Assignment-1

**1.Write a java program to find the area of rectangle?**

**import** java.util.\*;

**public** **class** Rect {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**float** width=sc.nextFloat();

**float** height=sc.nextFloat();

**float** area=w\*l;

System.***out***.println("Area of rect is:"+area);

}

}

Output:

4.0

6.0

Area of rect is:24.0

**2.Write a java program to check the given number is Armstrong or not?**

**import** java.util.\*;

**public** **class** Armstrong {

**public** **static** **void** main(String[] args) {

**int** s=0,r,x;

Scanner sc=**new** Scanner(System.***in***);

**int** n=sc.nextInt();

x=n;

**while**(n>0) {

r=n%10;

s=s+r\*r\*r;

n=n/10;

}

**if**(x==s) {

System.***out***.println("It is Armstrong number");

}

**else** {

System.***out***.println("It is not a Armstrong number");

}

}

}

Output:

371

It is Armstrong number

267

It is not a Armstrong number

**3.Write a java program to check given number is palindrome or not?**

**import** java.util.Scanner;

**public** **class** Palindrome {

**public** **static** **void** main(String[] args) {

**int** s=0,r,x;

Scanner sc=**new** Scanner(System.***in***);

**int** n=sc.nextInt();

x=n;

**while**(n>0) {

r=n%10;

s=(s\*10)+r;

n=n/10;

}

**if**(x==s) {

System.***out***.println("it is a Palindrome");

}

**else** {

System.***out***.println("it is not a Palindrome");

}

}

}

Output:

676

it is a Palindrome

487

It is not a Palindrome

**4.Write a java program to generate first N prime numbers?**

**import** java.util.Scanner;

**public** **class** Prime {

**public** **static** **void** main(String[] args) {

**int** p=1,num=3;

Scanner sc=**new** Scanner(System.***in***);

**int** a=sc.nextInt();

**if** (a>=1) {

System.***out***.println("First "+a+" prime numbers are:");

System.***out***.println(2);

}

**for**(**int** b=2;b<=a;b++) {

**for**(**int** c=2;c<=Math.*sqrt*(num);c++) {

**if**(num%j==0) {

p=0;

**break**;

}

}

**if**(p!=0) {

System.***out***.println(num);

}

p=1;

num++;

}

}

}

Output:

5

First 5 prime numbers are:

2

3

5

7

11

**5. Write a java program to print even numbers in between given two numbers?**

**import** java.util.Scanner;

**public** **class** Even {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**int** a=sc.nextInt();

**int** b=sc.nextInt();

System.***out***.println("Even num from "+a+" to "+b+" are:");

**for**(**int** i=a;i<=n;i++) {

**if**(i%2==0) {

System.***out***.println(i+" ");

}

}

}

}

Output:

12

18

Even num from 12 to 18 are:

12

14

16

**1.What is Abstraction?**

Abstraction is the property by virtue of which only the essential details are displayed to the user.The trivial or the non-essentials units are not displayed to the user. Ex: A car is viewed as a car rather than its individual components.

Data Abstraction may also be defined as the process of identifying only the required characteristics of an object ignoring the irrelevant details.The properties and behaviors of an object differentiate it from other objects of similar type and also help in classifying/grouping the objects.

**2. What is Encapsulation?**

In [object-oriented programming](https://en.wikipedia.org/wiki/Object-oriented_programming) (OOP), **encapsulation** refers to the bundling of data with the methods that operate on that data, or the restricting of direct access to some of an object's components.[[1]](https://en.wikipedia.org/wiki/Encapsulation_(computer_programming)#cite_note-Rogers01-1) Encapsulation is used to hide the values or state of a structured data object inside a [class](https://en.wikipedia.org/wiki/Class_(computer_programming)), preventing unauthorized parties' direct access to them. Publicly accessible methods are generally provided in the class (so-called ["getters" and "setters"](https://en.wikipedia.org/wiki/Mutator_method)) to access the values, and other client classes call these methods to retrieve and modify the values within the object.

**3. What is JDK?**

The **Java Development Kit (JDK)** is a software development environment that offers a collection of tools and libraries necessary for developing Java applications. You need the JDK to convert your source code into a format that the Java Runtime Environment (JRE) can execute.

The JDK includes the Java Runtime Environment (JRE), an interpreter (java), a compiler (javac), an archiver (jar), a documentation generator (javadoc), and some other development tools. The Java Runtime Environment itself consists of the Java Virtual Machine (JVM), supporting files, and core classes

**4. What is JVM?**

* JVM (Java Virtual Machine) is an abstract machine. It is a specification that provides runtime environment in which java bytecode can be executed.
* **A specification** where working of Java Virtual Machine is specified. But implementation provider is independent to choose the algorithm. Its implementation has been provided by Oracle and other companies.
* **An implementation** Its implementation is known as JRE (Java Runtime Environment).
* **Runtime Instance** Whenever you write java command on the command prompt to run the java class, an instance of JVM is created.

**5. Define Inheritance?**

Inheritance is one of the [core concepts of object-oriented programming](https://stackify.com/oops-concepts-in-java/) (OOP) languages. It is a mechanism where you can to derive a class from another class for a hierarchy of classes that share a set of attributes and methods.

You can use it to [declare different kinds of exceptions](https://stackify.com/java-custom-exceptions/), add custom logic to existing frameworks, and even map your domain model to a database.

**6. How java achieved platform independence?**

 The meaning of platform-independent is that the java compiled code can run on all operating systems.  
A program is written in a language that is a human-readable language. It may contain words, phrases, etc which the machine does not understand. For the source code to be understood by the machine, it needs to be in a language understood by machines, typically a machine-level language. So, here comes the role of a compiler. The compiler converts the high-level language (human language) into a format understood by the machines. Therefore, a compiler is a program that translates the source code for another program from a programming language into executable code.  
This executable code may be a sequence of machine instructions that can be executed by the CPU directly, or it may be an intermediate representation that is interpreted by a virtual machine. This intermediate representation in Java is the **Java Byte Code.**

**7. Write the syntax of main function?**

Java main method is the entry point of any java program. Its syntax is always public static void main(String[] args)

Syntax:

Main.java:

public class Main {

     public static void main (String[] args)

     {

         System.out.println("Hello World!!");

     }

}

**8. What is conditional operator?**

The conditional operator (**? :**) is a ternary operator (it takes three operands). The conditional operator works as follows:

* The first operand is implicitly converted to **bool**. It is evaluated and all side effects are completed before continuing.
* If the first operand evaluates to **true** (1), the second operand is evaluated.
* If the first operand evaluates to **false** (0), the third operand is evaluated.

The result of the conditional operator is the result of whichever operand is evaluated — the second or the third. Only one of the last two operands is evaluated in a conditional expression.

**9. How many datatypes in java?**

Data types are divided into two groups:

* **Primitive data types** –

includes byte, short, int, long, float, double, boolean and char

* **Non-primitive data types** –

String, Arrays and Classes

**10. What is constant? How it is declared?**

Variables can be declared as constants by using the “const” keyword before the datatype of the variable. The constant variables can be initialized once only. The default value of constant variables are zero.

Declaration:

* To turn an ordinary variable into a constant, you have to use the keyword "final."
* As a rule, we write constants in capital letters to differentiate them from ordinary variables.
* If you try to change the constant in the program, javac (the Java Compiler) sends an error message. This happens because you can only assign a value to a constant once.

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