
Vipul Nikam

180010041

4th year, CSE

IIT Dharwad

Python Backend Task

23rd October 2021

OVERVIEW

Task of this project is to add two numbers and return its value through API endpoints.

Project required 3 API as per question requirements, so this project has 3 API's from the given task and one API showing the whole database with endpoints as

1. '/'
2. '/calculate/<number>/<number>/'
3. '/get_answer/<identifier>/'
4. '/show/'.

INSTALLATION

1. Python3
 - a. `sudo apt install python3.8`
 - b. `sudo apt install python3-pip`
2. Flask
 - a. `sudo apt install python3-venv`
 - b. `python3 -m venv venv`
 - c. `pip install Flask`
3. Virtualenv
 - a. `Pip install virtualenv`
4. Flask-sqlalchemy
 - a. `Pip install flask-sqlalchemy`

HOW TO RUN

After completing the required installation, we will run our program step by step in the following manner to get output.

1. First we will create a virtual environment to prevent any changes happening in main modules. We will give it any name, in my case, i have given 'env' name for sake of example
 - a. Command: `Virtualenv env`
2. Now we will activate this virtual environment and install flask and will move to this folder to run our project.
 - a. Command: `source ./env/bin/activate`
 - b. Command: `pip install flask`
 - c. `Cd env/`
3. Now we will paste our app.py to this folder and sum.db too if we want a ready made database. To create a new database, run the following commands.
 - a. Command: `python`
 - b. `from app import db`
 - c. `db.create_all()`
 - d. `exit()`
4. Now we will run our app to get link to our application
 - a. Command: `flask run`
5. By running the above command we will get a url, paste it in your browser without closing the terminal and we can see the output.
6. We can also paste urls in the postman to get desired output.

OUTPUT

To create a database table, enter the python environment after activation virtual environment and run above mentioned commands in sequence.

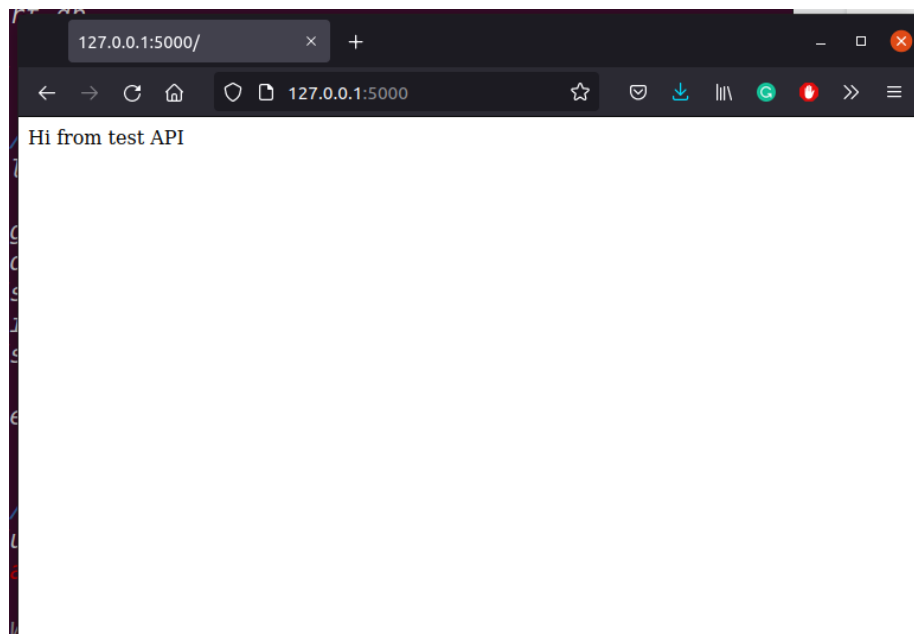
```
(env) vipul@Lenovo:~/Downloads/CloudSEK/Flask/env$ python
Python 3.8.10 (default, Sep 28 2021, 16:10:42)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> from app import db
/home/vipul/Downloads/CloudSEK/Flask/env/lib/python3.8/site-packages/flask_sqlalchemy/__init__.py:872: FSADeprecationWarning: SQLALCHEMY_TRACK_MODIFICATIONS adds significant overhead and will be disabled by default in the future. Set it to True or False to suppress this warning.
  warnings.warn(FSADeprecationWarning(
>>> db.create_all()
>>> exit()
(env) vipul@Lenovo:~/Downloads/CloudSEK/Flask/env$
```

Run all sub-commands

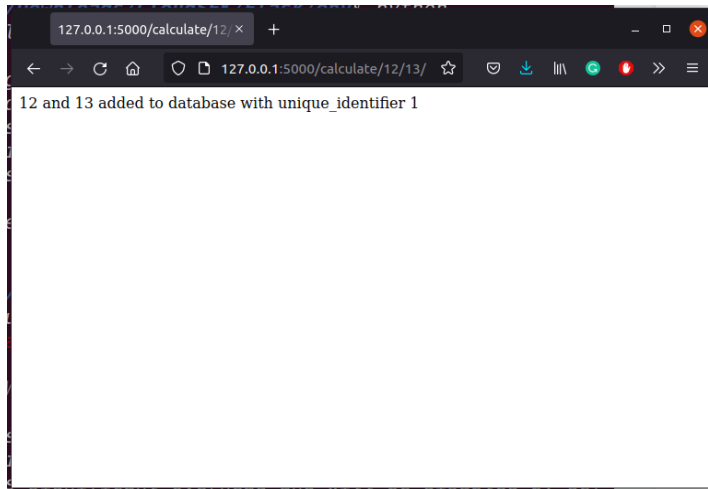
To run the application

```
(env) vipul@Lenovo:~/Downloads/CloudSEK/Flask/env$ flask run
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: off
/home/vipul/Downloads/CloudSEK/Flask/env/lib/python3.8/site-packages/flask_sqlalchemy/__init__.py:872: FSADeprecationWarning: SQLALCHEMY_TRACK_MODIFICATIONS adds significant overhead and will be disabled by default in the future. Set it to True or False to suppress this warning.
  warnings.warn(FSADeprecationWarning(
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

Home page will print the default message of 'hi from test API'

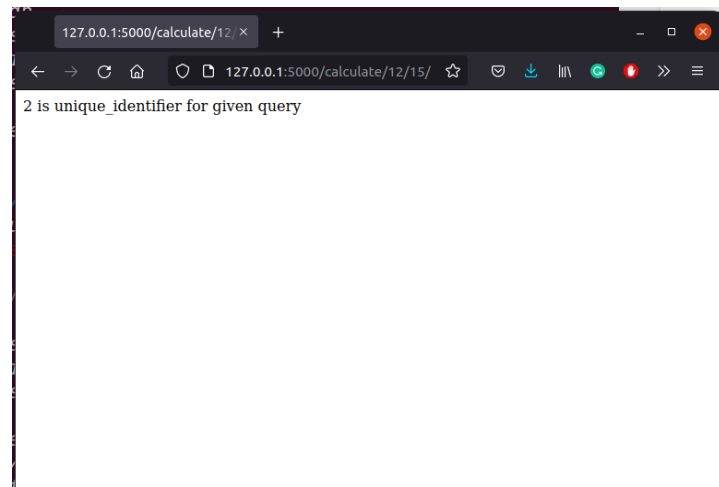


Calculate will add the numbers in the url to the database if it does not exist already and it will return the unique identifier for a given combination of numbers.

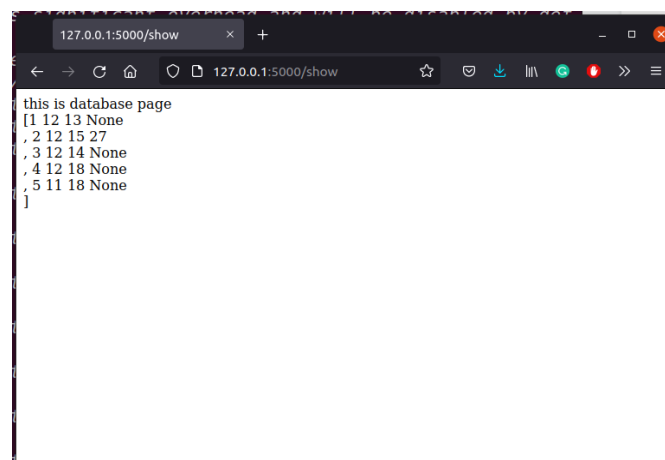


Adding numbers to the database if it doesn't exist already

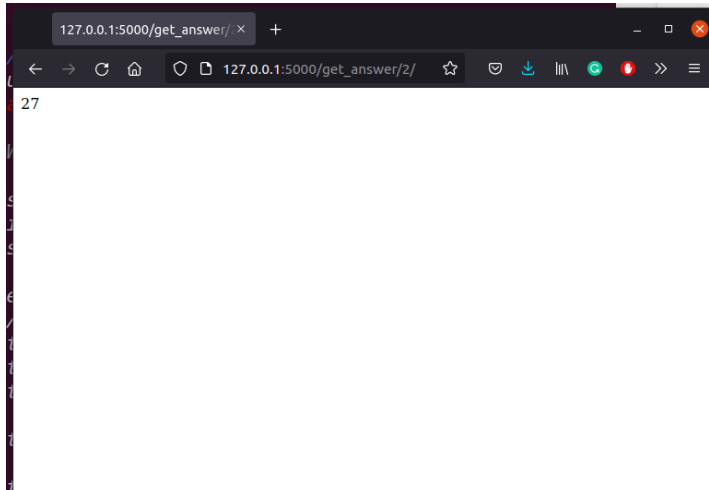
returning identifier for a query which has already been asked



Show will return the whole database table.

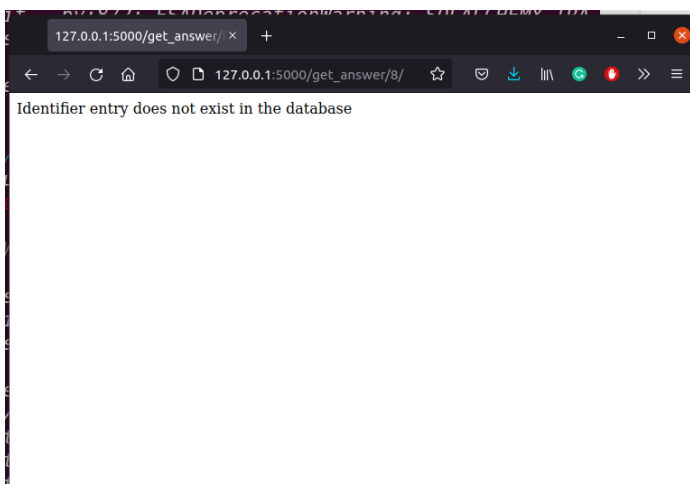
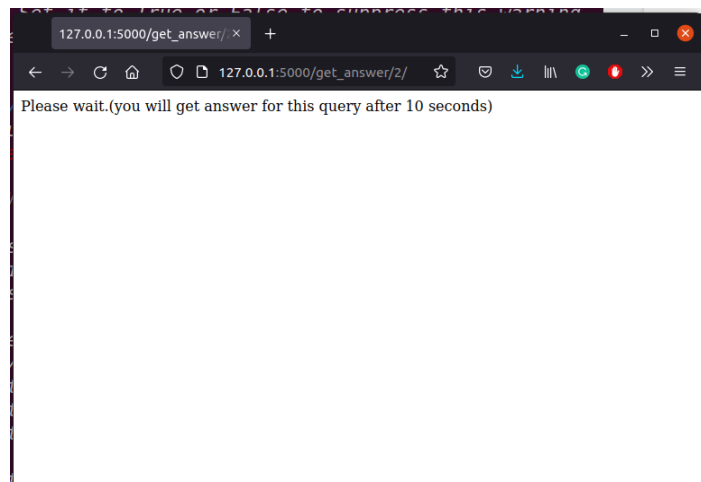


Get_answer followed by an identifier will return the number stored in the 'addition' column of the given identifier as primary key if it exists already, otherwise, the program will show 'please wait and 10 seconds later answer will get added to the database.



As the answer for query 2 is already calculated, the program will return its answer.

As this query is hit first time, it will show please wait message and if you refresh this page after 10 seconds, you will get answer



As this identifier does not exist, it will return the error message=eg with error code of 404