Lab Activity 10 - Python

Software System Development – Monsoon 2023

Due Date: 1st November 2023, 05:00 pm

Instructions:

- Deadline mentioned during the Lab is strictly immutable. No extensions will be given.
- Any naming convention mentioned in the lab activity must be followed strictly or marks may be deducted for the same.
- Any plagiarized content will fetch zero marks for the current lab and will be followed by strict action against the students involved. However, discussion of ideas is allowed.

Submission Criteria:

- Create a folder with your **roll number as its name** and containing the following file corresponding to the questions:
  - **One Python File (roll_number.py)**
  - **<README.md**
- Compress the folder as a zip file **(name should be <roll_number>.zip)** and then upload it on the Moodle before deadline.
- **README.md** should contain steps for execution of your script and any extra information that you want the evaluator to know before running your script, such as dependencies on some external tools or libraries.
- For Example:

2022201079.zip

|____2022201079

|____2022201079.py

|____README.md

You will be given a csv file. You need to complete the following tasks in order as the parts are dependent in sequence. You are free to take a look at the dataset beforehand. Please follow the mentioned naming conventions in the questions. Any failure to do so will attract penalties.

If the question mentions to follow a specific approach (for eg: use lambda function), then no other approach will be accepted.

Question 1.1: (3 Marks)

Read the CSV File Provided & drop the last 6 columns. Write back the resultant dataset in a file named “Q1_1.txt”

Question 1.2: (4 Marks)

Drop all the rows whose percentage change is less than -3% using filter & lambda functions. Write back the resultant dataset in a file named “Q1_2.txt”

Question 1.3: (4 Marks)

Calculate average of Open, High, Low using map and lambda function. Write back the answer in a file named “Q1_3.txt” in the following format:

Q1_3.txt->

Average of open

Average of high

Average of low

(Line separated values in this order)

Question 1.4: (5 Marks)

Given an input character from the terminal (A-Z,a-z), design a feature such that the <Symbol, LTP> of all the stocks whose symbol starts with the input should be displayed.

For example if the input is ‘A’, then it should display the mentioned details of AdaniPorts, AsianPaint, AxisBank, etc.

The search should not be case sensitive, i.e the previous example should give the same result if the input was given as ‘a’.

If the search yields no result, then the answer should be a blank table. You also need to handle any invalid inputs in this case.

In this part you need to print the table in the terminal in a tabular form as well as write back the resultant table in a file named “Q1_4.txt”

Question 1.5: (4 Marks)

Create a dataset of your own now. The columns will be Salary, Age, Class, Status. The data should be **randomly generated**. The range details of the columns are given as follows:

Salary should be a float between [10,000.00, 50,000.0]

Age should be an integer between [21,55]

Class should be a value from the list [A,B,C,D,E,F]

Status should be a boolean value True/False

This part is independent of the other parts. There should be 10 rows in the table. Write back the answer in a file named “Q1_5.txt” in the following format:

Salary,Age,Class,Status

10001.12,21,B,True

11000.00,30,A,False

.

.

.

10 such rows