Department of Software Engineering

University of Kelaniya

Academic Year – 2020/2021

CSCI 12042/ CTEC 12073 - Structured Programming - II

Tutorial 1

1. Write a correct C statement(s) to accomplish each of the following:

i. Declare a character variable ‘x’. Write a scanf statement to input a value into ‘x’.
ii. Display the sum of 5 + 10, using two variables. (x and y)
iii. Declare and initialize a one-dimensional array called ‘myArray’ with any five characters.
iv. Create a "string" named **greetings**, and assign it the value "Good Morning".
v. Print the first character in the greetings string.
vi. Declare a variable ‘y’ and give the initial value as 23.6789. Print the value of y to two decimal places.
vii. Using a single printf statement, print the message “C is a general purpose programming language” to give the output on separate lines where each line has one word.

2. Write a program to calculate the sum of two numbers (Give the number as user input).
3. Obtain three numbers from the user and print the largest number.
4. Write a C program that will print the multiplication table of a number. (Give the number as user input)
5. Write a program to find the largest element in an array.
6. Get a year as user input and print “The year is a leap year” if the year is a leap year. Otherwise, print “The year is not a leap year”.

   The following criteria is used to calculate leap years:

Check if the year is evenly divisible by 4 (a whole number with no remainder). If it is not divisible by 4 it is not a leap year. Else proceed to the next step.

See if the year is divisible by 100. If a year is divisible by 4, but not 100, like 2012, it is a leap year. If a year is divisible by both 4 and 100, like 2000, proceed to the next step.

See if the year is divisible by 400. If a year is divisible by 100, but not 400, like 1900, then it is not a leap year. If a year is divisible by both, then it is a leap year. So 2000 was a leap year.

7. Get two numbers and a mathematical operator from the user. Based on the operator entered by the user perform the mathematical operation and print the output.

8. Body mass index (BMI) is a health indicator which is calculated based on weight and height. BMI can be calculated as follows.

$$\boldsymbol{BMI = weight(kg) / height^2(m^2)}$$

The calculated BMI value of a male whose age is greater than 20 can be interpreted as follows

BMI	Interpretation
BMI < 18.5	Underweight
18.5 <= BMI < 25.0	Normal
25.0 <= BMI < 30.0	Overweight
30.0 <= BMI	Obese

Write a C program which reads weight in kilograms and height in meters and displays the interpretation of the BMI

9. Implement a currency converter application which can convert LKR to USD and USD to LKR. First ask the user whether he wants to convert LKR to USD or USD to LKR. Then take the amount form the user, compute the conversion and display the result.

   Note: 1 USD = 307.73 LKR

```
Please select the conversion type:
LKR -> USD: Select 1
USD -> LKR: Select 2
2
Enter the amount (USD):
1
1.00 USD is 307.73
```

10. Write a program to calculate the area of a circle. The user should input the radius, and the program should output the calculated area.