COMP3161
LAB 3
Mar 8 2023

Due Date: Mar 15 11:59 PM 2023

Problem

You are given a dataset on shoppers **(Customers.csv)**. A company has approached you to extract this data and store it in a database. You decide to create a mysql database. The company also has a mobile app and requires an API that can be used to get the data. You are required to create a script that can extract the data and to store it in an sql database. You are also required to create an API with the specifications outlined below.

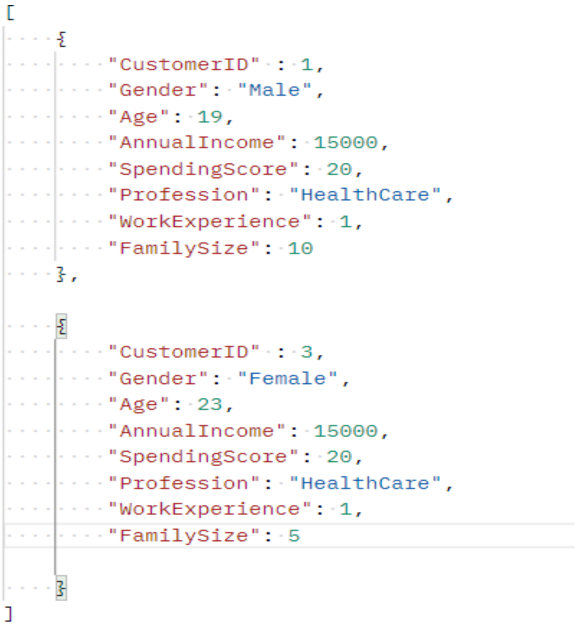
What to submit.

1. A sql script that creates the table and inserts the data into the table. It is your job to figure out how to generate this script. **(Your are free to the name the table and the database whatever you wish)**
2. Submit whatever script you used to generate the insert queries if one was used. E.g a python script.
3. Flask api
4. A postman collection with the following endpoints.

Submit everything in a zip file named with your id number. E.g **6200000.zip**

a. **/customers [GET]**

This should return all the customers in the following format.



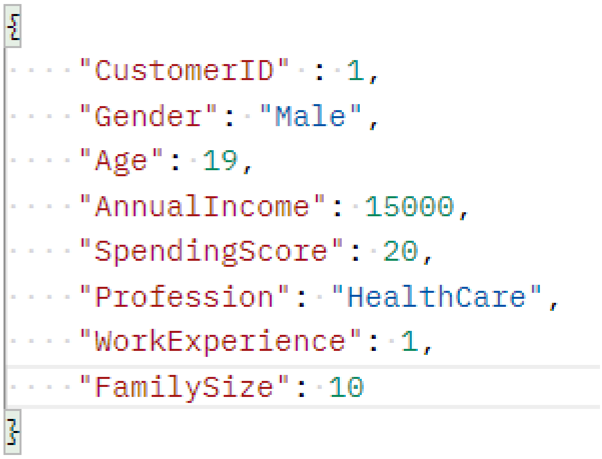
```
[
    {
        "CustomerID" : 1,
        "Gender": "Male",
        "Age": 19,
        "AnnualIncome": 15000,
        "SpendingScore": 20,
        "Profession": "HealthCare",
        "WorkExperience": 1,
        "FamilySize": 10
    },

    {
        "CustomerID" : 3,
        "Gender": "Female",
        "Age": 23,
        "AnnualIncome": 15000,
        "SpendingScore": 20,
        "Profession": "HealthCare",
        "WorkExperience": 1,
        "FamilySize": 5

    }
]
```

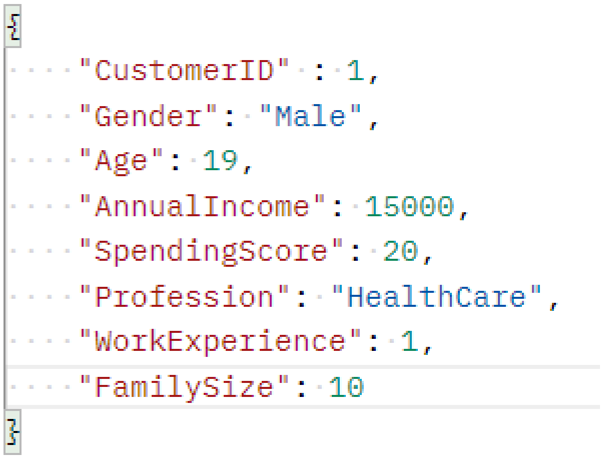
b. **/customer/<customer_id> [GET]**

This should return a shopper with the specified id. If no shopper is found an appropriate error message should be returned.



```
{
    "CustomerID" : 1,
    "Gender": "Male",
    "Age": 19,
    "AnnualIncome": 15000,
    "SpendingScore": 20,
    "Profession": "HealthCare",
    "WorkExperience": 1,
    "FamilySize": 10
}
```

c. **/add_customer [POST]**
This should allow a shopper to be added to the database. The endpoint should accept a body in the following format. An appropriate success message should be returned.



```
{
    "CustomerID" : 1,
    "Gender": "Male",
    "Age": 19,
    "AnnualIncome": 15000,
    "SpendingScore": 20,
    "Profession": "HealthCare",
    "WorkExperience": 1,
    "FamilySize": 10
}
```

d. **/update_profession/<customer_id> [PUT]**

This should allow a customer's profession to be added with the specified customer id. The endpoint should accept a body with the following format. An appropriate success message should be shown.

```
{
   "AnnualIncome": 15000
}
```

e. **/highest_income_report [GET]**

This should return a report with the highest income earners by profession.

```
[
  {
    "CustomerID": 3,
    "AnnualIncome": 100000,
    "Profession": "Healthcare"
  },
  {
    "CustomerID": 10,
    "AnnualIncome": 40000,
    "Profession": "Executive"
  },
  {
    "CustomerID": 5,
    "AnnualIncome": 20000,
    "Profession": "Lawyer"
  }
]
```

f. **/total_income_report [GET]**

This should show the total income earned by profession.

```
[
  {
    "TotalIncome": 100000,
    "Profession": "Healthcare"
  },
  {
    "TotalIncome": 503030000,
    "Profession": "Executive"
  },
  {
    "TotalIncome": 1300404000,
    "Profession": "Lawyer"
  }
]
```

g. **/average_work_experience [GET]**

This should show the average work experience by profession for customers that are young high earners. A young high earner is one which makes over $50,000 and is younger than 35 years old.

```
[
  {
    "AverageExperience": 4,
    "Profession": "Healthcare"
  },
  {
    "AverageExperience": 2,
    "Profession": "Executive"
  },
  {
    "AverageExperience": 5,
    "Profession": "Lawyer"
  }
]
```

h. /average_spending_score/<profession> [GET]

This should show the average spending score by gender for the profession specified. E.g. /average_spending_score/engineers would return the average spending score by gender for engineers. Output should look as follows

```
[
  {
    "Gender": "Male",
    "AverageSpendingScore": 20
  },
  {
    "Gender": "Female",
    "AverageSpendingScore": 30
  }
]
```