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PROJECT ON

Code Refactoring and Bug Fixing

Done by :

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About me :

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- **Qualification :** B.Tech (Electronic computer engineering)
- **Why you want to learn Data Science :** My passion for problem-solving aligns well with the challenges that data science presents.
- **Any work experience :** Fresher
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PROBLEM STATEMENT :

- The team of data scientists has endeavored to create a Note Taking Application utilizing Python, Flask, and HTML. However, their limited experience in backend development has posed significant challenges in achieving a fully functional application . As a result, there are existing issues within the codebase hindering the seamless operation of the application. The task at hand is to refactor the existing codebase, address all identified bugs, and ensure the Note Taking Application functions smoothly.

INITIAL CODEBASE:

```python
from flask import Flask, render_template, request

app = Flask(__name__)

notes = []
@app.route('/', methods=["POST"])
def index():
    note = request.args.get("note")
    notes.append(note)
    return render_template("home.html", notes=notes)


if __name__ == '__main__':
    app.run(debug=True)
```

Flask Application Script: 'app.py'

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <form action="">
        <input type="text" name="note" placeholder="Enter a note">
        <button>Add Note</button>
    </form>

    <ul>
    {% for note in notes%}
        <li>{{ note }}</li>
    {% endfor %}
    </ul>
</body>
</html>
```

HTML Template : 'home.html'

OVERVIEW OF INITIAL CODE BASE:

- The provided codebase presents a simple Flask application for a note-taking web application.
- However, it contains bugs that need to be addressed for the application to function correctly.
- These bugs hinder the core functionality of the application, impacting its usability and effectiveness.
- Addressing these bugs is crucial to ensure a seamless user experience and the successful operation of the note-taking application.

SETTING UP VIRTUAL ENVIRONMENT AND FLASK :

- Setting up a virtual environment and installing Flask is crucial in fixing bugs as it provides a controlled and stable environment for development, testing, and debugging, ultimately leading to a more reliable and robust application.

Installing a Virtual Environment :

- Use **python -m venv .env_flask_note_taking_app** to create a virtual environment named **.env_flask_note_taking_app.**

Installing Flask :

- Inside the virtual environment, install Flask using **pip install Flask**.

BUGS IDENTIFIED AND FIXES APPLIED :

- Incorrect method in Flask route definition-Changed to accept both GET and POST requests.
- Incorrect retrieval of form data in Flask route -Used request.form.get() instead of request.args.get()
- Incorrect form action in HTML template-Set form action to "/" for submission to root URL.
- Failure to clear the notes list on GET requests-Implemented a condition to clear the notes list when handling GET requests.

REFACTORED CODE :

```python
from flask import Flask, render_template, request

app = Flask(__name__)

notes = []
@app.route("/", methods=["GET","POST"])
def index():
    if request.method=="POST":
        note = request.form.get("note")
        if note:
            notes.append(note)
    elif request.method=="GET":
        notes.clear()
    return render_template("home.html", notes=notes)


if __name__ == '__main__':
    app.run(debug=True)
```

Flask Application Script: 'app.py'

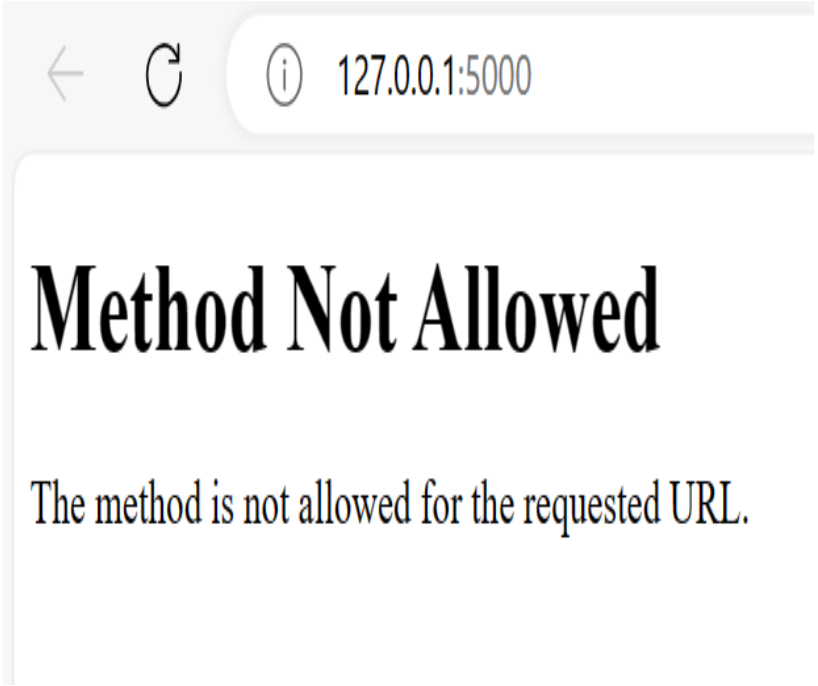
```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <form action="/" method="POST">
        <input type="text" name="note" placeholder="Enter a note">
        <button>Add Note</button>
    </form>

    <ul>
    {% for note in notes%}
        <li>{{ note }}</li>
    {% endfor %}
    </ul>
</body>
</html>
```

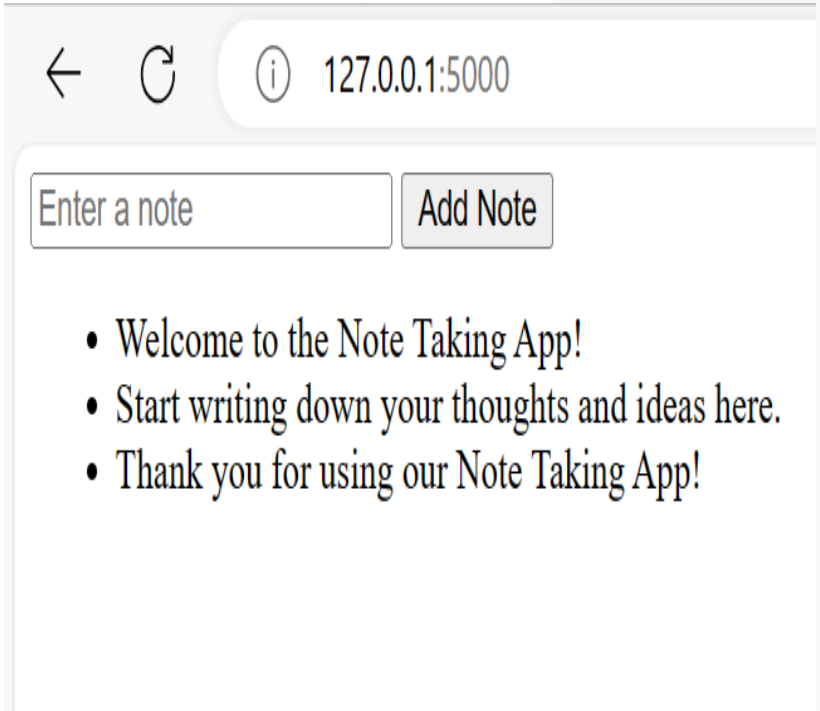
HTML Template : 'home.html'

RESULT:

INITIAL CODE BASE



REFACTORED CODE



CONCLUSION:

In conclusion, the Note Taking Application was successfully debugged and refactored to ensure proper functionality. By addressing issues such as incorrect method definition, form data retrieval, form action, and notes list clearing, the application now works well. This task highlights the importance of thorough testing and debugging in backend development, ensuring a smooth user experience.


THANK YOU