Topic	Practical Assignment 3
Assignment Type	☒ Assessed ☐ Non-assessed ☒ Individual ☐ Group
Module	CSE101 Computer Systems
Due Date	November 7th, 2018 (Wednesday)

1. Assignment

Write an assembly program that runs a loop, accepting ***one*** alphanumeric character at a time. For each alphanumeric character entered by the user, a message indicating character type (i.e. uppercase, lowercase, even or odd) is displayed immediately thereafter. Four variable counters are used to track the number of occurrences of these 4 character types. To terminate the program at any time, the user can enter an asterisk symbol "*". At the end of the program, print the actual number of entries, and the values of the four variable counters.

2. Learning Outcome

1. To understand the components of a computer system, their functions, and interactions.
2. To develop inline assembly programming skills.

3. Requirements and Assessment

Your program MUST be developed using Visual C++ inline assembly language.

1. Your program can compile and run. (10 marks)
2. Create a `counter` to store the number of alphanumeric characters the user needs to enter. Ensure the input is a positive integer. Should the user inputs a zero or a negative integer, print a message to remind the user to enter a positive integer then prompt the user again. (10 marks)
3. Based on the `counter` above, create a loop to prompt the user to input one alphanumeric character at a time. Display a message immediately after the input to indicate character type, i.e. uppercase, lowercase, even or odd. (10 marks)
4. Allow for termination of the loop when the user inputs an asterisk symbol "`*`". Remember to also complete step 5 below after termination. (5 marks)
5. Before exiting, print the actual number of entries, and the values of the 4 variable counters, i.e. `UCcount`, `LCcount`, `EVENcount` and `ODDcount`. (10 marks)
6. Well-commented, stapled program listing for your solution. (55 marks)

4. Sample Output

A sample output from the program is shown below.

```
Enter number of loops: -3              // number out of range
Please enter a positive integer.
```

```
Enter number of loops: 5
Enter alphanumeric character 1: b
Lowercase
Enter alphanumeric character 2: A
Uppercase
Enter alphanumeric character 3: 3
Odd
Enter alphanumeric character 4: 6
Even
Enter alphanumeric character 5: *
Number of entries is 4
Number of uppercase characters is 1
Number of lowercase characters is 1
Number of even numbers is 1
Number of odd numbers is 1
Program ends.
```

5. What to do during the assessment upon the due date?

1. Sign for attendance at the pre-scheduled assessment timeslot.
2. Demonstrate and explain to the lab demonstrator that your program works for the problem assigned.
3. Hand in a well-commented, stapled program listing with the module title and your name/student number shown on the title page. Your program listing should not exceed 6 pages.
4. You must also sign and declare non-plagiarism.
5. Submission after the due date will adhere to the University's policy on late submission.

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