API DOCUMENTATION

By

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1.0 Steps to run the code:

(1) Visit https://github.com/bilalqureshi1/stombleassignmentbilal
(2) After downloading the project take the stumble.db file and run it in your local database server. In my case it was XAMPP

See the screenshot below
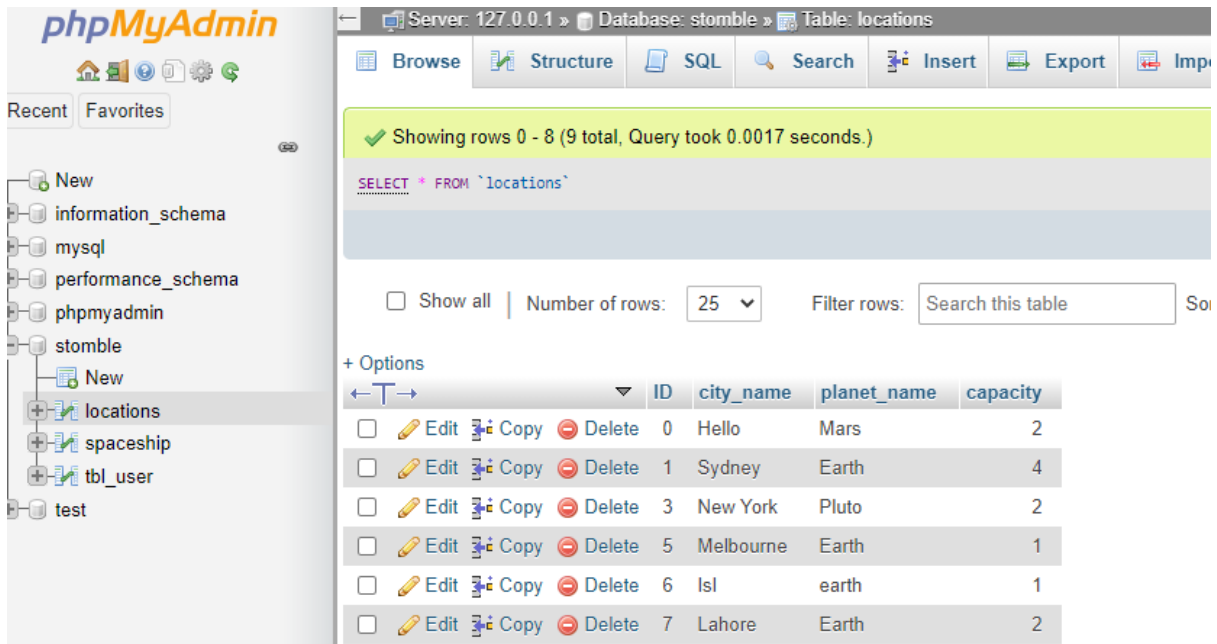
Above is my XAMPP server.

(3) Go to the windows command prompt if you have windows or terminal if you have mac. Go to the user_crud folder and type the command
python main.py
Please note when you type this command an error prompt will appear to install libraries please install them as mentioned by the prompt. You can use pip install 'library name'
Once library is installed and you will run the command it should look like this below:

```
C:\Users\bqure\OneDrive\Desktop\stomble\user_crud>python main.py
 * Serving Flask app "app" (lazy loading)
 * 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
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

(4) Go to 127.0.0.1:5000 as mentioned. You will see the homepage of the flask website. It will look like this:

Add Locations

Add Space Ships

Travel

Show Space Ships

All Locations:

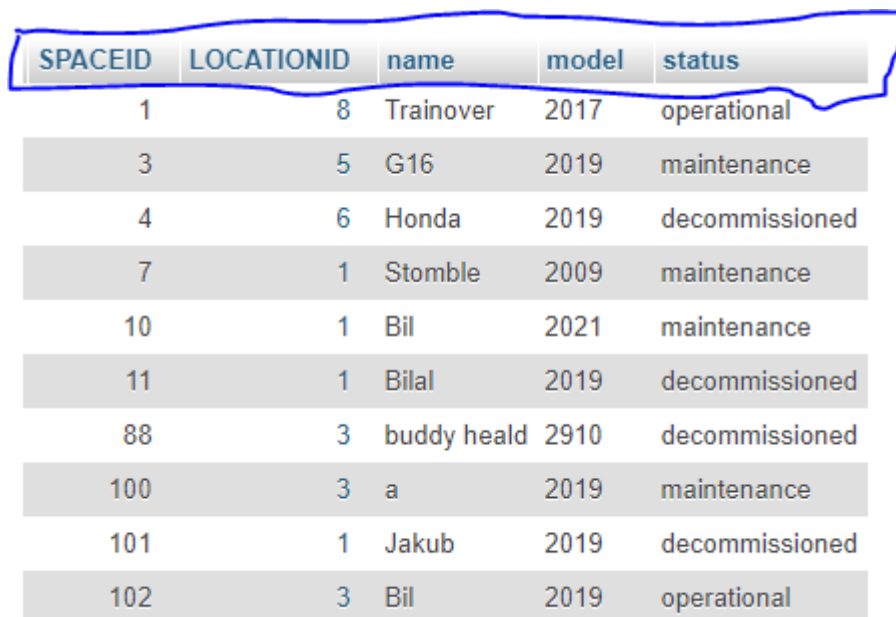| ID	city_name	planet_name	capacity	Edit	Delete
0	Hello	Mars	2	Edit	Delete
1	Sydney	Earth	4	Edit	Delete
3	New York	Pluto	2	Edit	Delete
5	Melbourne	Earth	1	Edit	Delete
6	Isl	earth	1	Edit	Delete
7	Lahore	Earth	2	Edit	Delete
8	Los Angelas	Moon	1	Edit	Delete
10	Area 59	Earth	0	Edit	Delete
11	Chell	Bag	1	Edit	Delete

2.0 The Database:

The database consist of two tables

Spaceship and locations table
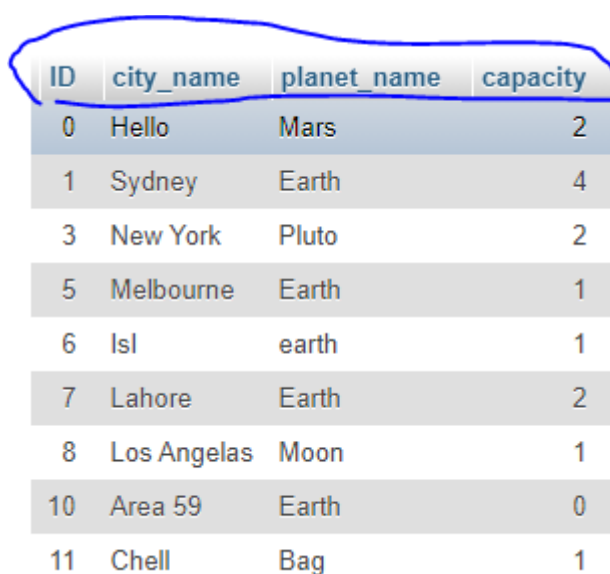
Spaceship table consist of the following in the image below.

SPACEID	LOCATIONID	name	model	status
1	8	Trainover	2017	operational
3	5	G16	2019	maintenance
4	6	Honda	2019	decommissioned
7	1	Stomble	2009	maintenance
10	1	Bil	2021	maintenance
11	1	Bilal	2019	decommissioned
88	3	buddy heald	2910	decommissioned
100	3	a	2019	maintenance
101	1	Jakub	2019	decommissioned
102	3	Bil	2019	operational

Please note **locationid is the foreign key for location table. The status field is drop down menu**

Location table consist of the following in the image below.

ID	city_name	planet_name	capacity
0	Hello	Mars	2
1	Sydney	Earth	4
3	New York	Pluto	2
5	Melbourne	Earth	1
6	Isl	earth	1
7	Lahore	Earth	2
8	Los Angelas	Moon	1
10	Area 59	Earth	0
11	Chell	Bag	1

3.0 Insertion of Location and Spaceship:

3.1 Insert Location:

Press the following button to add new location

Add Locations

Add Space Ships

Travel

Show Space Ships

Fill the fields as mentioned and press submit

Add Location

| 15 |

| Brisbane |

| Earth |

| 2 |

Submit

After which you will be redirected to the homepage to see if its inserted

All Locations:
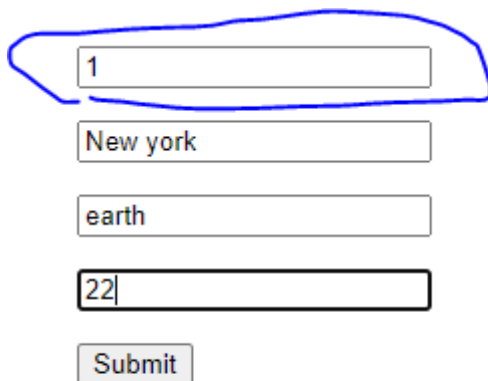
- Location added successfully!

ID	city_name	planet_name	capacity	Edit	Delete
0	Hello	Mars	2	Edit	Delete
1	Sydney	Earth	4	Edit	Delete
3	New York	Pluto	2	Edit	Delete
5	Melbourne	Earth	1	Edit	Delete
6	Isl	earth	1	Edit	Delete
7	Lahore	Earth	2	Edit	Delete
8	Los Angelas	Moon	1	Edit	Delete
10	Area 59	Earth	0	Edit	Delete
11	Chell	Bag	1	Edit	Delete
15	Brisbane	Earth	2	Edit	Delete

Please note that if you add a location with an ID that has been taken already you won't be able to insert it.

For example if we add ID 1 as you see it has been taken already you won't be able to insert it and error prompt will appear.

I add the ID 1

1

New york

earth

22

Submit

Add Locations

Add Space Ships

Travel

Show Space Ships

All Locations:

- Please enter another ID

Since this ID is taken you have to enter another one.

3.2 Insert Spaceship:

Go to Add Space ship page

Copy the status fro here by typing decommissioned, maintenance o

spaceId

location ID

name

model

status

Submit

In the location ID add the ID of the location where you want the spaceship to be docked. If the spaceid is already taken or location ID is invalid you will receive a error prompt

Also for status I haven't added the drop box menu as I didn't focus much on the UX design please copy any word 'decommissioned, maintenance or operational' from the sentence and if you type any other word it will result in status being empty.

Copy the status fro here by typing decommissioned, maintenance or operational

spaceId

location ID

name

model

status

Submit

4.0 Deletion of Location and Spaceship:

4.1 Delete Spaceships

spaceid	name	model	status	city_name	planet_name	Edit	Delete
1	Trainover	2017	operational	Los Angelas	Moon	Edit	Delete
3	G16	2019	maintenance	Melbourne	Earth	Edit	Delete
4	Honda	2019	decommissioned	Isl	earth	Edit	Delete
7	Stomble	2009	maintenance	Sydney	Earth	Edit	Delete
10	Bil	2021	maintenance	Sydney	Earth	Edit	Delete
11	Bilal	2019	decommissioned	Sydney	Earth	Edit	Delete
88	buddy heald	2910	decommissioned	New York	Pluto	Edit	Delete
100	a	2019	maintenance	New York	Pluto	Edit	Delete
101	Jakub	2019	decommissioned	Sydney	Earth	Edit	Delete
102	Bil	2019	operational	New York	Pluto	Edit	Delete

Press the delete button above to delete space ships

4.1 Delete Locations

ID	city_name	planet_name	capacity	Edit	Delete
0	Hello	Mars	2	Edit	Delete
1	Sydney	Earth	4	Edit	Delete
3	New York	Pluto	2	Edit	Delete
5	Melbourne	Earth	1	Edit	Delete
6	Isl	earth	1	Edit	Delete
7	Lahore	Earth	2	Edit	Delete
8	Los Angelas	Moon	1	Edit	Delete
10	Area 59	Earth	0	Edit	Delete
11	Chell	Bag	1	Edit	Delete
15	Brisbane	Earth	2	Edit	Delete

Foreign Key Deletion Error for location:

Only those locations will be deleted for which there are no spaceships docked. So for example in Sydney I can see there are spaceships docked so in order to delete Sydney you have to first delete the spaceship docked. If you try deleting Sydney following message will appear.

All Locations:

- Can't delete this location please delete all spaceships from it first from the spaceship page. This is due to forgien key constraint

ID	city_name	planet_name	capacity	Edit	Delete
0	Hello	Mars	2	Edit	Delete
1	Sydney	Earth	4	Edit	Delete
3	New York	Pluto	2	Edit	Delete
5	Melbourne	Earth	1	Edit	Delete
6	Isl	earth	1	Edit	Delete
7	Lahore	Earth	2	Edit	Delete
8	Los Angelas	Moon	1	Edit	Delete
10	Area 59	Earth	0	Edit	Delete
11	Chell	Bag	1	Edit	Delete
15	Brisbane	Earth	2	Edit	Delete

Here are the sample GET responses you will get in performing insertion actions from the API

```
127.0.0.1 - - [17/Jan/2021 18:37:23] "[32mPOST /travelpaceship HTTP/1.1[0m" 302 -
127.0.0.1 - - [17/Jan/2021 18:37:23] "[37mGET /new_travel HTTP/1.1[0m" 200 -
127.0.0.1 - - [17/Jan/2021 18:38:20] "[37mGET /new_spaceship HTTP/1.1[0m" 200 -
127.0.0.1 - - [17/Jan/2021 18:41:58] "[37mGET /viewspaceships HTTP/1.1[0m" 200 -
127.0.0.1 - - [17/Jan/2021 18:42:16] "[32mGET /delete/102 HTTP/1.1[0m" 302 -
127.0.0.1 - - [17/Jan/2021 18:42:16] "[37mGET /viewspaceships HTTP/1.1[0m" 200 -
127.0.0.1 - - [17/Jan/2021 18:45:02] "[32mGET /deletespaceship/1 HTTP/1.1[0m" 302 -
127.0.0.1 - - [17/Jan/2021 18:45:02] "[37mGET / HTTP/1.1[0m" 200 -
127.0.0.1 - - [17/Jan/2021 18:45:21] "[32mGET /deletespaceship/15 HTTP/1.1[0m" 302 -
127.0.0.1 - - [17/Jan/2021 18:45:21] "[37mGET / HTTP/1.1[0m" 200 -
```

5.0 Updating Status of Spaceship:

spaceid	name	model	status	city_name	planet_name	Edit	Delete
1	Trainover	2017	operational	Los Angelas	Moon	Edit	Delete
3	G16	2019	maintenance	Melbourne	Earth	Edit	Delete

Click the edit button above to update the status.

Edit User

Change the status by typing decommissioned, maintenance, operational copy these words from here exactly like this

maintenance

Submit

Please copy and paste the 3 status. If you type in with wrong spelling mistakes this might cause an error. And don't add spaces also. Once done you will be prompted to home page go to show space ships page and your status will be changed.

You will receive the following API response when updating the spaceship

```
127.0.0.1 - - [17/Jan/2021 18:50:07] "[32mPOST /updatespaceship HTTP/1.1[0m" 302 -
127.0.0.1 - - [17/Jan/2021 18:50:07] "[37mGET /viewspaceships HTTP/1.1[0m" 200 -
```

6.0 Travel Functionality:

Before reading this please go through the main.py code and check the comments in travel_spaceship(): function.

```
def travel_spaceship():

    conn = None
    cursor = None
    """
    :param : None
    :return: (redircts to the travel.html page)
    Method used for travel form.
    First it uses select query to check capacity and status of the spaceship and location.
    Following checks are applied
    first it checks if the status is operational
    than it checks if the capacity is not equal to zero
    If above condition passed than following changes are made
    (1) Capacity from the departed location increases
    (2) Capacity from the arrival location decreases by 1
    (3) Current location of the spaceship is chaneged by assigning the forgien key
    """
```

Now go to the travel page.

Travel

Space ID

Location ID of where it has to

Submit

Enter the valid ID from space table and location ID. Spaceship ID of the spaceship you want to travel and locationID where it has to go. Please enter valid location ID and spaceship id as written in table if you enter wrong IDs this will lead to an error.

Status Error

If the spaceship does not has operational status it won't be allowed to travel.

4	Honda	2019	decommissioned	Is1	earth	Edit	Delete

Above spaceship 4 is decommissioned. If I enter this in travel page following error will occur

Travel

Space ID

Location ID of where it has to

- Spaceship not operational

Capacity Error

If the capacity of the location is zero the page will again return an error.

10	Area 59	Earth	0	Edit	Delete

Above location 10 has 0 capacity.

Let's try putting this in the travel form

Travel

1

10

- No capacity left!

Submit

Correct Travel

Now we will try the Trainover spaceship to travel from Los Angelas to Sydney. The spaceship has correct status and the Sydney has capacity.

1	Trainover	2017	operational	Los Angelas	Moon	Edit	Delete

1	Sydney	Earth	4	Edit	Delete

So I will type 1 and 1 in the box. And following will happen.

Los Angelas Capacity will increase by 1 and Sydney's capacity will decrease by 1. And Spaceship will have a new location ID.

8	Los Angelas	Moon	1	Edit	Delete

Los Angelas Capacity before the travel of Trainover.

Travel

1

1

Submit

Travel

Space ID

Location ID of where it has to

- Spaceship travelled please view the tables to check changes

Submit

Go back to the previous page to check the result.

ID	city_name	planet_name	capacity	Edit	Delete
0	Hello	Mars	2	Edit	Delete
1	Sydney	Earth	3	Edit	Delete
3	New York	Pluto	2	Edit	Delete
5	Melbourne	Earth	1	Edit	Delete
6	Isl	earth	1	Edit	Delete
7	Lahore	Earth	2	Edit	Delete
8	Los Angelas	Moon	2	Edit	Delete
10	Area 59	Earth	0	Edit	Delete
11	Chell	Bag	1	Edit	Delete

Sydney reduced from 4 to 3 and Los Angelas increased from 1 to 2.

spaceid	name	model	status	city_name	planet_name	Edit	Delete
1	Trainover	2017	operational	Sydney	Earth	Edit	Delete

Spaceship is now in Sydney.

Please note following API result will be shown with these actions.

```
127.0.0.1 - - [17/Jan/2021 19:02:31] "▨[32mPOST /travelpaceship HTTP/1.1▨[0m" 302 -
127.0.0.1 - - [17/Jan/2021 19:02:31] "▨[37mGET /new_travel HTTP/1.1▨[0m" 200 -
127.0.0.1 - - [17/Jan/2021 19:03:01] "▨[37mGET / HTTP/1.1▨[0m" 200 -
127.0.0.1 - - [17/Jan/2021 19:03:44] "▨[37mGET /viewspaceships HTTP/1.1▨[0m" 200 -
127.0.0.1 - - [17/Jan/2021 19:03:51] "▨[37mGET /viewspaceships HTTP/1.1▨[0m" 200 -
127.0.0.1 - - [17/Jan/2021 19:03:52] "▨[37mGET /viewspaceships HTTP/1.1▨[0m" 200 -
```