

OOP LAB suggestion

- 0) Reverse a 4 digit number (if number_of_digit! =4 reject the input attempt)
- 1) Find $1 - 1/2^2 + 1/3^2 - 1/4^2 + \dots$ up to number of terms taken from Command line.
- 2) Calculate two maximum nos. of an array; take array element at runtime.
- 3 Using enhanced for loop, display contents of an integer array (size at least six).
- 4) Write a JAVA program to find area and volume of Cone using constructors and Command Line Input.
- 5 Find all prime numbers between 0 & 200.
- 6) Display first 10 number of Fibonacci series
- 7) Find $1 - 1/2^2 + 1/3^2 - 1/4^2 + \dots$ up to number of terms taken from Command line.
- 8) Write a JAVA program to find area and volume of Cone using constructors and Command Line Input.
- 9) Calculate GCD of two numbers feed up by Command line.
- 10) Show that static variable of a class only have one copy for different objects but instance variable may have separate copy for individual object.
- 11) Create a class 'Figure' and make parallelepiped, cube, cylinder and spheres as its object and calculate their surface area only by using method overloading.
- 12) Create a class Parent having instance variables id, name and address. Create a class ChildOne having instance variables id, name, address and marks. Also create another class ChildTwo with instance variables id, name, address, qualification and salary. Design the program and use object of each class from main().
- 13) Check if "Tech" presents in "University of Technology" or not. If yes return its position.

14) Create a class with variable(s) and method(s) under package pOne. Now create a class under package pTwo, which is subclass of firstly created class. In the method here (i.e. class of pTwo) call variable(s) and method(s) of previous class (i.e. class of pOne). Now from Main (under working directory) access second class' s members.

15) Consider the *Student* class that a student studies three subjects. Each subject has a title, internal-marks and external-marks. Write a Program to define such three students for each of which shows status of individual subject (i.e. fail or pass) and total marks for the subjects.

16) Take a string from keyboard and convert into a new character array .

17) Create an interface containing three methods, in a package “pkgOne”. Implement the interface from a class under package “pkgTwo”. From main, under working directory, create object of the class and call methods of interface.

18) Create a multilevel inheritance of level three and each class have a method void show(). Now from the lowest level class use the show() method of top most class.

19) Write a program to take a sentence and convert it into string arrays and sort the words using any Sorting technique.

20) A class called **Television** has the following attributes:

- a. Maker
- b. Size of the screen
- c. Date of purchase of the TV
- d. Is it a color TV or black-white TV

Define a class *Television*. Define a method for displaying the attributes value of a TV. Use them from main().

21) $1 - 2^2 + 3^3 - 4^4 + \dots$ up to number of terms from keyboard.

22) Write a program in Java to extract a portion of a character string and print the extracted string. Assume that 'm' characters are extracted, starting with the n-th character.

23) Write a Tree class to represent the trees in a firm. A Tree has the following attributes: Tree Code, height, Base Width. Write a method *annualUpdate()*. Which updates the height, basewidth, and the amount spent so far on this tree.

❖ Define a Mango class which is derived class from the Tree class. In addition to the attributes of a Tree, the Mango class has attribute 'yield'. Over ride the *annualUpdate()* method and define a method *displayTree()* suitably.

❖ A garden has two trees(non-mango) and two Mango trees. Define a class called Garden and create these trees and display them.

24) Create an interface containing three methods, in a package "pkgOne". Implement the interface from a class under package "pkgTwo". From main, under working directory, create object of the class and call methods of interface.

25) Take a string from keyboard (length ≤ 30) and make a char array (of length 50 but fill first 10 places). Now append the string to that char array.

26) Design a class to represent a *Bank Account*. Include the following things:

Fields

- Name of the depositor
- Account number
- Type of account
- Balance amount in the account

Methods

- To assign initial values
- To deposit an amount
- To withdraw an amount after checking balance
- To display the name and balance

27) Check if "Academy" is present in "Academy of Technology" or not. If yes return its position.

28) Make an abstract class with two concrete methods and no abstract method at all. From your Main class which have main method call the concrete methods.

29) Consider the string: "This is a very good practice to use good constructor in good coding of a class, good is good". Now replace 'good' by 'bad'.

30) Check whether the letter 'a' or 'A' presents in an input string; find the position and replace the letter by 'x' or 'X' and display the string.

31) Create a class, make method inside it which return an object and also take object as parameter of this method (The returned object and parameterized object should not from same class, is preferable)

32) Show that access specifier for overridden method (in child) must be broaden (i.e. should not be narrower) than access specifier of original method of parent.

33) Convert the following sentence into array of Strings and sort it:

"This is a very good practice to use good constructor in coding of a good class, good is always good"

34)

Create a class EMP having instance variable name and id. Create its subclass (say Scientist) which has instance variable no_of_publication and experience. Now create its subclass, say Dscientist which has instance variable award. Put a method: public String toString(){ } in every class where you describe about the class and from main create object of each class and print each object.

35) Show that static block is executed at the time of class loading.

36) Write a program in Java which will read a string and rewrite it in the alphabetical order. For example, the word STRING should be written as GINRST.

37) Create an abstract class TwoD with fields double sideOne and double sideTwo. The class has with suitable constructor and an abstract method for calculating area. Now make Rectangle and Triangle as subclasses of above and override the method and call it from main() for each of subclasses.

38) Find length of a string taken from keyboard and also find the length of that string except front and end spaces.

39). Write a java program to find: $1 - 1/1! + 1/2! - 1/3! \dots$ up to n terms.

40) Generate password from initials of one's first_name, middle_name, last_name and with last four digit of your roll_no (if middle name is not present, it won't come).

41) Write a java program to show that parent block is executed before child object is created.

42) Define an object reference and initialize it to null. Try to call a method through this reference. Now wrap the code in a try-catch clause to catch the exception.

43) Write a program to create a user defined exception named PayOutOfBoundsException (provided the monthly salary of a person is less than Rs. 10,000 /-) and fire the exception.

Applet/Swing:

1) Show phases of life cycle of applet using string message display either on console or applet or both.

2) Add two numbers taken from PARAM tag and display their sum on the Applet.

3) Draw a circle with center at middle of applet and radius is 200 pixels.

4) Display your name at middle portion of applet

5) Display of banner using Applet/JApplet.

6) Add two numbers taken from PARAM tag and display their sum on the Applet.

7) Draw a circle with center at middle of applet and radius is 200 pixels
