Constructor

1. Write a program with the following specification:
Class name : factorial **Data members:** int a
Member functions: factorial() : default constructor to initialize the data member.
Void input(int m) : to assign a with m **Void display() :** to print factorial of the number.

2. Write a program with the following specification:
Class name: prime **Instant variables :** int n
Member functions: **Prime():**constructor to initialize n **Void input(int x):** to assign n with x
Void display(): to check and print weather number n is prime or not.

3. Write a program with the following specifications:
Class name: hcflcm **Data members:** int a,b
Member Functions: **hcflcm(int x,int y):** constructor to initialize a=x and b=y
Void calculate() : to find and print hcf and lcm of both the numbers.

4. An electronics shop has announced the special discount on purchase of Laptops as given below :

Category	Discount on Laptop
Up to Rs.25000	5.0%
Rs.25,001 – Rs.50,000	7.5%
Rs.50,001 – Rs.1,00,000	10.0%
More than Rs.1,00,000	15.0%

Define a class Laptop describe as below: **Instant variables:** name, price, dis ,amt;
Member Methods: i) A parameterized constructor to initialize the instant variable.
ii) To accept the details (Name of the customer and the price)
iii) To compute the discount
iv) To display the name , discount and amount to be paid after discount .
Write a main method to create an object of a class and call the above member methods.

5. Write a program with the following specifications :
Class name: calculate **Instant Variables:** int num,f,rev
Member Methods: calculate(int n): to initialize num with n,f and rev with 0(zero)
int prime() : to return 1, if number is prime. int reverse() : to return reverse of the number
void display(): to check and print , weather the number is prime palindrome or not.

6. **Class Name:** Temperature **Data member/instant variable:** max, mix, f1, f2
Member Methods : i) A parameterized constructor to initialize the data members
ii) To accept the maximum(max) and minimum(min) temperature of a day in Celsius
iii) To compute the maximum and minimum temperatures to Fahrenheit as f=9c/5+32
iv) To display the maximum and minimum temperatures in Fahrenheit.
Write a main method to create an object of a class and call the above member methods.

Constructor

7. Write a program to create a class to read and add two distance using constructor Distance and member functions are getDist() and showDist().

8. Write a class program with the following specifications:
Class name: Profit_Loss Data members/instance variable: int cp,sp
Methods: Profit_Loss() : Default Constructor to initialize cp,sp;
Void input(int a,int b) : To assign m with cp and n with sp
Void display() : To calculate and display either profit percent(pp) or loss percent(lp)

9. Class name: Piglatin Data members/Instance Variables : String wd
Member Methods:
Piglatin() : Constructor to initialize the string wd
Void input(String Wd) : to accept a word
Void Display() : Convert the word in piglatin form and display it

10. Define a class Employee_sal describe below:
Data members/instance varibales:
String name : to store name of the employee
String empno : to store employee number
int basic : to store basic salary of the employee
Member Methods:
i) A parameterized constructor to initialize the data members.
ii) To accept the details of an employee.
iii) To compute the gross and net salary as:
da =30% of basic , hra= 15% of basic, pf= 12% of basic, gross= basic + da + hra, net=gross –pf
iv) To display the name, empno, gross salary, net salary.
Write a main method to create an object of a class and call the above members methods.

11. Write a Program to find the area of a rectangle using constructor overloading.

12. Write a program with the following specification:
Class name: twistedprime Instant variables: int n
Member functions: twistedprime():constructor to initialize n Void input(int x): to assign n with x
int reverse(): to reverse the number and return.
Void display(): to check and print weather number is twisted prime or not.
Using Destructors after all operations.

13. Write a Program to find addition of numbers using constructor overloading. At least use three constructors.

Constructor

14. class name: Fixed_deposit Data members: p_amount, years, rate, r_value

Member functions:

1. Fixed_deposit()- default constructor . 2. Fixed_deposit(long int p,int y,float r=0.12)
3. Fixed_deposit(long int p,int y,int r). 4. Void display()

Write a program using three overloaded constructors. The parameter values to these constructor are provided at run time. The user can provide input in one of the following forms:
1. Amount, period and interest in decimal form. 2. Amount, period and interest in percent form. 3. Amount and period.

Test Case:

Enter amount, period, interest rate (in percent)
10000 3 18
Enter amount, period, interest rate (in decimal form)
10000 3 0.18
Enter amount and period
10000 3

Deposit 1: Principal Amount =10000 Return Value =16430.3	Deposit 2: Principal Amount =10000 Return Value =16430.3	Deposit 1: Principal Amount =10000 Return Value =14049.3

15. Define a class String that could work as a user-defined string type. Include constructors that will enable us to create an uninitialized string: String s1; // string with length 0
And also initialize an object with a string constant at the time of creation like
String s2("Well done!");
Include a function that adds two strings to make a third string. Note that the statement
S2 = s1;will be perfectly reasonable expression to copy one string to another.
Write a complete program to test your class to see that it does the following tasks:
(a) Creates uninitialized string objects.
(b) Creates objects with string constants.
(c) Concatenates two strings properly.
(d) Displays a desired string object.

16. A book shop maintains the inventory of books that are being sold at the shop. The list includes details such as author, title, price, publisher and stock position. Whenever a customer wants a book, the sales person inputs the title and author and the system searches the list and displays whether it is available or not. If it is not, an appropriate message is displayed. If it is, then the system displays the book details and requests for the number of copies required. If the requested copies are available, the total cost of the requested copies is displayed; otherwise "Required copies not in stock" is displayed. Design a system using a class called books with suitable member functions and constructors.

Constructor

17. Improve the system design in Question No - 16 incorporate the following features:
(a) The price of the books should be updated as and when required. Use a private member function to implement this.
(b) The stock value of each book should be automatically updated as soon as a transaction is completed.
(c) The number of successful and unsuccessful transactions should be recorded for the purpose of statistical analysis. Use static data members to keep count of transactions.

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