Department of Scientific Computing, Modeling and Simulation

SC - 504 Coputation Lab

C programming test - 4

M.Sc. Scientific Computing

Time: 11:15 to 12:45 AM | Date: October 14, 2024 | Max mark: 30

1. **Attempt the following:**

(a) Write a C program to display your full name, age, and hometown. **(2)**

(b) Write a C program that prompts the user to enter two integers and then prints their addition, subtraction and multiplication using `scanf`. **(2)**

(c) Create a program that reads a floating-point number from the user and prints it with two decimal places. **(2)**

(d) Write a program that reads two floating-point number from the user. If both the numbers are equal print "Equal" otherwise print "Not Equal". Repeat the same program using double. **(2)**

(e) Write a program that checks whether a number entered by the user is even or odd. **(2)**

(f) Create a program that takes marks in the range of 0 to 100 as input and outputs a grade of F if marks are less than 35, P if between 35 and 40, C if between 40 to 55, B if between 55 to 65, A if between 65 to 85 and O if greater than 85. **(2)**

(g) Write a program that reads a temperature in Celsius and converts it to Fahrenheit using the formula $F = \frac{9}{5} \times C + 32$. Use `printf` to **display the result.** **(2)**

(h) Write a C program that declares variables of different types (int, float, char) and prints the size of each variable using `sizeof`. **(2)**

(i) Write a program that calculates the area of a circle given its radius. **(Use the formula Area $= \pi \times r^2$ and assume $\pi \approx 3.14$.)** **(2)**

(j) Write a program that takes the coefficient a and b of a linear equation $ax+b=0$ from the user and calculates the value of x. **(2)**

(k) Create a program that solves a quadratic equation $ax^2 + bx + c = 0$ and prints the roots. **(2)**

(l) Write a program that takes three integers and determines whether they can form the sides of a triangle using the triangle inequality conditions. **(Conditions: Check $a + b > c$, $a + c > b$, $b + c > a$)** **(2)**

(m) Create a program that calculates the area of a triangle using the formula Area $= \frac{1}{2} \times$ base $\times$ height, reading the base and height from the user. **(2)**

(n) Write a program that reads two numbers and prints whether the first is greater than, less than, or equal to the second using multiple `if...else` statements. **(2)**

(o) Write a program that accepts three integers and checks whether they form a Pythagorean triplet. **(Condition: Use $a^2 + b^2 = c^2$ after identifying the largest number as c and ensuring a, b, and c are positive integers.)** **(2)**

Behind every piece of software,
there's a sorcerer of code.