

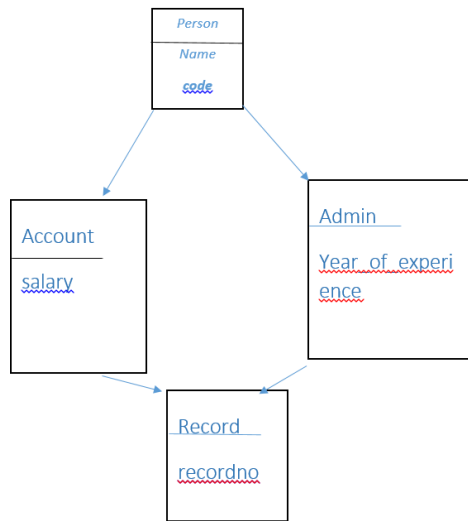
C++ Tutorial 1

1. What is the difference between message passing and function call? Explain the message passing formalism.
2. Explain stack and heap memory allocation.
3. 'A constructor is a special member function that automatically initializes the objects of its class'. Support this statement with a program containing all three types of constructors. Also write down all the features of constructors.
4. What is de-structor? Can we have multiple de-constructors in a class? Support your answer with example.
5. What do you mean by constructor overloading? Explain with example.
6. What do you mean by dynamic constructor? Explain its application with an example to compute sum of two complex numbers.
7. Explain memory recovery. Explain use of new and delete with example.
8. What do you understand and data hiding and encapsulation? Explain with an example how you can achieve data hiding and encapsulation in C++.
9. Explain the role of static data and static member function in a class with example.
10. What do you mean by reference variable and default argument? Explain with an example and also mention their advantages.

11.

Create a class named city that will have two member variables cityname and distfromktm(float). Add member functions to set and retrieve the cityname and distancefromktm separately. Add new member function adddistance() that takes two arguments of class city and returns the sum of distfromktm of two arguments. In the main() , initialize three city objects. Set the first and second city to be pokhara and dhangadhi. Display the sum of distfromktm of pokhara and dhangadi calling adddistance function of third city object.

12. WAP using friend function to add numerical values of three objects of different classes.
13. WAP to perform addition of two time objects using the concept of constructor overloading and a friend function.
14. WAP using the concept of dynamic memory allocation that reads in marks of three subjects for two students and display the marks including the result whether they are pass or fail. (To pass each subject need 45 out of 100 marks)
15. "Ambiguity is essential evil". Explain by example how it can effectively solve in complex programming?[PU 2015 spring]
16. The class record derives information from both Account and Admin classes and in turn derive information from the class Person. Define all the four classes with at least one parameterized constructor and void display() method in each class. In main() function, create the object of the class record and initialize all the data members and display them.[PU 2015 spring/2018 fall]



17. Differentiate between Is-a rule and has-a rule.[PU 2015 fall/2016 spring]

18. Explain how inheritance supports reusability? Describe the syntax of multiple and multilevel inheritance.[PU 2015 fall,2017 fall]

19. Create a class Person with data members name, age and address. Create another class Teacher with data members qualification and department. Also create another class Student with data member program and semester. Both classes are inherited from the class person. Every class has at least one parameterized constructor which uses base class constructor. Create member function showdata() in each to display the information of the class member.[PU 2014 spring]

20. Discuss the context where it becomes important to make the base class virtual. Also include an appropriate example.[PU 2014 ,2016 fall]

21. State principle of substitutability. Explain sub classing for specialization, generalization. List out the advantages of inheritance.[PU 2016 fall]

22. Write a base class that ask the user to enter time (hour,minute and second) and derived class adds the time of it's own with the base. Finally make the third class that is friend of derived and calculate the difference of base class time and its own time.[PU 2017 fall]

23. What is a hybrid inheritance? Does ambiguity occurs in hybrid inheritance? If yes, how can you remove this? Explain with an example.[PU 2018 fall]

24. Specify is-a rule and has-a rule with suitable example. How are arguments sent to the base constructors in multiple inheritance? Whose responsibility is that?[PU 2013 spring]

25. What is inheritance? What are the different forms of inheritance?[PU 2016 spring,2017 spring]

[Date: 21/4/2022]

[Submission date: 5/5/2022]

[Note: Write all answers in your own words. If someone's answers found to be copied from friends, their submission will be regarded invalid]