**Assignment-1**

**Programs:**

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

**A**.

public class Area\_Of\_Rectangle

{

public static void main(String[] args) {

int length=7,breadth=8;

System.out.println("Area of Rectangle is "+ length\*breadth);

}

}

**Output:**

Area of Rectangle is 56

1. **Write a java program to check the given no is Armstrong or not(153 is Armstrong no 1\*1\*1+5\*5\*5+3\*3\*3=153)**

**A.**

public class Armstrong\_Number

{

public static void main(String[] args) {

int n=370,count=0,Sum=0,t=0;

int x=n,k=n;

while(n>0){

count+=1;

n/=10;

}

while(k!=0){

t=k%10;

Sum+=Math.pow(t,count);

k/=10;

}

if(Sum==x)

System.out.println(x+" is an Armstrong number");

else

System.out.println(x+" is not an armstrong number");

}

}

**Output:**

1. is an Armstrong number

**3. Write a java program to check the given no is palindrome or not**

**A.**

public class Palindrome

{

public static void main(String[] args) {

int n=404,res=0,k=n;

while(n>0){

res= (res\*10) + (n%10);

n/=10;

}

if(res==k)

System.out.println(k + " is a palindrome number");

else

System.out.println(k + " is not a palindrome number");

}

}

**Output:**

1. is a palindrome number

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

**A.**

public class Prime\_Range

{

public static void main(String[] args) {

int n=200;

for(int i=2;i<=n;i++){

int flag=0;

for(int j=2;j<=i/2;j++){

if(i%j==0)

flag+=1;

}

if(flag==0)

System.out.print(i +" ");

}

}

}

**Output:**

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103 107 109 113 127 131 137 139 149 151 157 163 167 173 179 181 191 193 197 199

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

**A.**

public class Even\_Range

{

public static void main(String[] args) {

int m=1,n=300;

for(int i=m;i<=n;i++)

if(i%2==0)

System.out.print(i +" ");

}

}

**Output:**

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160 162 164 166 168 170 172 174 176 178 180 182 184 186 188 190 192 194 196 198 200 202 204 206 208 210 212 214 216 218 220 222 224 226 228 230 232 234 236 238 240 242 244 246 248 250 252 254 256 258 260 262 264 266 268 270 272 274 276 278 280 282 284 286 288 290 292 294 296 298 300

**Questions :**

1. **What is Abstraction?**
2. Data **abstraction** is the process of hiding certain details and showing only essential information to the user.

**Ex:** Sending SMS where you type the text and send the message. You don't know the internal processing about the message delivery.

1. **What is Encapsulation?**

**A.**Encapsulation is a mechanism of wrapping( hiding) the data and code acting on the data) together as a single unit. In encapsulation, the variables of a class will be hidden from other classes, and can be accessed only through the methods of their current class. Therefore, it is also known as **data hiding**.

To achieve encapsulation in Java −

1)Declare the variables of a class as private.

2)Provide public setter and getter methods to modify and view the variables values.

1. **What is JDK?**

A. The Java Development Kit (JDK) is a software development environment used for developing Java applications and applets. It includes the Java Runtime Environment (JRE), an interpreter (java), a compiler (javac), an archiver (jar), a documentation generator (javadoc) and other tools needed in Java development.

**4.** **What is JVM?**

1. JVM(Java Virtual machine) is a engine that provides runtime environment to drive the java code or applications. It converts the java bytecode into machine language.JVM is a part of JRE(Java Runtime Environment).
2. **Define Inheritance**

**A.**Inheritance is the mechanism by which one class is allow to inherit the features(fields and methods) of another class.

**Important terminology:**

1. **Super Class:**The class whose features are inherited is known as super class.
2. **Sub Class:** The class that inherits the other class is known as sub class. The subclass can add its own fields and methods in addition to the superclass fields and methods.
3. **Reusability:**Inheritance supports the concept of “reusability”, i.e. when we want to create a new class and there is already a class that includes some of the code that we want, we can derive our new class from the existing class. By doing this, we are reusing the fields and methods of the existing class.

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

1. When you compile Java programs using javac compiler it generates bytecode. We need to execute this bytecode using JVM (Java Virtual machine). Then, JVM translates the Java bytecode to machine understandable code.You can download JVM suitable to your operating system and, once you write a Java program you can run it on any system using JVM.This makes java platform independent.
2. **Write the syntax of main function.**

**Java main() method syntax**:

public class Program{

public static void main(string[ ] args){

System.out.println(“Hello World”);

}

}

**1)public :** This is the access modifier of the main method.It has to be public so that java runtime execute this method.

**2)static :** Main method has to be static so that JVM can load the class into memory and call the main method.

**3)void :** Java main method doesn’t return anything, that’s why its return type is void.

**4)main :** This is the name of the java main method. It’s fixed and when we start a java program, it looks for the main method.

**5)String[ ] args :** Java main method accepts a single argument of type String array.This is also called as java command line arguments.

**8.What is conditional operator?**

**A.** Java ternary (conditional) operator is the only operator that takes three operands.. We can use the ternary operator in place of if-else conditions or even switch conditions using nested ternary operators. Although it follows the same algorithm as of if-else statement, the conditional operator takes less space and helps to write the if-else statements in the shortest way possible.

**Syntax:**

variable = Expression 1 **?** Expression 2 **:** Expression 3

If operates similarly to that of the if-else statement as in *Exression2* is executed if *Expression1* is true else *Expression3* is executed.

if (Expression1)

{

variable = Expression 2;

}

else

{

variable = Expression 3;

}

**9.How many data types in java?**

**A.** In java, data types are divided into two groups:

**1)Primitive data types :**

A primitive data type specifies the size and type of variable values, and it has no additional methods.

**There are eight primitive data types in Java:** byte,short,int,long,float,double,Boolean and char.

**2) Non-primitive data types** :

Non-primitive data types are called **reference types** because they refer to objects.

It includes strings, arrays and classes.

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

**A.** A constant is a variable whose value **cannot change once it has been assigned**. Java doesn't have built-in support for constants.

To define a variable as a constant, we just need to add the keyword “**final**” in front of the variable declaration.

**Syntax :**

final float pi = 3.14f;