

MSDS 7330 HW9 Due Date: 07/16/2018

Homework 9

1. Set up and configure InClass Lab #2 (Rest Services) from Unit 9 . Turn in the screenshots of the output from the 2 rest services `getCustomerList` and `getOrderDetails`

a. Screenshot of the output from the rest service `getCustomerList`

SafariFileEditViewHistoryBookmarksDevelopWindowHelp100%Sat 7:45 PMShanqing Gu

localhost

Desktopmaincopy.pyUntitled27- Copy1

Python 3

```
In [*]: #!flask/bin/python
from werkzeug.wrappers import Request, Response
from flask import Flask
import MySQLdb
from flask import jsonify
from flask import Flask, abort, request
import logging

app = Flask(__name__)

#### Rest Service definition for returning the list of actors from sakila.actor table
@app.route('/', methods=['GET'])
def getCustomerList():
    global query_result;
    try:
        # Create connection to the MYSQL instance running on the local machine
        # Change the credentials to match your system
        logging.warning("inside getCustomerList()")
        connection = MySQLdb.Connection(host='localhost', user='root', passwd='Newlife@2018', db='EcommerceDB')
        cursor = connection.cursor()
        logging.warning('Connection with DB established')
        cursor.execute('select * from CustomerTable')
        query_result = [ dict(line) for line in zip([ column[0] for column in cursor.description], row) for row in cur
    except Exception as e:
        print ('Error %s: %s' % (e))
        sys.exit(1)
    finally:
        if cursor:
            cursor.close()
    # Return the list of actors as a json object
    return jsonify({'CustomerList': query_result})

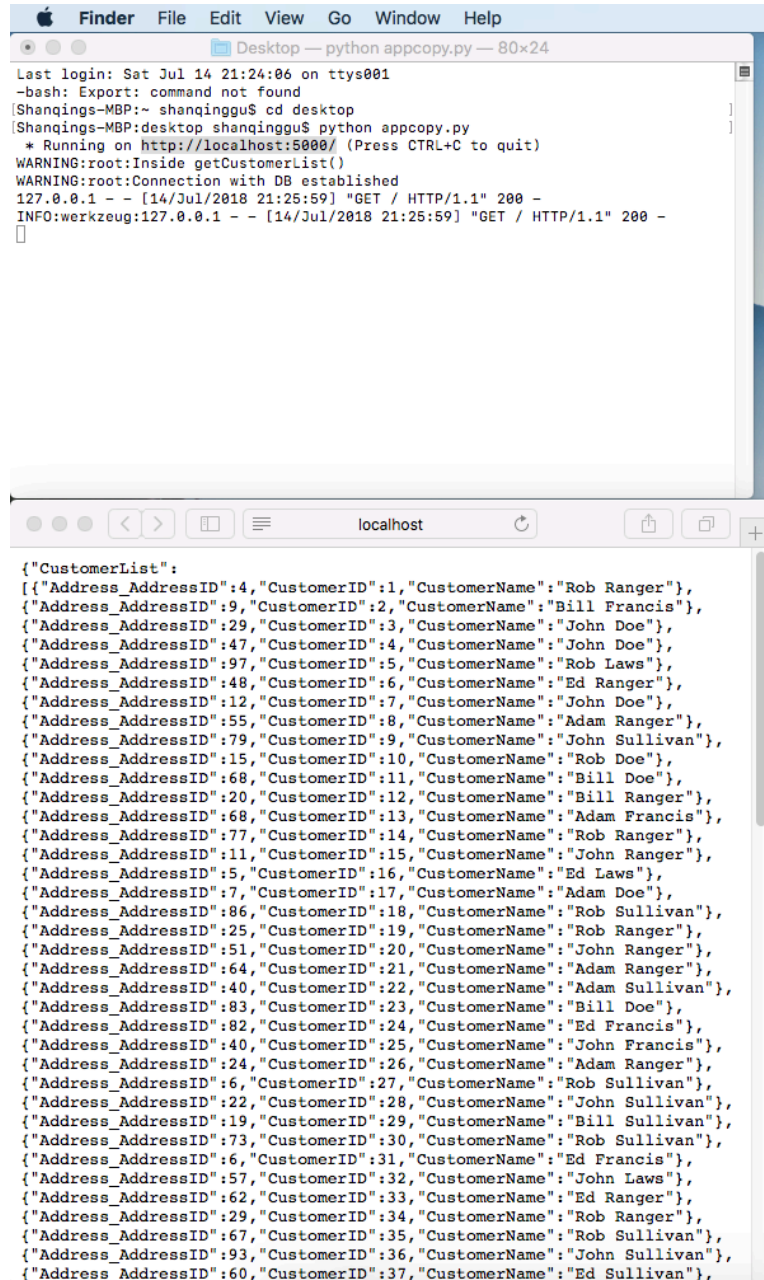
if __name__ == '__main__':
    #!flask/bin/python
    from werkzeug.serving import run_simple
    run_simple('localhost', 5000, app)
```

Running on http://localhost:5000/ (Press CTRL+C to quit)

```

{"CustomerList":[{"Address_AddressID14","CustomerID1","CustomerName","Rob Ranger"}, {"Address_AddressID19,"CustomerID2","CustomerName","Bill Francis"}, {"Address_AddressID29,"CustomerID3","CustomerName","John Doe"}, {"Address_AddressID47,"CustomerID4","CustomerName","John Doe"}, {"Address_AddressID79,"CustomerID5","CustomerName","Rob Laws"}, {"Address_AddressID149,"CustomerID6","CustomerName","Ed Ranger"}, {"Address_AddressID179,"CustomerID7","CustomerName","Adam Ranger"}, {"Address_AddressID198,"CustomerID8","CustomerName","Adam Ranger"}, {"Address_AddressID199,"CustomerID9","CustomerName","Adam Ranger"}, {"Address_AddressID105,"CustomerID10","CustomerName","Rob Doe"}, {"Address_AddressID148,"CustomerID11","CustomerName","Bill Doe"}, {"Address_AddressID120,"CustomerID12","CustomerName","Bill Ranger"}, {"Address_AddressID121,"CustomerID13","CustomerName","Bill Ranger"}, {"Address_AddressID115,"CustomerID14","CustomerName","Adam Ranger"}, {"Address_AddressID116,"CustomerID15","CustomerName","Adam Ranger"}, {"Address_AddressID117,"CustomerID16","CustomerName","Ed Laws"}, {"Address_AddressID118,"CustomerID17","CustomerName","Ed Laws"}, {"Address_AddressID119,"CustomerID18","CustomerName","Rob Sullivan"}, {"Address_AddressID125,"CustomerID19","CustomerName","Rob Ranger"}, {"Address_AddressID151,"CustomerID20","CustomerName","John Ranger"}, {"Address_AddressID164,"CustomerID21","CustomerName","Adam Ranger"}, {"Address_AddressID182,"CustomerID22","CustomerName","Bill Sullivan"}, {"Address_AddressID183,"CustomerID23","CustomerName","Bill Sullivan"}, {"Address_AddressID184,"CustomerID24","CustomerName","John Francis"}, {"Address_AddressID124,"CustomerID25","CustomerName","Adam Ranger"}, {"Address_AddressID166,"CustomerID27","CustomerName","Rob Sullivan"}, {"Address_AddressID167,"CustomerID28","CustomerName","Rob Sullivan"}, {"Address_AddressID173,"CustomerID29","CustomerName","Bill Sullivan"}, {"Address_AddressID174,"CustomerID30","CustomerName","Bill Sullivan"}, {"Address_AddressID131,"CustomerID31","CustomerName","Ed Francis"}, {"Address_AddressID157,"CustomerID32","CustomerName","John Laws"}, {"Address_AddressID162,"CustomerID33","CustomerName","Ed Ranger"}, {"Address_AddressID163,"CustomerID34","CustomerName","Ed Laws"}, {"Address_AddressID165,"CustomerID35","CustomerName","Ed Laws"}, {"Address_AddressID160,"CustomerID37","CustomerName","Rob Sullivan"}, {"Address_AddressID142,"CustomerID38","CustomerName","Bill Laws"}, {"Address_AddressID143,"CustomerID39","CustomerName","Rob Ranger"}, {"Address_AddressID190,"CustomerID40","CustomerName","Rob Ranger"}, {"Address_AddressID126,"CustomerID41","CustomerName","Ed Sullivan"}, {"Address_AddressID150,"CustomerID42","CustomerName","Adam Sullivan"}, {"Address_AddressID151,"CustomerID43","CustomerName","Adam Laws"}, {"Address_AddressID195,"CustomerID45","CustomerName","Adam Laws"}, {"Address_AddressID146,"CustomerID46","CustomerName","Adam Laws"}, {"Address_AddressID157,"CustomerID47","CustomerName","Bill Laws"}, {"Address_AddressID179,"CustomerID48","CustomerName","Ed Laws"}, {"Address_AddressID180,"CustomerID49","CustomerName","Ed Laws"}, {"Address_AddressID168,"CustomerID50","CustomerName","Adam Laws"}, {"Address_AddressID169,"CustomerID51","CustomerName","Adam Laws"}, {"Address_AddressID188,"CustomerID52","CustomerName","Adam Laws"}, {"Address_AddressID170,"CustomerID53","CustomerName","Bill Ranger"}, {"Address_AddressID161,"CustomerID54","CustomerName","Ed Ranger"}, {"Address_AddressID155,"CustomerID55","CustomerName","Adam Laws"}, {"Address_AddressID120,"CustomerID56","CustomerName","Adam Laws"}, {"Address_AddressID195,"CustomerID57","CustomerName","John Doe"}, {"Address_AddressID184,"CustomerID58","CustomerName","John Francis"}, {"Address_AddressID159,"CustomerName","John Doe"}, {"Address_AddressID185,"CustomerID59","CustomerName","John Doe"}, {"Address_AddressID161,"CustomerName","Rob Francis"}, {"Address_AddressID131,"CustomerID62","CustomerName","John Doe"}, {"Address_AddressID162,"CustomerID63","CustomerName","Adam Doe"}, {"Address_AddressID180,"CustomerID64","CustomerName","Adam Laws"}, {"Address_AddressID105,"CustomerID65","CustomerName","Adam Laws"}, {"Address_AddressID134,"CustomerID67","CustomerName","Bill Sullivan"}, {"Address_AddressID121,"CustomerID68","CustomerName","Adam Francis"}, {"Address_AddressID190,"CustomerID69","CustomerName","John Francis"}, {"Address_AddressID191,"CustomerID70","CustomerName","John Francis"}, {"Address_AddressID119,"CustomerID71","CustomerName","Adam Laws"}, {"Address_AddressID110,"CustomerID72","CustomerName","Rob Doe"}, {"Address_AddressID184,"CustomerID73","CustomerName","Bill Ranger"}, {"Address_AddressID137,"CustomerID74","CustomerName","Rob Doe"}, {"Address_AddressID191,"CustomerID75","CustomerName","Ed Laws"}, {"Address_AddressID176,"CustomerID76","CustomerName","Rob Ranger"}, {"Address_AddressID150,"CustomerID77","CustomerName","Ed Laws"}, {"Address_AddressID163,"CustomerID78","CustomerName","Bill Sullivan"}, {"Address_AddressID133,"CustomerID79,"CustomerName","Adam Ranger"}, {"Address_AddressID187,"CustomerName","Bill Francis"}, {"Address_AddressID171,"CustomerID80","CustomerName","Bill Francis"}, {"Address_AddressID131,"CustomerID82","CustomerName","Adam Sullivan"}, {"Address_AddressID148,"CustomerID83","CustomerName","Rob Francis"}, {"Address_AddressID133,"CustomerID84","CustomerName","Ed Ranger"}, {"Address_AddressID134,"CustomerID85","CustomerName","Ed Laws"}, {"Address_AddressID122,"CustomerID86","CustomerName","Ed Laws"}, {"Address_AddressID123,"CustomerID87","CustomerName","Ed Laws"}, {"Address_AddressID124,"CustomerID88","CustomerName","Ed Laws"}, {"Address_AddressID184,"CustomerID89","CustomerName","Adam Sullivan"}, {"Address_AddressID166,"CustomerID90","CustomerName","Adam Laws"}, {"Address_AddressID188,"CustomerID91","CustomerName","Ed Laws"}, {"Address_AddressID189,"CustomerID92","CustomerName","Adam Laws"}, {"Address_AddressID176,"CustomerID93","CustomerName","Rob Laws"}, {"Address_AddressID134,"CustomerID94","CustomerName","Bill Francis"}, {"Address_AddressID193,"CustomerID95","CustomerName","Bill Laws"}, {"Address_AddressID194,"CustomerID96","CustomerName","John Doe"}, {"Address_AddressID189,"CustomerID97","CustomerName","Bill Doe"}, {"Address_AddressID194,"CustomerID98","CustomerName","Bill Sullivan"}, {"Address_AddressID143,"CustomerID99","CustomerName","Bill Francis"}, {"Address_AddressID144,"CustomerName","Bill Ranger"}, {"Address_AddressID145,"CustomerName","Bill Ranger"}]}
```

Also can get the same output screenshot from terminal



The image shows two overlapping windows from a macOS desktop. The top window is a terminal titled 'python appcopy.py' with a size of 80x24. It displays the following text:

```
Last login: Sat Jul 14 21:24:06 on ttys001
-bash: Export: command not found
Shanqings-MBP:~ shanqinggu$ cd desktop
Shanqings-MBP:desktop shanqinggu$ python appcopy.py
* Running on http://localhost:5000/ (Press CTRL+C to quit)
WARNING:root:Inside getCustomerList()
WARNING:root:Connection with DB established
127.0.0.1 - - [14/Jul/2018 21:25:59] "GET / HTTP/1.1" 200 -
INFO:werkzeug:127.0.0.1 - - [14/Jul/2018 21:25:59] "GET / HTTP/1.1" 200 -
```

The bottom window is a web browser showing the 'localhost' address. It displays a JSON response from the application:

```
{
  "CustomerList": [
    {
      "Address_AddressID": 4,
      "CustomerID": 1,
      "CustomerName": "Rob Ranger"
    },
    {
      "Address_AddressID": 9,
      "CustomerID": 2,
      "CustomerName": "Bill Francis"
    },
    {
      "Address_AddressID": 29,
      "CustomerID": 3,
      "CustomerName": "John Doe"
    },
    {
      "Address_AddressID": 47,
      "CustomerID": 4,
      "CustomerName": "John Doe"
    },
    {
      "Address_AddressID": 97,
      "CustomerID": 5,
      "CustomerName": "Rob Laws"
    },
    {
      "Address_AddressID": 48,
      "CustomerID": 6,
      "CustomerName": "Ed Ranger"
    },
    {
      "Address_AddressID": 12,
      "CustomerID": 7,
      "CustomerName": "John Doe"
    },
    {
      "Address_AddressID": 55,
      "CustomerID": 8,
      "CustomerName": "Adam Ranger"
    },
    {
      "Address_AddressID": 79,
      "CustomerID": 9,
      "CustomerName": "John Sullivan"
    },
    {
      "Address_AddressID": 15,
      "CustomerID": 10,
      "CustomerName": "Rob Doe"
    },
    {
      "Address_AddressID": 68,
      "CustomerID": 11,
      "CustomerName": "Bill Doe"
    },
    {
      "Address_AddressID": 20,
      "CustomerID": 12,
      "CustomerName": "Bill Ranger"
    },
    {
      "Address_AddressID": 68,
      "CustomerID": 13,
      "CustomerName": "Adam Francis"
    },
    {
      "Address_AddressID": 77,
      "CustomerID": 14,
      "CustomerName": "Rob Ranger"
    },
    {
      "Address_AddressID": 11,
      "CustomerID": 15,
      "CustomerName": "John Ranger"
    },
    {
      "Address_AddressID": 5,
      "CustomerID": 16,
      "CustomerName": "Ed Laws"
    },
    {
      "Address_AddressID": 7,
      "CustomerID": 17,
      "CustomerName": "Adam Doe"
    },
    {
      "Address_AddressID": 86,
      "CustomerID": 18,
      "CustomerName": "Rob Sullivan"
    },
    {
      "Address_AddressID": 25,
      "CustomerID": 19,
      "CustomerName": "Rob Ranger"
    },
    {
      "Address_AddressID": 51,
      "CustomerID": 20,
      "CustomerName": "John Ranger"
    },
    {
      "Address_AddressID": 64,
      "CustomerID": 21,
      "CustomerName": "Adam Ranger"
    },
    {
      "Address_AddressID": 40,
      "CustomerID": 22,
      "CustomerName": "Adam Sullivan"
    },
    {
      "Address_AddressID": 83,
      "CustomerID": 23,
      "CustomerName": "Bill Doe"
    },
    {
      "Address_AddressID": 82,
      "CustomerID": 24,
      "CustomerName": "Ed Francis"
    },
    {
      "Address_AddressID": 40,
      "CustomerID": 25,
      "CustomerName": "John Francis"
    },
    {
      "Address_AddressID": 24,
      "CustomerID": 26,
      "CustomerName": "Adam Ranger"
    },
    {
      "Address_AddressID": 6,
      "CustomerID": 27,
      "CustomerName": "Rob Sullivan"
    },
    {
      "Address_AddressID": 22,
      "CustomerID": 28,
      "CustomerName": "John Sullivan"
    },
    {
      "Address_AddressID": 19,
      "CustomerID": 29,
      "CustomerName": "Bill Sullivan"
    },
    {
      "Address_AddressID": 73,
      "CustomerID": 30,
      "CustomerName": "Rob Sullivan"
    },
    {
      "Address_AddressID": 6,
      "CustomerID": 31,
      "CustomerName": "Ed Francis"
    },
    {
      "Address_AddressID": 57,
      "CustomerID": 32,
      "CustomerName": "John Laws"
    },
    {
      "Address_AddressID": 62,
      "CustomerID": 33,
      "CustomerName": "Ed Ranger"
    },
    {
      "Address_AddressID": 29,
      "CustomerID": 34,
      "CustomerName": "Rob Ranger"
    },
    {
      "Address_AddressID": 67,
      "CustomerID": 35,
      "CustomerName": "Rob Sullivan"
    },
    {
      "Address_AddressID": 93,
      "CustomerID": 36,
      "CustomerName": "John Sullivan"
    },
    {
      "Address_AddressID": 60,
      "CustomerID": 37,
      "CustomerName": "Ed Sullivan"
    }
  ]
}
```

b. Screenshot of the output from the rest service getOrderDetails

- Write a new rest service that takes in a number as input and returns the square of the number as the output. The output of the service must be a json structure, turn in the code and the screenshot

a. Screenshot of the code

```
In [*]: from werkzeug.wrappers import Request, Response
        from flask import Flask
        from flask import jsonify

        app = Flask(__name__)

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

        def SqrtList():
            l=list()
            for i in range (90,99):
                l.append (i**2)

            return jsonify({'Square list from 90 to 99':l})

        if __name__ == '__main__':
            #!flask/bin/python
            from werkzeug.serving import run_simple
            run_simple('localhost', 5000, app)

        * Running on http://localhost:5000/ (Press CTRL+C to quit)
```

b. Screenshot of the output

Additionally , read about the following topics online to get additional background information

- RestServices (https://www.youtube.com/watch?v=LooL6_chvN4 , <https://www.infoq.com/articles/rest-introduction#anch15265>)
- HTTP Get and Post methods (<https://www.youtube.com/watch?v=UObINRj2EGY>)
- Python Flask Library (<https://blog.miguelgrinberg.com/post/designing-a-restful-api-with-python-and-flask>)

Feel free to search online for any other useful materials about the above topics and share them on the course wall!