

## Phase - 6

### OOP Programs

1. Create an Add to Cart system for only Grocery Items such as:

- Breads, Wheat, Milk, Soup, Frozen Foods, Cheese.

Customer can buy these items in any quantity he/she wants. A customer can add/update/delete any item in any quantity whenever he/she wants.

Give customer a final bill including all types of TAX on total price. Identify if a customer can pay bill or not with his/her available wallet amount.

2. A Businessman was bankrupted in a Scam with a minimal amount left in a bank of ₹. 18,000. After some months of hardwork, he earned external amount of ₹. 1,20,000. Now he might be goes to the bank and do a deposit or withdraw some money as he wants. Prepare a C++ solution for this scenario with all required validations and criterias.

3. An Auction is holding at Arizona for selling an old haunted house. For the reason, this is a haunted house, only three gigantic companies took a part in this Auction. Sell this haunted house to the highest bidder with count of three. Use C++ with all required criteria to build this type of Auction System.

4. Build a C++ system which predict a total profit of a Cashew Company in Goa. If this company sells 1,23,500 piece of cashews in 1 month, then it generates total of ₹. 78,000 in a month. Help this company by producing 10X more cashews in 3 months and display total revenue with increment percentage.

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5. The two short sides of a right triangle are 6 cm and 13 cm. Find the length of the third side using Pythagoras Theorem with help of C++.
6. A 26 m long rope is stretched from the top of a 13 m tree to the ground. Find the distance between the tree and the end of the rope on the ground.
7. Build a C++ system which helps a Mathematician to figure out the type of a Triangle. Bases on Pythagoras' theorem, find out if a triangle is: obtuse, right or acute.
8. A 15 m fire-fighter's ladder is leaning against the wall. If the ground distance between the foot of the ladder and the wall is 7 m, what is the wall's height?
9. Design a GST Calculator in C++ to find total TAX on various types of categorized items. Apply proper types of Indian GST TAX varients based on different types of Goods. GST have been divided into four GST rates - 5%, 12%, 18%, and 28% by the GST Council.
10. Develop a C++ solution by which a user can add/subtract/multiply/divide two Complex numbers with help of Operator Overloading concept. In context of math, a complex number contains two parts: a real part and an imagenary part.



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**11.** Build an Indian Regional Festival system in C++. User can enter any date of current running year, and bases on that date display which festival will be coming on that date.

**12.** Prince wants to create a 24 Hr time convertor app in C++. In this app, user can provide any 24 Hr time he/she wants but output must be produced in 12 Hr format.

For example,

i/p: 15 Hr, 32 Minutes

o/p: 3:32 PM

**13.** Build a Counter App in C++ using OOP concept.

Initially the counter meant to be set as a value 0 using constructor. By pressing UP Arrow from keyboard, counter will be increment and by pressing DOWN Arrow, counter will be decrement. You can use ASCII value concept by achieving this type of functionality at the execution time of a Program.

**14.** Calculate an Electricity Bill of a House of one month based on total units burned. Develop a C++ solution for this calculation.

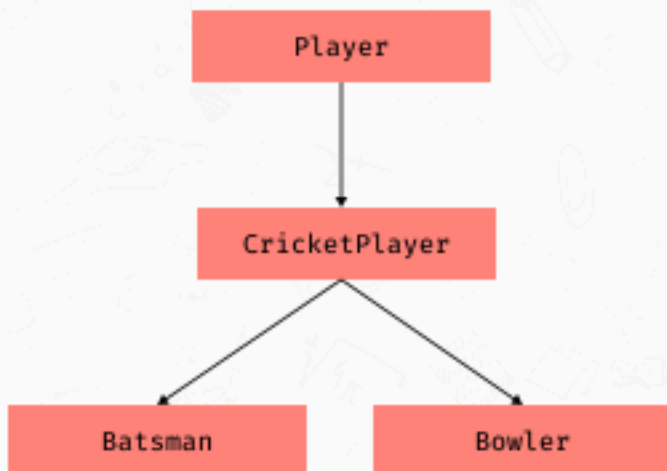
**15.** Calculate total cost to apply a Solar Powered Panels for your Home Rooftop. Apply all types of government aid percentage to find reasonable cost.

**16.** Find Volume of a Box using Parameterized Constructor and figure out if that is odd or even number.

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17. By creating below mentioned inherited structure of classes, Assume suitable data and member methods for creating a Cricket scenario and listing score tables for top five players.



18. Help Ayush to perform given operation:

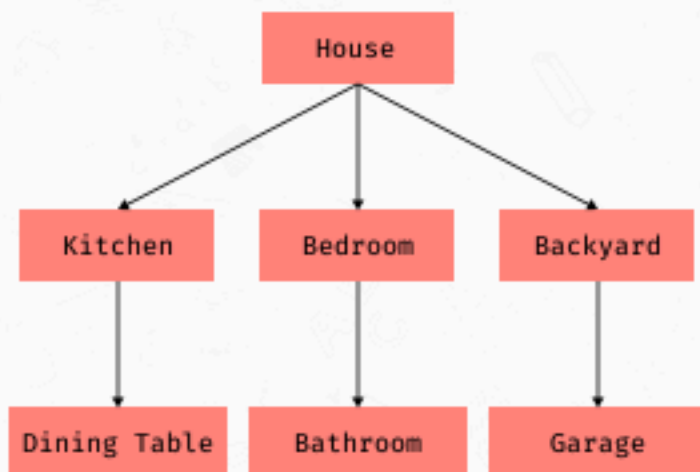
- Assume any number
- Add 8 in that number
- Multiply it with 3
- Subtract 12 from it
- Add another 5 into that
- Add your birth year in it
- Subtract current year from that

Finally display which number he get after performing all above mentioned operations and find is it divisible by 7 or not.

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**19.** Help a builder to build a house as same as structured as below:



Assume suitable data and member methods. You can add your own functionalities to enhance this solution.

**20.** A Higher Secondary School opens after COVID-19 crisis and admission process will be starting for registration of students. Help administration department for registering student information such like:

- stu\_id
- stu\_name
- stu\_age
- stu\_course
- stu\_email
- stu\_college

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**21.** Build a C++ solution which returns array of all ASCII values of alphabets skipping 3 characters. Use concept of Constructors. After returning that array, find addition of that values and decide whether it is a odd or even number.

**22.** A Global survey held to collect information about hotels all around the world. Provide a C++ solution to create a class Hotel with fields like

- hotel\_id
- hotel\_name
- hotel\_type
- hotel\_staff\_size
- hotel\_room\_size
- hotel\_establish\_year
- hotel\_country
- hotel\_rating\_type
- hotel\_website

Illustrate the use of strict encapsulation with this keyword.

**23.** Jemin wants to create an automate system which compare two given strings and it returns 1 if both strings are same and 0 otherwise. Create a C++ system for helping Jemin using overloading concept.

**24.** Design a swapping program using only constructors for helping Devansh to gain passing marks in examination.

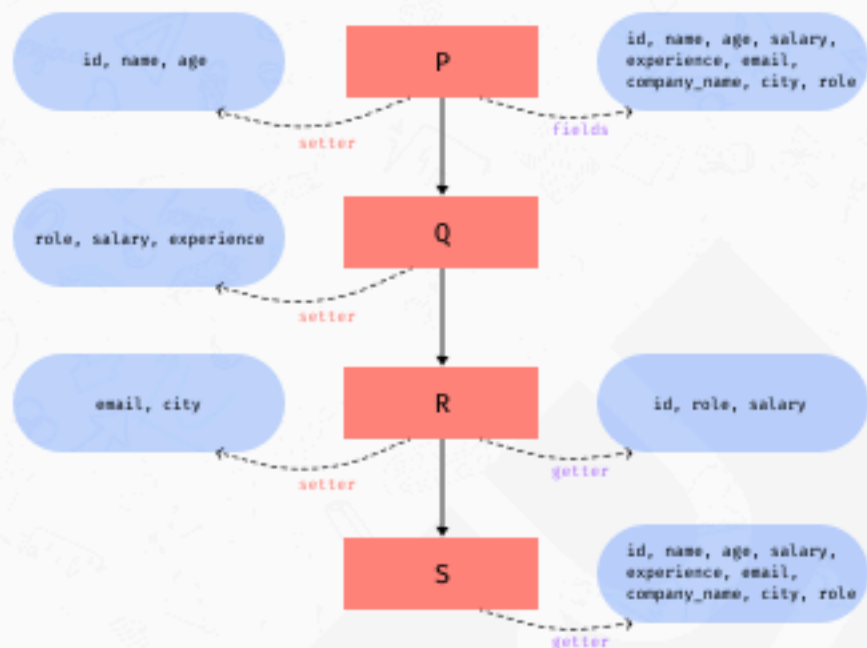
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**25.** Create a C++ Base class Shape with a constructor for providing values for width and height. Then define two derived classes Triangle and Rectangle, that calculate the area of the shape area(). In the main, define two objects: a triangle and a rectangle and then call the area() function by this two objects.

**26.** By using Multilevel Inheritance, implement below mentioned structure in C++ for employee records system.



Use proper implementation of Encapsulation, static keyword and Inheritance when needed.

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27. Reserve Bank of India pre-defines a Rate of Interest (ROI) for all banks across the Nation. But some private sector banks can apply different ROI. Use inheritance and polymorphism concept to illustrate this scenario.

28. One character is common in both Marvel & DC universe named "Access". Implement below mentioned structure using proper inheritance concept and with assumable fields and methods. You can create and use any type of methods and illustrations to enhance this program as per your preference.

