

**SSN COLLEGE OF ENGINEERING  
DEPARTMENT OF CSE  
C PROGRAMMING LABORATORY (CS8261)**

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**Ex. No. 2 Programs using Decision Making Constructs and expressions**

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1. Write a C program to find the roots of a quadratic equation with all possible cases.
2. Write a program to enter the marks of a student in five subjects. Find the total, aggregate and display the grades obtained by the student. If the aggregate is:  
    greater than or equal to 75 : Distinction  
    greater than or equal to 60 and less than 75 : First Class  
    greater than or equal to 50 and less than 60 : Second Class  
    greater than or equal to 40 and less than 50 : Third Class  
    Else : Fail
3. Write a C program to use relational AND and Ternary operator to find the smallest of the given three numbers.
4. Write a C program to find whether the given year is a leap year, ordinary year, both leap year and centurion year, centurion year but not leap year.
5. Write a C program to get a character and check whether it is a vowel or not.
6. Write a C program to find the tax of an employee based on the following conditions: If income is :  
    less than Rs.1,50,000 then NO TAX  
    in range Rs. 1, 50,000 – Rs.3,00,000 then 10% tax  
    in range Rs. 3,00,001 – Rs. 5,00,000 then 20% tax  
    above Rs. 5,00,000, then 30% tax.
7. Write a C program to evaluate the following expressions and derive the operator precedence and associativity as an inference of successful execution of the program.  
     $X = 3 * 4 + 5 * 6$   
     $X = 3 * (4+5) * 6$   
     $X = 3 * 4 \% 5 / 2$   
     $X = 3 * (4 \% 5) / 2$   
     $X = 3 * 4 \% (5 / 2)$   
     $X = 3 * ((4 \% 5) / 2)$

8. Write a C program to evaluate the following expressions. Assign the following values for the variables used in the expressions.

a = 0, b = 1, c = -1, x = 2.5, y = 0.0

Expressions are : a = a + (b = b - (c = c \* 10))  
x \* y < a + b || c  
(x > y) + !a || c++  
x \* 5 && 5 || (b / c)

Derive the operator precedence and associativity as an inference of successful execution of the program.

9. A company decides to give bonus to all its employees for New Year. A 5% bonus on salary for male employees, 10% bonus on female employees, if the salary of any employee is less than Rs, 10,000 an extra bonus of 2 % will be given. Write a C program to calculate the bonus to be given for the employee.

Hint 1: Get the salary and the gender of the employee from the user and display the employee name, salary and bonus as the output.

Hint 2: Use conditional statement for displaying the name of the employee. Assign a fixed name for each gender and display it in the screen according to the given input.

10. Write a C program to get a character input from the user and check whether it is in the uppercase or lower case. Display its output. Also, display the same character in both the cases as another output. Display the output as given below.

Eg: The given character " c " is in the lower case.  
The uppercase of the given character "c" is " C "  
The lowercase of the character " C " is " c "