Devops project

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Project Description:

This project is a web application developed using Python with the Flask framework to build dynamic user interfaces. It utilizes SQLite as a lightweight database system for managing and storing notes locally. The frontend is constructed with HTML to present the content effectively.File transfer and deployment are managed securely using tools such as PowerShell and SCP. The application is hosted and run on cloud infrastructure provided by AWS EC2 instances, ensuring scalability and availability. The source code is maintained and version-controlled using GitHub.

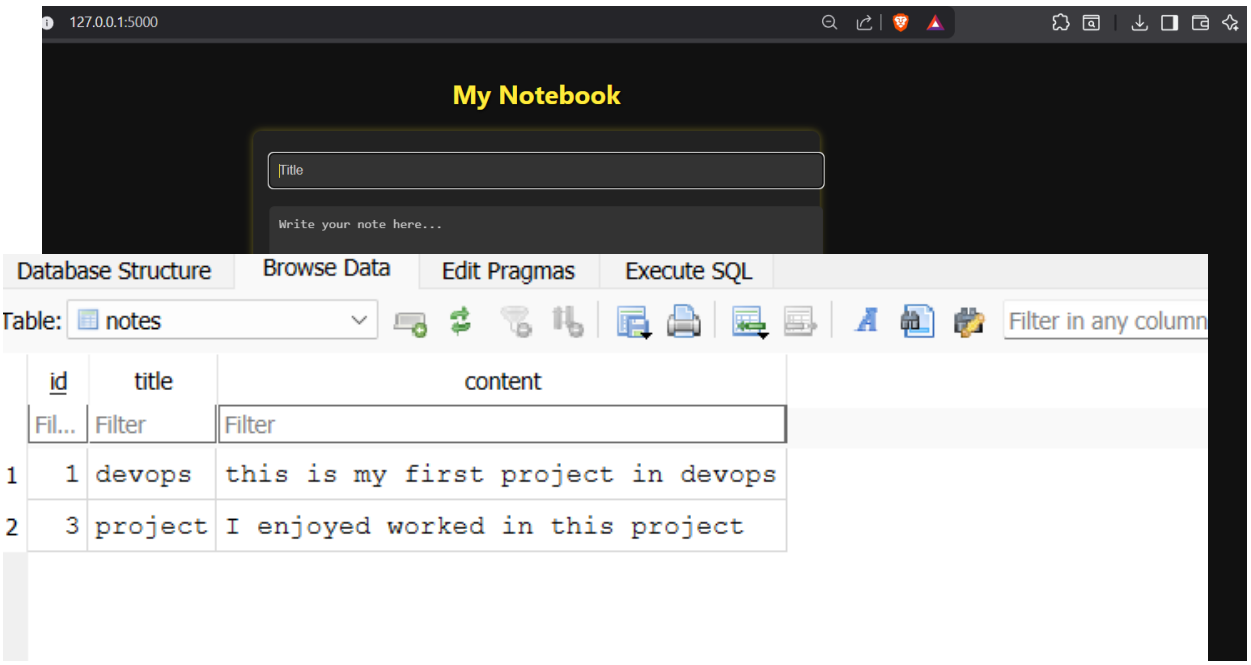
Technologies and Tools Used:

Category	**Details**
Programming Languages	Python, HTML

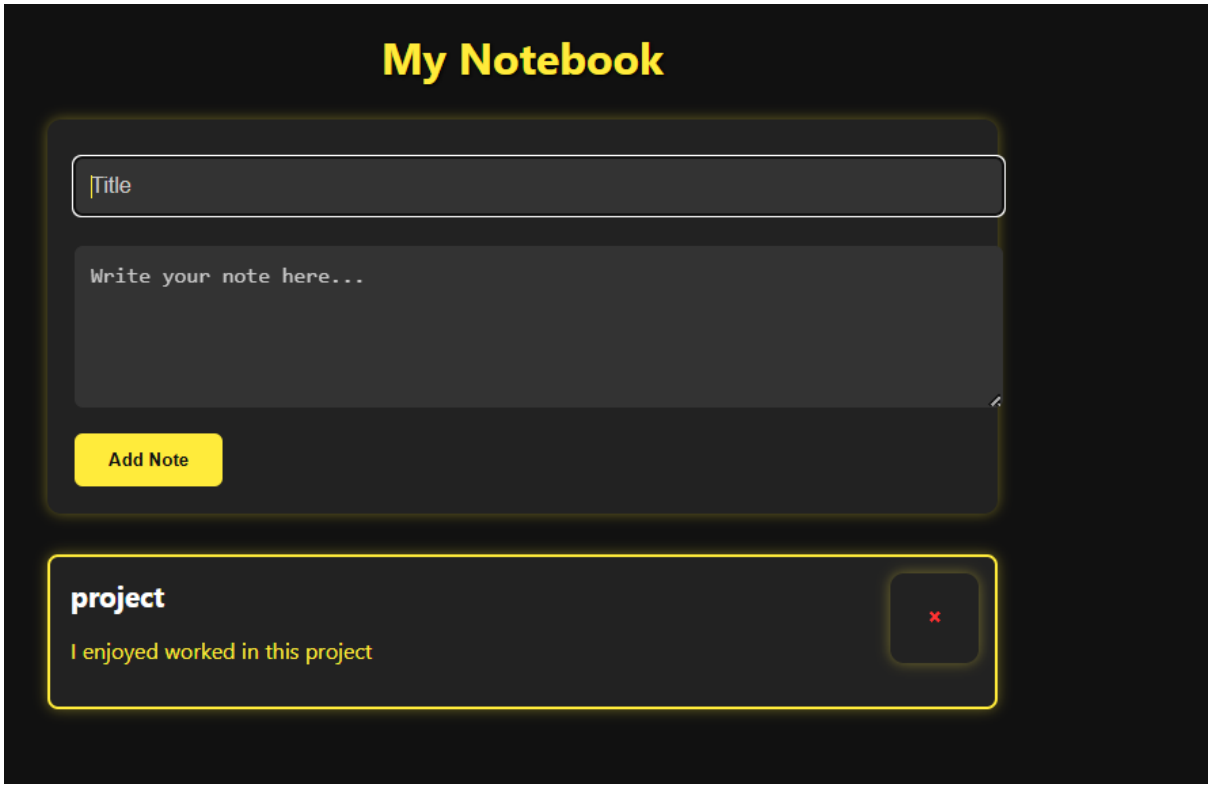
Web Framework	Flask
Database	SQLite
File Transfer Tools	PowerShell, SCP
Cloud Hosting	AWS EC2
Version Control	GitHub

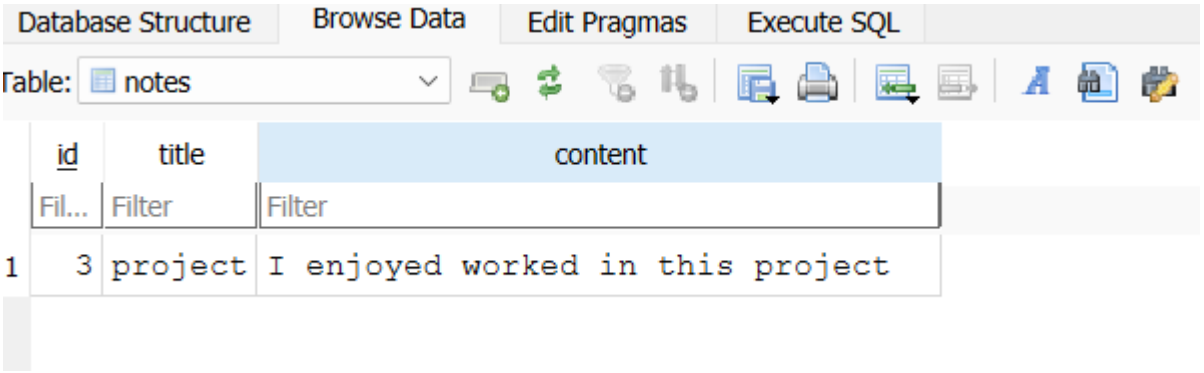
Gui and some photo fot job

1-When add data and save in sql



After remove data





create a directory and partition of disks

```
[root@ip-172-31-23-165 ~]# mkdir -p /mnt/code
[root@ip-172-31-23-165 ~]# mkdir -p /mnt/mariadb
[root@ip-172-31-23-165 ~]# mount /dev/nvme1n1p1 /mnt/code
[root@ip-172-31-23-165 ~]# mount /dev/nvme2n1p1 /mnt/mariadb
[root@ip-172-31-23-165 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/nvme0n1p3  9.8G  2.2G  7.6G  23% /
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs           454M     0  454M   0% /dev/shm
efivarfs        128K  3.6K  120K   3% /sys/firmware/efi/efivars
tmpfs           182M  6.2M  176M   4% /run
tmpfs           1.0M     0  1.0M   0% /run/credentials/systemd-journald.service
/dev/nvme0n1p2  200M  8.4M  192M   5% /boot/efi
tmpfs           1.0M     0  1.0M   0% /run/credentials/serial-getty@ttyS0.service
tmpfs           1.0M     0  1.0M   0% /run/credentials/getty@tty1.service
tmpfs            91M  4.0K   91M   1% /run/user/1000
/dev/nvme1n1p1  2.9G   24K  2.8G   1% /mnt/code
/dev/nvme2n1p1  2.9G   24K  2.8G   1% /mnt/mariadb
[root@ip-172-31-23-165 ~]# lsblk
```

mount and umount

```
[root@ip-172-31-23-165 ~]# unmount /mnt/code
bash: unmount: command not found
[root@ip-172-31-23-165 ~]# umount /mnt/code
[root@ip-172-31-23-165 ~]# lsblk
NAME         MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
nvme0n1      259:0    0   10G  0 disk
├─nvme0n1p1 259:1    0    1M  0 part
├─nvme0n1p2 259:2    0  200M  0 part /boot/efi
├─nvme0n1p3 259:3    0  9.8G  0 part /
nvme1n1      259:4    0   10G  0 disk
├─nvme1n1p1 259:6    0    3G  0 part
nvme2n1      259:5    0   10G  0 disk
├─nvme2n1p1 259:7    0    3G  0 part /mnt/mariadb
[root@ip-172-31-23-165 ~]# mount /dev/nvme1n1p1 /mnt
[root@ip-172-31-23-165 ~]# lsblk
NAME         MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
nvme0n1      259:0    0   10G  0 disk
├─nvme0n1p1 259:1    0    1M  0 part
├─nvme0n1p2 259:2    0  200M  0 part /boot/efi
├─nvme0n1p3 259:3    0  9.8G  0 part /
nvme1n1      259:4    0   10G  0 disk
├─nvme1n1p1 259:6    0    3G  0 part /mnt/code
nvme2n1      259:5    0   10G  0 disk
├─nvme2n1p1 259:7    0    3G  0 part /mnt/mariadb
```

```
[root@ip-172-31-23-165 ~]# blkid UUID="17213722-32a3-4f59-849a-d2222a8c07ed"   /mnt/code
[root@ip-172-31-23-165 ~]# blkid UUID="4d640768-eb82-4510-b261-b2a7af49380e"   /mnt/mariadb/
[root@ip-172-31-23-165 ~]# vim /etc/fstab
bash: vim: command not found
[root@ip-172-31-23-165 ~]# vi /etc/fstab
"/etc/fstab" 4L, 234B written
[root@ip-172-31-23-165 ~]# vi /etc/fstab
[root@ip-172-31-23-165 ~]# cat /etc/fstab
UUID=f6af1ffc-108f-4dc4-94b7-7142b712ad43       /       xfs     defaults        0       0
UUID=7B77-95E7  /boot/efi       vfat    defaults,uid=0,gid=0,umask=077,shortname=winnt  0       2
UUID=4d640768-eb82-4510-b261-b2a7af49380e       /mnt/mariadb    ext4  defaults   0        0
```

upload of files

```
PS C:\Users\SHADY\Downloads\shady_devops> scp -i .\flask_app.pem .\app.py ec2-user@3.80.33.107:/mnt/code/
app.py                                                                                    100% 1544     5.0KB/s   00:00
PS C:\Users\SHADY\Downloads\shady_devops> scp -i .\flask_app.pem -r .\templates ec2-user@3.80.33.107:/mnt/code/
index.html                                                                                100% 3405    11.1KB/s   00:00
PS C:\Users\SHADY\Downloads\shady_devops> scp -i .\flask_app.pem .\notes_devops ec2-user@3.80.33.107:/mnt/code/
notes_devops                                                                              100% 1692     5.5KB/s   00:00
PS C:\Users\SHADY\Downloads\shady_devops> scp -i .\flask_app.pem .\notes_devops.db ec2-user@3.80.33.107:/mnt/mariadb/
notes_devops.db                                                                           100%   12KB  12.8KB/s   00:00
PS C:\Users\SHADY\Downloads\shady_devops>
```

show files in directories

```
[ec2-user@ip-172-31-23-165 ~]$ ls -l /mnt/code/
total 28
-rw-r--r--. 1 ec2-user ec2-user  1544 Jul 21 17:43 app.py
drwx------. 2 ec2-user ec2-user 16384 Jul 21 16:59 lost+found
-rw-r--r--. 1 ec2-user ec2-user  1692 Jul 21 17:43 notes_devops
drwx------. 2 ec2-user ec2-user  4096 Jul 21 17:43 templates
[ec2-user@ip-172-31-23-165 ~]$ ls -l /mnt/mariadb/
total 28
drwx------. 2 root     root     16384 Jul 21 17:00 lost+found
-rw-r--r--. 1 ec2-user ec2-user 12288 Jul 21 17:44 notes_devops.db
```

code of database

```
[ec2-user@ip-172-31-23-165 ~]$ cat /mnt/mariadb/notes_devops.db
◆Q◆P++Ytablesqlite_sequencesqlite_sequenceCREATE TABLE sqlite_sequence(name,seq)◆,◆7tablenotesnotesCREATE TABLE notes (
            id INTEGER PRIMARY KEY AUTOINCREMENT,
            title TEXT NOT NULL,
            content TEXT NOT NULL
```

code of python.app

```
[ec2-user@ip-172-31-23-165 ~]$ cat /mnt/code/app.py
from flask import Flask, render_template, request, redirect, url_for, g
import sqlite3
import os

app = Flask(__name__)

DB_PATH = os.path.join(os.path.abspath(os.path.dirname(__file__)), 'notes_devops.db')

def get_db():
    if 'db' not in g:
        g.db = sqlite3.connect(DB_PATH)
        g.db.row_factory = sqlite3.Row
    return g.db

@app.teardown_appcontext
def close_db(error):
    db = g.pop('db', None)
    if db is not None:
        db.close()

def init_db():
    db = get_db()
    db.execute(
        '''CREATE TABLE IF NOT EXISTS notes (
            id INTEGER PRIMARY KEY AUTOINCREMENT,
            title TEXT NOT NULL,
            content TEXT NOT NULL
        )'''
    )
    db.commit()

@app.route('/', methods=['GET', 'POST'])
def index():
    db = get_db()
    if request.method == 'POST':
        title = request.form['title']
        content = request.form['content']
        db.execute('INSERT INTO notes (title, content) VALUES (?, ?)', (title, content))
        db.commit()
```

connected: http://127.0.0.1:5000

github: https://github.com/shadymh10/python-app