Shiv Nadar Institution of Eminence, Delhi, NCR

Lab sheet for CSD101 (Introduction to computing and Programming)

Semester of Implementation: Monsoon, 2024

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Instructions:

1. Once you complete the assignment, please show it to the TA.
2. Students must come to the lab and must show the assignments in the designated lab hours. Day-to-day lab performances will be recorded and will carry 15% weightage in internal assessment.
3. Lab will start in exact time. Students should enter the lab and take a seat 5 minutes before.
4. It is recommended to use LINUX platform for execution of the program.
5. Batch change to show the assignments WILL NOT be allowed.
6. Malpractice (in ANY form) will attract heavy penalties.
7. A useful link: https://www.w3schools.com/c/index.php

Lab Assignment 3

Programs based on Operators and Assignment Statements

Deadline: 01-09-2024 (11:55 PM) for Monday batch

03-09-2024 (11:55 PM) for Wednesday batch

11-09-2024 (11:55 PM) for Thursday batch

05-09-2024 (11:55 PM) for Friday batch

Total Marks: 100

Steps to run C program

Step 1: gedit filename.c

Step 2: Compiling using GCC compiler

We use the following command in the terminal for compiling our filename.c source file

$ gcc filename.c –o filename

Step 3: Executing the program

After compilation executable is generated and we run the generated executable using the below command.

$ ./filename

1. Mohan and Hari are good friends, while Charu and Ishika are good friends. Take the BMI score of all the four of them and compare the BMI scores of two students and print the output of the following questions.

    1. "Is Mohan and Hari's BMI score is less than Charu and Ishika's BMI?"
    2. "Is Mohan and Hari's BMI score is equal to Charu and Ishika's BMI?"
    3. "Is Mohan and Hari's BMI score is greater than Charu and Ishika's BMI?"

    Input:

    Enter Mohan's BMI: 22
    Enter Hari's BMI: 21
    Enter Charu's BMI: 23
    Enter Ishika's BMI: 25

    Output:

    The comparison score for > operator is 0
    The comparison score for = operator is 0
    The comparison score for < operator is 1

    Input:

    Enter Mohan's BMI: 22
    Enter Hari's BMI: 21
    Enter Charu's BMI: 23
    Enter Ishika's BMI: 20

    Output:

    The comparison score for > operator is 0
    The comparison score for = operator is 1
    The comparison score for < operator is 0

    Input:

Enter Mohan's BMI: 28
Enter Hari's BMI: 21
Enter Charu's BMI: 23
Enter Ishika's BMI: 25

Output:

The comparison score for > operator is 1
The comparison score for = operator is 0
The comparison score for < operator is 0

2. Write a C program to surface area of a maximum size cone that can be inscribed in a cylinder of height ‘h’ and radius ‘r’. Use one more header file (#include<math.h>) to use power function or square root function.

   Formula to be used:

   $$l^2 = (r^2 + h^2)$$

   $$Surface\ Area = 22(r(r + l))/7$$

   Input:

   Enter the height of the cylinder (h): 5
   Enter the radius of the cylinder (r): 6

   Output:

   The surface area of the maximum size cone that can be inscribed in the cylinder is: 260.42

3. Udit wants to get admission in CSE/ECE department in Shiv Nadar Institute of Eminence. He is only eligible if the average score in Physics, Maths and Chemistry is greater than 90 and his JEE score is more than 98% or he cleared SNU SAT exam. Now the task is to write a C program that figures out the average percentage of all three subjects and check whether he is eligible for the admission or not.

   Hint:

   Three conditions:

   1. Only when their avg. % is greater than 90 and

   2. JEE score is more than 98% or

3. Cleared SNU SAT exam

Input:

Enter the marks obtained in Physics: 98
Enter the marks obtained in Maths: 94
Enter the marks obtained in Chemistry: 92
Enter the JEE percentage score: 98.5
Did Udit clear the SNU SAT exam? (Y/N): n

Output:

Your average score is 94.67

Eligibility Score: 1

Input:

Enter the marks obtained in Physics: 77
Enter the marks obtained in Maths: 78
Enter the marks obtained in Chemistry: 76
Enter the JEE percentage score: 99
Did Udit clear the SNU SAT exam? (Y/N): y

Output:

Your average score is 77.00

Eligibility Score: 0

Complementary Assignment for self-practice

4. In a water tank, the tap leaks at a rate of one drop/second where 800 drops = 100 ml. Write a C program to find the Liter count of water wasted in N days? Take the value of N as a user input.

Input:

Enter the number of days (N): 20

Output:

The amount of water wasted in 20 days is: 216.00 litres

Submission Format:- You have to upload: (1) The source code in the following format in a zipped folder: Assgn3Src-<RollNo>.zip. Inside the zipped folder save each program with Assgn3_task#<RollNo>.c

Note: Please follow this naming convention mentioned above.

Grading Policy:- The policy for grading this assignment will be - (1) show to TA 66 marks (2) Code submission with indentation: 34 marks.

- **All submissions are subject to plagiarism checks. Any case of plagiarism will be dealt with severely.**