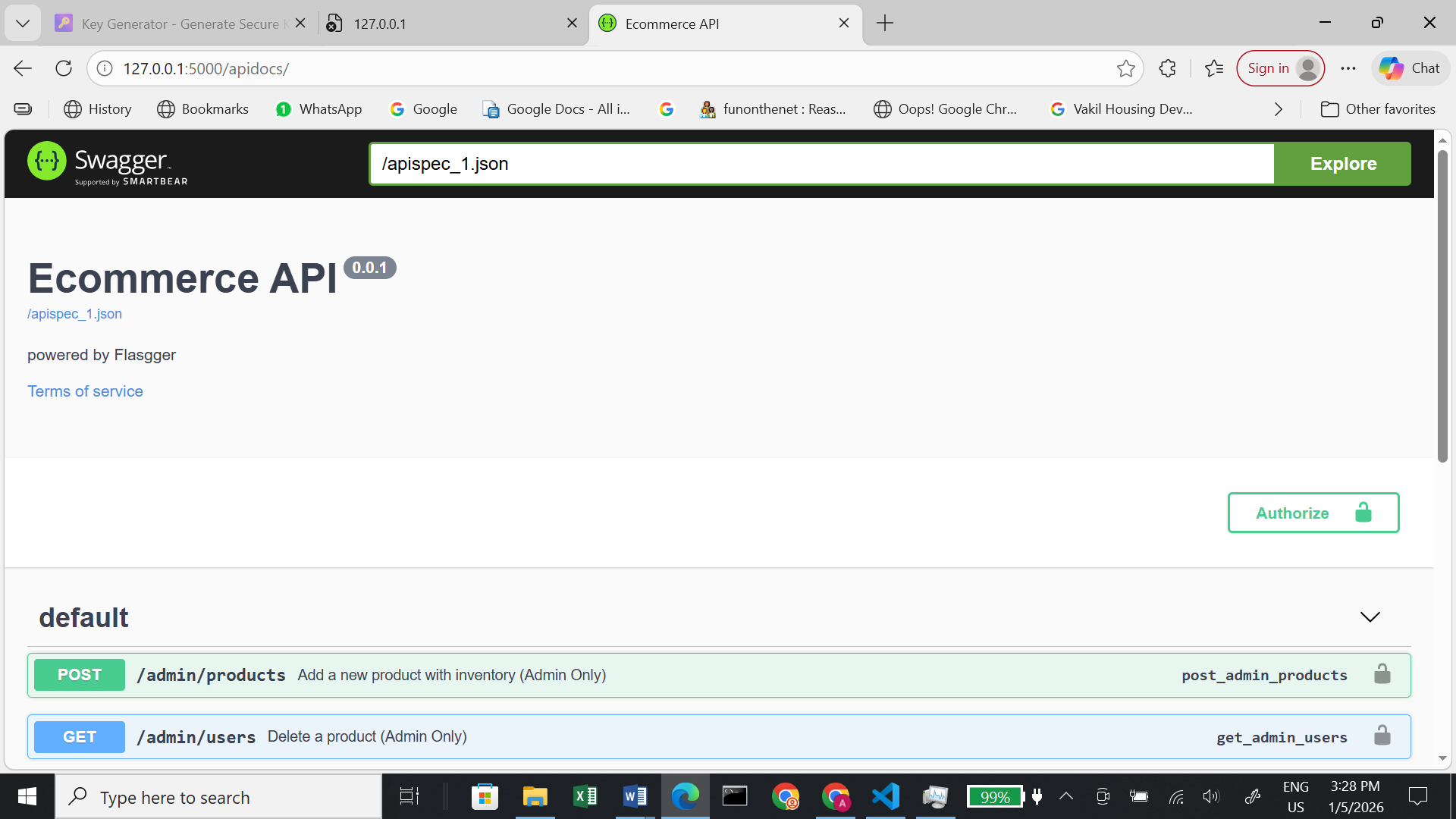
**DOCKERS:**

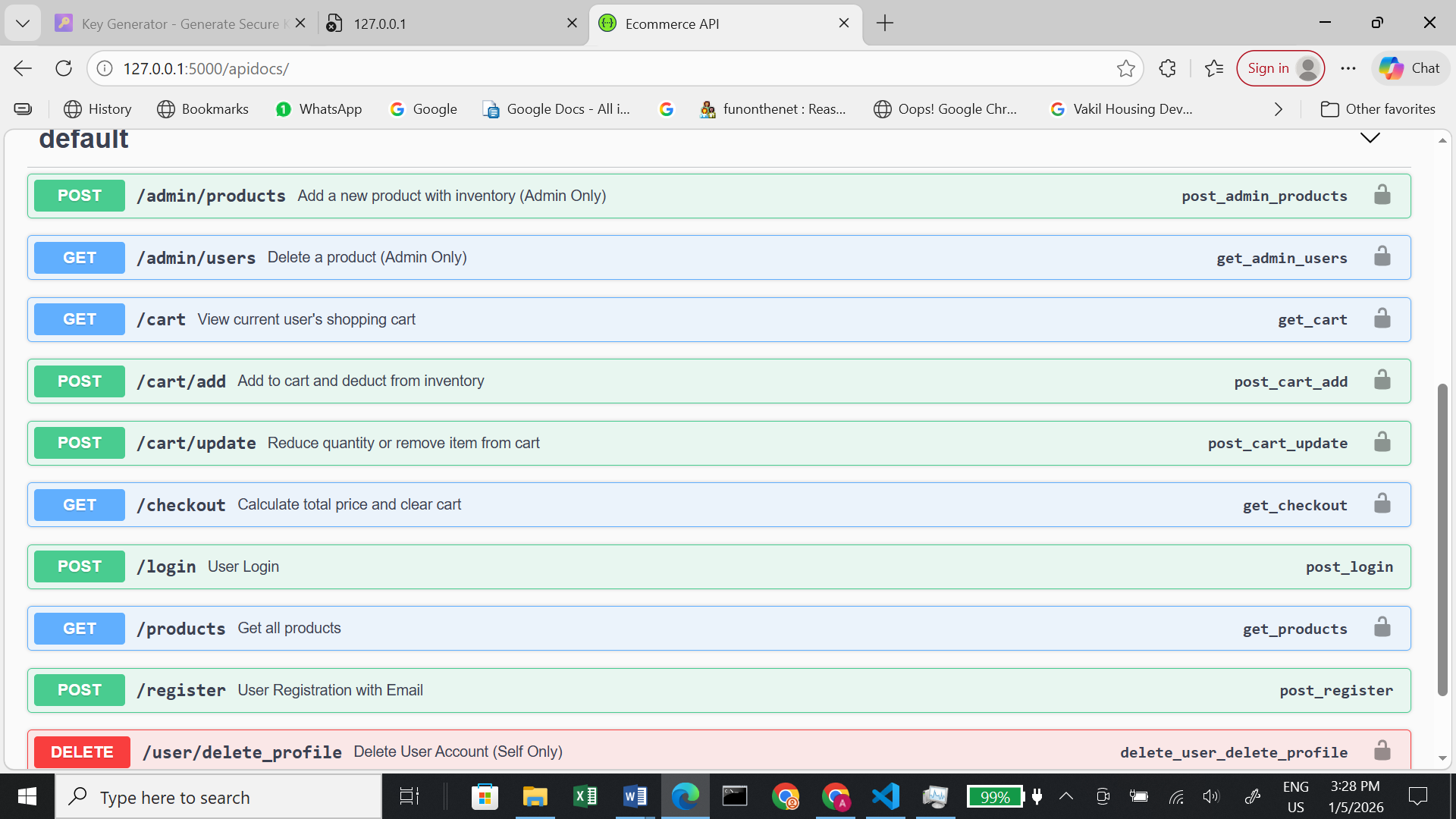
A docker file is a way of automaticall install dependencies. There are 3 components

The imageContains the snapshot of the app

The registery (This is like uploading a video to youtube where once you upload it can be played anywhere)

The cointainer: The container is a isolated bubble where we get anywhere run, isolation, scalable and secure instance



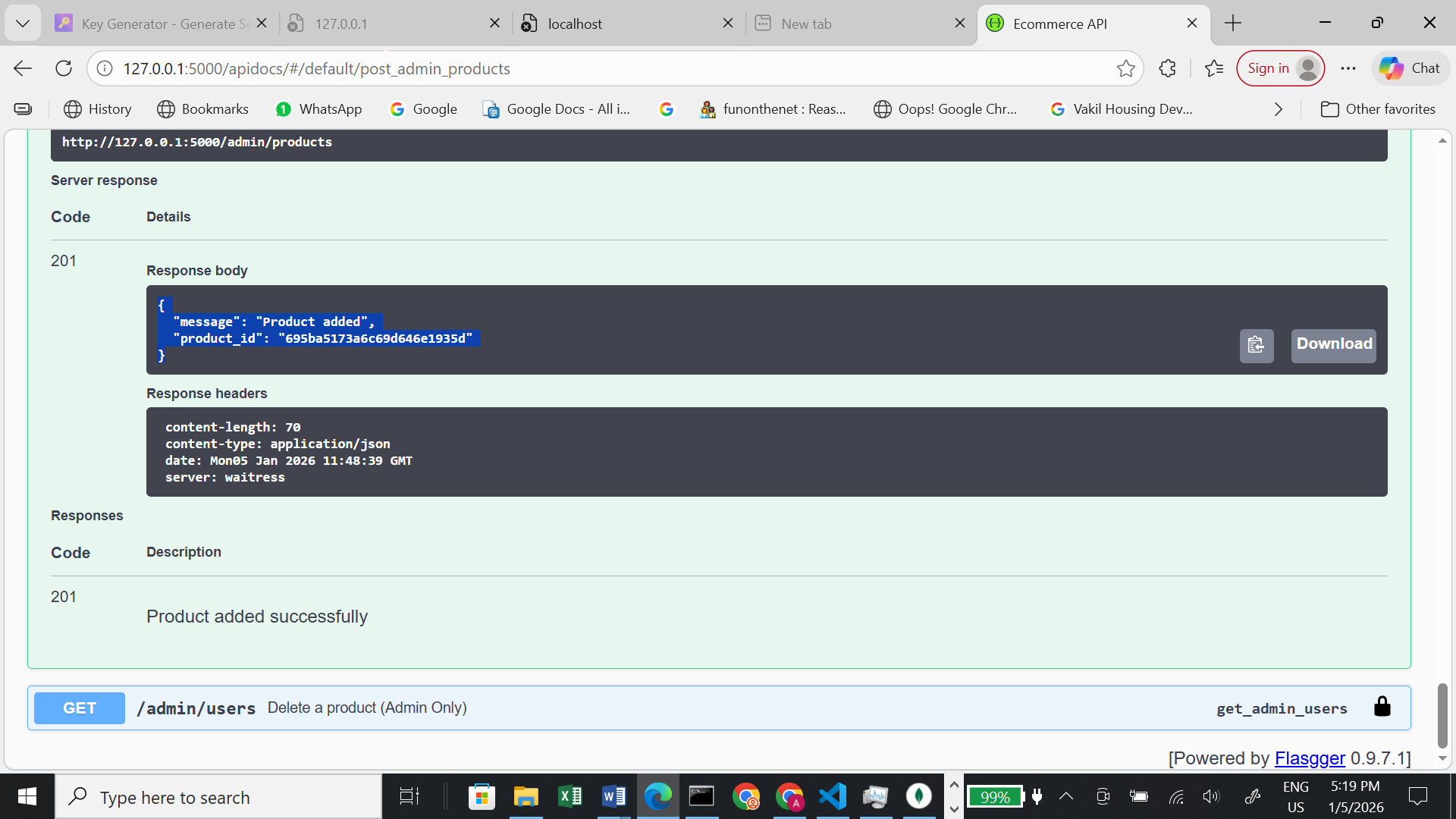


After changing to MongoDB  
  
**{**

**"message": "Product added",**

**"product\_id": "695ba5173a6c69d646e1935d"**

**}**



**All types of status codes:**

200: All ok

201: User created and response generated

204: Request fulfilled the request there is no response body to send back

300s: Redirect

400: Bad request

401: Authentication error

403: Access forbidden

404: File not found

422: The syntax is correct but couldn’t process the request due to semantic error

429: Too many requests (use backoff method)

500: Server error(check server logs)

502: Proxy server error

503: Server under maintenance

Aggregations in Mongo DB, collection

To learn in MongoDB

Aggregations in Mongo DB, collection

Collections and projections

Raw queries in MongoDB

Swagger:

Blue printing

JWT(Json tokent limiting)

Learn REACT

Swagger

APIs rate limiting

POC: Proof of concepts

Python development server

WSPserver for professional development

SQL basic code like all DDL(Create, Alter, Drop) and DML(Select, Update, Delete)

Docker containers

Entire roadmap to ML engineer

He has tested out N8N

He knows dockers

Old flow

Probably after him I’ll have to take guidance from Mukund

What did Myur sir say to Sathvik and Mukund on 29.12.25 about 2 years work and job switch