



## Phase - 2

### Numerical Programs

1. Kashyap has difficulty to remember multiplication tables. Write a C++ Program which generates multiplication tables between n1 and n2 provided values.
  
2. A Math problem to find average of all even numbers from n Natural numbers raise difficulty to all 5th standard students. Write a C++ Program to help them.
  
3. Write a C++ Program to solve this mathematical equation to find out write answer for passing math's exam:  $2(x-3)=4x-1$
  
4. Write a C++ Program which finds the area of triangle whose base is 56 units and height is 21 units. Also print sum of all digits of that area of triangle.
  
5. A Prime School wants an automate system for generating students grades.  
If marks in Maths > 80, Phy > 75 and Chem > 72 then generate Grade A.  
If marks in  $60 \leqslant \text{Maths} \leqslant 80$ ,  $55 \leqslant \text{Phy} \leqslant 75$  and  $50 \leqslant \text{Chem} \leqslant 72$  then generate Grade B.  
If marks in  $40 \leqslant \text{Maths} < 60$ ,  $35 \leqslant \text{Phy} < 55$  and  $35 \leqslant \text{Chem} < 50$  then generate Grade C.  
Apply Grade D (Fail) if minimum criteria of marks doesn't satisfy bt any student.  
Write a C++ Program for generating total N number of students grades for this Prime School.



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- 6.** Design a Calculator for an arithmetic operations in which user can do all basic operations as many times he/she wants until he/she exit from that. Use C++ as a primary language to accomplish this challenge.
  
- 7.** Prepare a Calculator which only performs Circle related mathematical operations like finding Area of Circle, Perimeter of Circle and Conversion of radius into Diameter. All operations are continuous until user wish to exit. By using C++, create this calculator for a batch of bachelors.
  
- 8.** A Computer Teacher wants to teach a 10th standard class taht how a computer converts any decimal value into binary value. Help that teacher by developing C++ program for this urpose.
  
- 9.** A Hospital Staff needs a BMI Calculator for rapidly check BMI values of any patient. Design a BMI Calculator by using C++ to provide this facility to all Hospital staff members.
  
- 10.** An average consumer established his own business shop. He went to C.A for maintain all his accounts related queries. Now, help that C.A to build GST calculator for ease of calculation.



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- 11.** A Mountain Tracker needs a Temperature Converter for maintaining his tracking at Mount Everest. Build temperature converter for that tracker using C++ as your primary language.
- 12.** Nishant trapped in a cyber game, in which he only gets some random amount of seconds for determining at which exact time he has to leave that game. Write a C++ program which converts that seconds into HH:MM:SS format.
- 13.** Design an EMI Calculator for deciding accurate EMI price of ex-showroom car models to help an executive to easily guide his consumers. Use C++ to build this type of system.
- 14.** Develop a solution for Income Tax Department for identify which person have to pay how much tax basis on his/her income using C++ and pre-defined percentage criteria for tax calculation.
- 15.** A new OLED Smart TV as a gift from a businessman with immersive 32×52 inch size is arrived at occasion of Dashera in the house of Mayer. Now Mayer has to decide that how much of minimum wall area (width x height) will be required to fit that new TV so that even after applying that TV, 10 inch of margin still available around TV. Help Mayer to identify the solution by using C++.