

Chapter 1 - Practice Set

- 1 Write a program to sum three numbers in Java
- 2 Write a program to calculate CGPA using marks of three subjects (out of 100).
- 3 Write a Java program which asks the user to enter his/her name and greets them with "Hello <name>, have a good day" text.
- 4 Write a Java program to convert Kilometers to miles
- 5 Write a Java program to detect whether a number entered by the user is integer or not.

Chapter 2 - Practice Set

1 What will be the result of the following expression

$$\text{float } a = 7/4 * 9/2$$

2 Write a java program to encrypt a grade by adding 8 to it. Decrypt it to show the correct grade.

3 Use comparison operators to find out whether a given number is greater than the user entered number or not.

4 Write the following expression in a java program:

$$\frac{v^2 - u^2}{29.5}$$

5 find the value of the following expression:

int $x = 7$

int $a = 7*49/7 + 35/7$

Value of a ?

Chapter 3 - Practice Set

- 1 Write a Java program to convert a string to lowercase.
- 2 Write a Java program to replace spaces with underscores.
- 3 Write a Java program to fill in a letter template which looks like below:
`letter = "Dear <|name|>, Trans a lot"`
Replace <|name|> with a string (some name)
- 4 Write a Java program to detect double and triple spaces in a string
- 5 Write a program to format the following letter using escape sequence characters.
`letter = "Dear Harry, This Java Course is nice. Thanks"`

Chapter 4 - Practice Set

1 What will be the output of this program:

```
int a = 10;  
if (a == 11)  
    System.out.println ("I am 11");  
else  
    System.out.println ("I am not 11")
```

2 Write a program to find out whether a student is pass or fail; if it requires total 40% and at least 33% in each subject to pass. Assume 3 subjects and take marks as an input from the user.

3 Calculate income tax paid by an employee to the government as per the slabs mentioned below:

Income Slab	Tax
2.5 L - 5.0 L	5%
5.0 L - 10.0 L	20%
Above 10.0 L	30%

Note that there is no tax below 2.5 L. Take input amount as an input from the user.

4 Write a Java program to find out the day of the week given the number [1 for Monday, 2 for Tuesday ... and so on!]

5 Write a Java program to find whether a year entered by the user is a leap year or not.

6 Write a program to find out the type of website from the URL

- com → Commercial website
- org → organization website
- in → Indian website

Chapter 5 - Practice Set

1 Write a program to print the following pattern.

* * * *
* * *
* *
*

2 Write a program to sum first n even numbers using while loop.

3 Write a program to print multiplication table of a given number n.

4 Write a program to print multiplication table of 10 in reverse order.

5 Write a program to find factorial of a given number using for loops.

6 Repeat 5 using while loop

7 Repeat 1 using for/while loop

8 What can be done using one type of loop can also be done using the other two types of loops - True or False.

9 Write a program to calculate the sum of the numbers occurring in the multiplication table of 8.

10 A do while loop is executed : - a net prof

- 1> At least once
- 2> At least twice
- 3> At most once

11 Repeat 2 using for loop.

Chapter 6 - Practice Set

- 1 Create an array of 5 floats and calculate their sum.
- 2 Write a program to find out whether a given integer is present in an array or not.
- 3 Calculate the average marks from an array containing marks of all students in Physics using 'for-each' loop.
- 4 Create a Java program to add two matrices of size 2×3 .
- 5 Write a Java program to reverse an array.
- 6 Write a Java program to find the maximum element in an array.
- 7 Write a Java program to find the minimum element in a Java array.
- 8 Write a Java program to find whether an array is sorted or not.

Chapter 7 - Practice Set

1 Write a Java method to print multiplication table of a number n .

2 Write a program using functions to print the following pattern:

*
* *
* * *
* * * *

3 Write a recursive function to calculate sum of first n natural numbers

4 Write a function to print the following pattern

* * * *
* * *
* *
*

5 Write a function to print n^{th} term of fibonacci series using recursion.

6 Write a function to find average of a set of numbers passed as arguments

7 Repeat 4 using Recursion

8 Repeat 2 using Recursion

- 9 Write a function to convert Celsius temperature into fahrenheit.
- = 10 Repeat 3 using iterative approach.

Chapter 8 - Practice Set

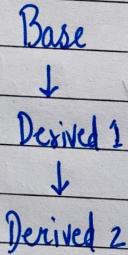
- 1 Create a class Employee with following properties and methods:
 - Salary (property) (int)
 - getSalary (method returning int)
 - name (property) (String)
 - getName (method returning String)
 - setName (method changing name)
- 2 Create a class cellphone with methods to print "ringing...", "Vibrating..." etc.
- 3 Create a class Square with a method to initialize its side, calculating area, perimeter etc.
- 4 Create a class Rectangle & repeat 3
- 5 Create a class TommyVesetti for Rockstar Games Capable of hitting (print hitting...), running, firing etc.
- 6 Repeat 4 for a Circle.

Chapter 9 - Practice Set

- 1 Create a class Cylinder and use getters and setters to set its radius and height.
- 2 Use ① to calculate surface area and Volume of the cylinder.
- 3 Use a constructor and repeat ①
- 4 Overload a constructor used to initialize a rectangle of length 4 and breadth 5 for using custom parameters.
- 5 Repeat ① for a sphere

Chapter 10 - Practice Set

- 1 Create a class Circle and use inheritance to create another class Cylinder from it.
- 2 Create a class Rectangle and use inheritance to create another class Cuboid. Try to keep it as close to real world scenario as possible.
- 3 Create methods for area and volume in ①
- 4 Create methods for area & volume in ②. Also create getters and setters
- 5 What is the order of constructor execution for the following inheritance hierarchy:



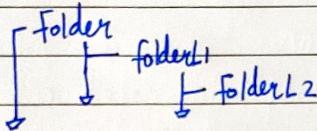
Derived 2 obj = new Derived2();
Which constructor(s) will be executed & in what order?

Chapter 11 - Practise Set

- = 1 Create an abstract class Pen with methods write() and refill() as abstract methods
- = 2 Use the Pen class from Q1 to create a concrete class FountainPen with additional method changeNib()
- = 3 Create a class Monkey with jump() and bite() methods. Create a class Human which inherits this Monkey class and implements BasicAnimal interface with eat() and sleep methods.
- = 4 Create a class Telephone with ring(), lift() and disconnect() methods as abstract methods. Create another class SmartTelephone and demonstrate polymorphism
- = 5 Demonstrate polymorphism using monkey class from Ques3.
- = 6 Create an Interface TVRemote and use it to inherit another Interface SmartTVRemote.
- = 7 Create a class Tv which implements TVRemote interface from Q6

Chapter 12 - Practice Set

- = 1 Create three classes Calculator, ScCalculator and HybridCalculator and group them into a package.
- = 2 Use a built-in package in Java to write a class which displays a message (by using `System.out.println()`) after taking input from the user.
- = 3 Create a package in class with three package levels folder, folderL1, folderL2



- = 4 Prove that you cannot access default property but can access protected property from the subclass.

Chapter 13 - Practise Set

- = 1 Write a program to print "good morning" and "welcome" continuously on the screen in Java using Threads.
- = 2 Add a sleep method in welcome thread of question 1 to delay its execution for 200 ms.
- = 3 Demonstrate GetPriority() and SetPriority() methods in Java Threads.
- = 4 How do you get state of a given thread in Java?
- = 5 How do you get reference to the current thread in Java?

Chapter 14 - Practice Set

- 1 Write a Java program to demonstrate syntax, logical & runtime errors.
- 2 Write a Java program that prints "Haffa" during Arithmetic exception and "Hette" during an Illegal argument exception
- 3 Write a program that allows you to keep accessing an array until a valid index is given. If max retries exceed 5 print "Error".
- 4 Modify program in Q3 to throw a custom Exception if max retries are reached.
- 5 Wrap the program in Q3 inside a method which throws your custom Exception.