INSTRUCTIONS - PRACTICAL EXAM – CSD203

PLEASE READ BEFORE STARTING YOUR EXAM

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Software Requirements

- PyCharm, Notepad, Command Prompt, WinRAR / WinZip (or compress to ZIP file of Windows), Windows Explorer (File Explorer) on Windows 7 and above.

Students are ONLY Allowed to use:

- The materials like sample codes and program examples are stored on computer only.

Instructions

- Step 1: Students download the given materials from PEA Client.

- Step 2: Students read questions and prepare answers in the given template.

- Step 3: Submit a solution for each question:

   o The result is one folder for each question (Q1,Q2), which contains **.py** source files.
   <u>Example</u>:

   + Folder "Q1" only contains Q1.py for question 1

   + Folder "Q2" only contains Q2.py for question 2

   o For each question, you must submit one folder as above to PEA Client.

❖ **Importance:**

   o Solutions will be marked by Automated Marking Software.

   o **The use of tools other than those allowed in the above section whether intentionally or unintentionally, is considered a violation of the exam rules, and the mark is 0**

   o **Do not:** change the names of the folders, files, and struct (format) of .py files specified in the exam. If you change it, the marking software can not find the execute file (.py) or the program output to mark, thus the score will be 0

   o **Do not:** edit given statements in the **main** function. If you change, the marking software can not mark and the score will be 0.

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Question 1: (5 marks)

The given file Q1.py already contains statements to implement a simple program to monitor Juice objects using singly linked list structure. You should write statements to the following functions:

a. **f1()**: Insert at the beginning of the current list a new Juice with ID = '019', name = 'guava', unit = '4', volume = '390ml', price = 177.0
   Expected result:
   019, guava, 4, 390ml, 177.000
   001, coconut, 7, 390ml, 175.000
   002, orange, 3, 320ml, 168.000
   005, lemon, 1, 320ml, 220.000
   012, carrot, 6, 600ml, 218.000
   025, strawberry, 12, 390ml, 175.000

b. **f2()**: Write your code to insert a new_node (given in the file) to the third position of the current list.
   Expected result:
   001, coconut, 7, 390ml, 175.000
   002, orange, 3, 320ml, 168.000
   NEW, apple, 3, 330ml, 112.000
   005, lemon, 1, 320ml, 220.000
   012, carrot, 6, 600ml, 218.000
   025, strawberry, 12, 390ml, 175.000

c. **f3()**: Increase the Juice's price by 20% for the nodes with unit < 5.
   Expected result:
   001, coconut, 7, 390ml, 175.000
   002, orange, 3, 320ml, 201.600
   005, lemon, 1, 320ml, 264.000
   012, carrot, 6, 600ml, 218.000
   025, strawberry, 12, 390ml, 175.000

d. **f4()**: Sort the linked list in an ascending order according to Juice's unit.
   Expected result:
   005, lemon, 1, 320ml, 220.000
   002, orange, 3, 320ml, 168.000
   012, carrot, 6, 600ml, 218.000
   001, coconut, 7, 390ml, 175.000
   025, strawberry, 12, 390ml, 175.000

e. **f5()**: Delete the first node in the linked list with Juice's value < 600.0 (value = unit * price)
   Expected result:
   001, coconut, 7, 390ml, 175.000
   005, lemon, 1, 320ml, 220.000
   012, carrot, 6, 600ml, 218.000
   025, strawberry, 12, 390ml, 175.000

Notes:

*- Do not edit given statements in the **main** function*
- You can create new functions if you think they are necessary.
- Carefully read the instructions in each question to complete the practical exam.