

Lab Tasks

1. Write a C++ program to check whether a given number is prime or not. Allow the user to input a number and display whether it's prime or not?
2. Create a C++ program to handle student marks management. The program should allow users to input marks for students in four courses: PF, OOP, DLD & ICT. It should then calculate the total marks, average marks, and determine the grade for each student based on their average.
Use the following grading metrics:
90 or above: Grade A
80-89: Grade B
70-79: Grade C
60-69: Grade D
Below 60: Grade F
3. Write a program to make a simple calculator performing the four basic operations (+, -, *, /) on two numbers input by user. The following conditions must be satisfied:
 - a) A '+' sign must not be used for addition.
 - b) You can only use a maximum of 3 variables. No more variables are allowed.
 - c) Your program should ask the user which operation he/she wants to perform and gives the output accordingly.
4. Write a program to take an integer array as an input from user and count all the even and odd numbers in that list and print the counts.
5. Write a function that will take a number 'n' input by user and will return its factorial.
6. Imagine you are working on a project where the efficient generation of odd numbers is crucial. Your task is to write a C++ function that prints an odd number after every sequence of 5 even numbers in the range provided by the user. The catch is that you need to optimize the program for both correctness and efficiency.

Sample Inputs	Sample Outputs
Start Range: 0	0
End Range: 20	2
	4
	6
	8
	9
	10
	12
	14
	16
	18
	19
Start Range: 50	50
End Range: 80	52
	54
	56
	58
	59
	r^n

7. You are hired as a billing manager at K-Electric. Your task is to calculate the monthly bill according to the units consumed. Write a program to input electricity unit charge and calculate the total electricity bill according to the given condition:
For first 50 units Rs. 0.50/unit
For next 100 units Rs. 0.75/unit
For next 100 units Rs. 1.20/unit
For unit above 250 Rs. 1.50/unit
An additional surcharge of 20% is added to the bill.

<u>Sample Input</u>	<u>Sample Output</u>
Enter the number of units consumed: 30	Total Electricity Bill (including surcharge): Rs. 18.00
Enter the number of units consumed: 120	Total Electricity Bill (including surcharge): Rs. 93.00
Enter the number of units consumed: 300	Total Electricity Bill (including surcharge): Rs. 354.00