

Topic	H/W #2: Structure & Union	Total 30 points
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Tip: implement the solution using structure and union.

Online shopping customers are **consumers (C)** who mainly make purchases for personal use and **sellers (S)** who purchase for the sake of reselling. In a customer record, a name, phone_number and purchase amount are common to all customers. For this reason, when capturing a customer record, we need to differentiate the type of customer, whether it's a consumer (C) or a seller (S).

Goal of this programming assignment: Define some data structure that expresses the customer record. Write a program that outputs (i) For consumers → lowest consumer (with purchase amount information), highest consumer (with purchase amount information) and the average consumer amount, (ii) For Sellers → lowest seller (including purchase amount information), highest seller (including purchase amount information), and the average seller amount. The input and output shown below shall be provided as an example, but the details shall be designed autonomously by each student.

1) Enter:

<Customer name> <Customer type> <Phone number> <Amount>

However, *<Customer Type>* is expressed as a character and has values of '**C**' (consumer) and '**S**' (seller). Enter one customer at a time. *<amount>* is given as an integer. Whilst entering the input, the consumers' information is mixed with the sellers' information. No need to start with consumers then sellers, the customer input is random. The keyboard input "--", is considered that the data input is terminated.

<Customer Name> consists of one word and has a maximum length of 20 characters. There is no restriction on the format of *<phone number>*.

2) Output:

<Name of the lowest consumer> <Amount>

<Name of the highest consumer> <Amount>

<Average consumer amount>

<Name of the lowest seller> <Amount>

<Name of the highest seller> <Amount>

<Average seller amount>

**** Note: Capture the Input of at least 3 consumers and 3 sellers.** The average consumer amount and average seller amount should be rounded and displayed to **two decimal** places.

3) Example 1

The following is an example of the program execution screen (red is input and blue is output)

General Input

```
Please enter your customer information (<Name> <Customer Type> <Phone Number> <Amount>):
James S 010-2345-1237 58
Prince C 010-3345-4439 48
Faith C 010-4657-7658 56
Luke S 010-4245-8233 81
Rosemary S 010-8372-3237 39
George C 010-3325-4237 42
Allen S 010-2867-1242 34
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Lowest consumer: George 42
highest consumer: Faith 56
Average consumer amount: 48.67
Lowest seller: Allen 34
highest seller: Luke 81
Average seller amount: 53.00
```

Mark allocation: Total [30 points]

Implementation of the problem as structure only **[minus 5 points]**

Implementing the problem as a union only **[minus 5 points]**

Implementing the problem with embedded unions inside a structure **[Total points allocated]**

Program does not prompt for input, but student assigns the values of the buyer information manually **[minus 4 points]**

Program displays incorrect output **[minus 5 points]**

Plagiarism of code or any cheating **[minus 50% of total marks]**

**** Files to be uploaded: (i) C file containing your program**

(ii) screen capture of program input request screen and program output screen(s).