BIRZEIT UNIVERSITY

Faculty of Engineering and Technology
Electrical and Computer Engineering Department
Linux Laboratory, ENCS313
Python Project

Submission

- Five python scripts (one module for each task and the main script).
- A report including screenshots of the output of your code with proper documentation.
- Name the pdf file as **xxxxxxx-yyyyyyy**-Sec-**zz**.pdf
  xxxxxxx : university number
  yyyyyyy : Your first Name
  zz: Section Number

Problem Description

A car rental company records all car rentals manually on a text file ("CarRentalOld.txt"). They need to record the following information about each car rental:

- **Name**: Name of the person renting the car (example: Ahmad Omar),
- **Id**: Id number of the person renting the car (example: 802424333),
- **DoB**: Date of birth of the person renting the car (example: 10 April 2000),
- **Mobile**: mobile number of the person renting the car (example: 0550123456),
- **CL**: an alphanumeric value representing the car license number (example: A10B20)
- **CM**: car make (example: Audi),
- **Year**: the year of manufacturing the car (example: 2018),
- **SD**: car rent start date (example: 15 April 2020),
- **ED**: car rent end date (example: 17 April 2020),
- **RB**: the amount the customer paid for this rental (example; 170).

This information is added in separate lines for each car rental with a semicolon as the separator between fields. Here are a few examples:

Ahmad Omar;802424333;10 April 2000;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350

Abeer Islam;801321533;1 March 1999;0440123456;C30B20;BMW;2016;5 February 2019;8 February 2019;370

The owner of the company finds out that the employees were not accurate in entering this information into the text file. He finds out the following mistakes:

1- Dates are input in a different format. He finds out the following two formats dd-mm-yyyy and dd/mm/yyyy. See the following examples:
   a. **Ahmad Omar;802424333;10-04-2000;0550123456;A10B20;Audi;2018;15-04-2020;17-04-2020;350**
   b. **Abeer Islam;801321533;01/03/1999;0440123456;C30B20;BMW;2016;05/02/2019;08/02/2019;370**

2- Some fields are missing in the database. See the following examples:
   a. **Ahmad Omar;;10 April 2000;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350**
   b. **;801321533;1 March 1999;0440123456;C30B20;;2016;5 February 2019;8 February 2019;370**

3- Some duplicate entries are added to the database such as:
   a. **Ahmad Omar;802424333;10 April 2000;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350**
   b. **ahmad omar;802424333;10 April 2000;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350**
   c. **;802424333;10 April 2000;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350**

   Another example:

   a. **Ahmad Omar;802424333;10-4-2000;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350**
   b. **Ahmad Omar;802424333;10/4/2000;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350**
   c. **Ahmad Omar;802424333;;0550123456;A10B20;Audi;2018;15 April 2020;17 April 2020;350**

Tasks:

Write separate python modules for each of the following tasks. Then import and call the modules in the main python script to perform tasks and print output on screen.

Task #1: Write a python module to fix the old database. Write a separate function for each of the following:

1- Modify the format of the dates in the database (example: 10-4-2000 → 10 April 2000)
2- Try to complete the missing information in the database. Then move all not complete entries to a new text file called ("CarRentalMissing.txt") and the completed entries to a text file called ("CarRentalCompleted.txt")
3- Remove duplicate entries form the completed database.

Task #2: Write a python module with proper functions to inquire and print on-screen information from the completed database. The inquiry must be of two types:

1- Inquiry about a person using the **Name** or **Id**. Print information about the person and all cars rented by the person. **In this case, print also the amount paid by this person for renting cars.**
2- Inquiry about a car using the **CL**. **Print information about the car and all persons rented the car. In this case, print also the revenue made by renting this car.**

Task #3: Write a python module to add information for new car rental to the completed database. This should be based on the following:

1- Input the rental dates provided by the customer.
2- Print on screen the cars available during these dates.
3- Add a car and rental information to the completed database.

Task #4: Write a python module with proper functions to print on-screen statistics about each car in the completed database. For each car print the following:

1- Number of days the car was rented,
2- Revenue made by renting the car,
3- Average price per day for renting each car.