Department of Statistics & Computer Science, University of Kelaniya

ACADEMIC YEAR – 2022/2023

BECS 11223 – Fundamentals of Programming

Lab Session 06

Throughout this lab session, you will learn about conditional statements (selection statements) in C programming.

1. Write a C program which reads a single letter of alphabet. If it is a lowercase between 'a' and 'g', the program prints out the alphabet in uppercase form. If it is anything else, the program should print out uppercase 'X'.

   Test data and expected output:
   ```
   Enter your character: b
   Output is: B
   ```

   Test data and expected output:
   ```
   Enter your character: y
   Output is: X
   ```

Upload your completed C program into the Lab 06 – Program 01 submission folder.

2. Write a C program to check whether a triangle is Equilateral (All sides are equal), Isosceles (Only two sides are equal) or Scalene (All sides are different).

   Test data and expected output:
   ```
   Input first side: 30
   Input second side: 30
   Input third side: 30
   Triangle is equilateral triangle
   ```

Upload your completed C program into the Lab 06 – Program 02 submission folder.

3. Write a C program that accepts (from the keyboard) a positive integer less than 1000 and prints out the sum of the digits of this number.
   Test data and expected output:
   ```
   Enter a positive no less than 1000: -4
   Entered number is out of range

   Enter a positive no less than 1000: 1234
   Entered number is out of range

   Enter a positive no less than 1000: 546
   Sum of the digits of 546 is 15
   ```

Upload your completed C program into the Lab 06 – Program 03 submission folder.

4. Write a C program to input electricity units used and calculate total electricity bill according to the given condition:
   For first 50 units Rs. 50/unit
   For next 100 units Rs. 75/unit
   For next 100 units Rs. 120/unit
   For unit above 250 Rs. 150/unit
   An additional surcharge of 20% is added to the bill

Upload your completed C program into the Lab 06 – Program 04 submission folder.

5. Write a C program, that reads three integer values from the user (through keyboard entry), then display the three values in ascending order. For example, if the user entered 3 values: 84 3 130, the program should output the three values as: 3, 84, 130. Here are a few example runs of the program:

   Sample run 1
   ```
   Please enter three integer values: 4 10 6
   The three values in ascending order are: 4 6 10
   ```

   Sample run 2
   ```
   Please enter three integer values: 20 5  3
   The three values in ascending order are: 3 5 20
   ```

Upload your completed C program into the Lab 06 – Program 05 submission folder.

6. Write a C program that prompts the user to enter the number of credit hours earned so far and displays his/her corresponding category:
   First – Year Student: students with <= 30 credit hours earned
   Second – Year Student: 30 < credit hours earned <= 60
   Third – Year Student: 60 < credit hours earned <= 90
   Fourth – Year Student: 90 < credit hours earned
   If the user input is not valid, i.e., credit hours entered < 0, an error message is displayed.

   Test data and expected output (sample run 1):
   ```
   Please enter your total credit hours earned: 35
   You are a Second – Year Student.
   ```

   Test data and expected output (sample run 2):
   ```
   Please enter your total credit hours earned: -10
   Invalid input.
   ```

Upload your completed C program into the Lab 06 – Program 06 submission folder.