Assignment 1:

**Q.1.**

**Program:**

package com.company;  
import java.util.Scanner;  
public class Main {  
 public static void main(String[] args) {  
 // Armstrong number  
 int num, n, temp, total = 0;  
  
 System.*out*.println("Enter a three digit number: ");  
 Scanner sc= new Scanner(System.*in*);  
 num = sc.nextInt();  
 sc.close();  
 n= num;  
  
 while (n!=0)  
 {  
 temp = n%10;  
 total=total+ temp\*temp\*temp;  
 n /=10;  
 }  
  
 if(total==num)  
 System.*out*.println(num+ " is an Armstrong Number");  
 else  
 System.*out*.println(num+ " is not an Armstrong Number");  
 }  
}

**Output:**

**🡪**

Enter a three digit number:

153

153 is an Armstrong Number

**🡪**

Enter a three digit number:

123

123 is not an Armstrong Number

**Q. 2**

**Program:**

package com.company;  
  
public class Main {  
 public static void main(String[] args) {  
 // Find all Armstrong numbers from 100-999  
 int num=100,r,total,n,temp;  
 System.*out*.println("Armstrong numbers between 100 to 999 are: ");  
 while(num<1000)  
 {  
 n=num;  
 total=0;  
 while(n>0)  
 {  
 r=n%10;  
 total=total+(r\*r\*r);  
 n=n/10;  
 }  
 if(total==num)  
 System.*out*.println(num);  
 num++;  
 }  
 }  
}

**Output:**

Armstrong numbers between 100 to 999 are:

153

370

371

407

**Q.3**

**Program:**

package com.company;  
import java.util.Scanner;  
public class Main {  
 public static void main(String[] args) {  
 // Calculate Simple interest and Compound interest

double p, rate, t, simp, comp;  
 Scanner sc=new Scanner (System. *in*);  
  
 System.*out*.println("Enter the amount:");  
 p=sc.nextDouble();  
 System. *out*. println("Enter the No.of years:");  
 t=sc.nextDouble();  
 System. *out*. println("Enter the Rate of interest");  
 rate=sc.nextDouble();  
  
 simp=(p \* t \* rate)/100;  
 comp=p \* Math.*pow*(1.0+rate/100.0,t) - p;  
  
 System.*out*.println("Simple Interest= "+simp);  
 System.*out*. println("Compound Interest= "+comp);  
 }  
}

**Output:**

Enter the amount:

10000

Enter the No.of years:

2

Enter the Rate of interest

5

Simple Interest= 1000.0

Compound Interest= 1025.0

**Q. 4**

**Program:**

package com.company;  
import java.util.Scanner;  
public class Main {  
 public static void main(String[] args) {  
// Student's Results  
  
 Scanner scan = new Scanner (System.*in*);  
 System.*out*.println("Enter Marks of Maths:");  
 int Maths = scan.nextInt();  
 System.*out*.println("Enter Marks of English:");  
 int English= scan.nextInt();  
 System.*out*.println("Enter Marks of Science:");  
 int Science = scan.nextInt();  
  
 if ((Maths > 60) && (English> 60) && (Science > 60)) {  
 System.*out*.println("Passed");  
 }  
 else if (( Maths > 60 && English > 60 ) || (English > 60 && Science > 60) || (Maths > 60 && Science > 60)) {  
 System.*out*.println("Promoted");  
 }  
 else {  
 System.*out*.println("Failed");  
 }  
}  
}

**Output:**

**🡪**

Enter Marks of Maths:

98

Enter Marks of English:

82

Enter Marks of Science:

89

Passed

**🡪**

Enter Marks of Maths:

87

Enter Marks of English:

45

Enter Marks of Science:

64

Promoted

**🡪**

Enter Marks of Maths:

67

Enter Marks of English:

56

Enter Marks of Science:

52

Failed

**Q. 5**

**Program:**

package com.company;  
import java.util.Scanner;  
public class Main {  
  
 public static void main(String[] args) {  
 // Calculate Income Tax  
  
 double tax=0,inc;  
 Scanner sc=new Scanner(System.*in*);  
 System.*out*.println("Enter Your Income: ");  
 inc=sc.nextDouble();  
 if(inc<=180000)  
 tax=0;  
 else if((inc<=300000)&&(inc>180000))  
 tax=0.1\*(inc-120000);  
 else if((inc<=500000)&&(inc>300000))  
 tax=(0.2\*(inc-200000));  
 else  
 tax=(0.3\*(inc-500000));  
 System.*out*.println("Income tax amount is "+tax);  
 }  
}

**Output:**

**Enter Your Income:**

**1200000**

**Income tax amount is 210000.0**

**Q. 6**

**Program:**

package com.company;  
import java.util.Scanner;  
import java.util.\*;  
public class Main {  
  
 public static void main(String args[])  
 {  
 boolean result=false;  
 HashMap<String,String> map=new HashMap<String,String>();//Creating HashMap  
 map.put("Devika","password1"); //Put elements in Map  
 map.put("CapG","password2");  
 map.put("java","password3");  
  
  
 String username,password;  
 Scanner sc =new Scanner(System.*in*);  
 for(int i=0;i<3;i++)  
 {  
 System.*out*.println("Enter the username");  
 username=sc.nextLine();  
 System.*out*.println("Enter the password");  
 password=sc.nextLine();  
  
 for(Map.Entry m : map.entrySet()){  
 if(username.equals(m.getKey()) && (password.equals(m.getValue())))  
 {result=true;}  
 }  
 if (result== true)  
 {System.*out*.println("Login Success");  
 break; }  
 else  
 {System.*out*.println("Login Failed, try again");}  
 }  
 if (result== false)  
 {System.*out*.println("Contact Admin");}  
 }  
}

**Output:**

**Enter the username**

**Gaikwad**

**Enter the password**

**pass1**

**Login Failed, try again**

**Enter the username**

**DMG**

**Enter the password**

**Password**

**Login Failed, try again**

**Enter the username**

**java**

**Enter the password**

**123**

**Login Failed, try again**

**Contact Admin**

**Q. 7**

**Program:**

package com.company;  
import java.util.Scanner;  
public class Main {  
 // Java program to check whether an element is present in array or not  
 private static void check(int[] arr, int toCheckValue)  
 {  
 arr = new int[]{5, 12, 14, 6, 78, 19, 1, 23, 26, 35, 37, 7, 52, 86, 47};  
  
 boolean test = false;  
 for (int element : arr) {  
 if (element == toCheckValue) {  
 test = true;  
 break;  
 }  
 }  
 if(test==true) {  
 System.*out*.println("The entered number '" + toCheckValue + "' is Present in an array.");  
 }else  
 System.*out*.println("The entered number '"+ toCheckValue + "' is Not present in an array." );  
 }  
 public static void main(String[] args)  
 {  
 int n;  
 Scanner s = new Scanner(System.*in*);  
 System.*out*.print("Enter a number you want to search in array: ");  
 n = s.nextInt();  
 int arr[] = new int[n];  
 int toCheckValue = n;  
  
 *check*(arr, toCheckValue);  
 }  
 }

**Output:**

Enter a number you want to search in array: 19

The entered number '19' is Present in an array.

**Q. 8**

**Program:**

package com.company;  
import java.sql.SQLOutput;  
import java.util.Arrays;  
public class Main {  
 public static void main(String[] args){  
 int a[]={ 5, 12, 14, 6, 78, 19, 1, 23, 26, 35, 37, 7, 52, 86, 47};  
 System.*out*.println("Array before sorting: " +Arrays.*toString*(a));  
  
 int n=a.length;  
  
 for(int i=0; i<n-1; i++) //Number of passes  
 {  
 for(int j=0; j<n-1; j++) //Iterations in each pass  
 {  
 if(a[j]>a[j+1])  
 {  
 int temp=a[j];  
 a[j]=a[j+1];  
 a[j+1]=temp;  
 }  
 }  
 }  
 System.*out*.println("Array after sorting:" +Arrays.*toString*(a));  
 }  
}

**Output:**

Array before sorting: [5, 12, 14, 6, 78, 19, 1, 23, 26, 35, 37, 7, 52, 86, 47]

Array after sorting:[1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]

**Q. 9**

**Program:**

package com.company;  
import java.util.Scanner;  
public class Main {  
  
 public static void main(String[] args) {  
 // write your code here  
 int A, B, C, t1, t2, t3, a1, a2, a3;  
 int Total, Average;  
  
 Scanner op=new Scanner(System.*in*);  
  
 System.*out*.println("Enter marks of Three subjects for Student\_1:");  
 System.*out*.print("Enter marks of subject A: ");  
 A=op.nextInt();  
 System.*out*.print("Enter marks of subject B: ");  
 B=op.nextInt();  
 System.*out*.print("Enter marks of subject C: ");  
 C=op.nextInt();  
  
 t1 = A+B+C ;  
 a1 = (t1 / 3);  
 System.*out*.println("Total marks for Student\_1 is "+t1+ " and Average is "+a1+".");  
  
 System.*out*.println("Enter marks of Three subjects for Student\_2:");  
 System.*out*.print("Enter marks of subject A: ");  
 A=op.nextInt();  
 System.*out*.print("Enter marks of subject B: ");  
 B=op.nextInt();  
 System.*out*.print("Enter marks of subject C: ");  
 C=op.nextInt();  
  
 t2 = A+B+C ;  
 a2 = (t2 / 3);  
 System.*out*.println("Total marks for Student\_2 is "+t2+ " and Average is "+a2+".");  
  
 System.*out*.println("Enter marks of Three subjects for Student\_3:");  
 System.*out*.print("Enter marks of subject A: ");  
 A=op.nextInt();  
 System.*out*.print("Enter marks of subject B: ");  
 B=op.nextInt();  
 System.*out*.print("Enter marks of subject C: ");  
 C=op.nextInt();  
  
  
 t3 = A+B+C ;  
 a3 = (t3 / 3);  
 System.*out*.println("Total marks for S3 is "+t3+ " and Average is "+a3+".");  
  
 Total = t1 +t2+t3 ;  
 Average = (a1+a2+a3/ 3);  
 System.*out*.println("Total marks for all students is "+Total+ " and Average is "+Average+".");  
 }  
}

**Output:**

**Enter marks of Three subjects for Student\_1:**

**Enter marks of subject A : 90**

**Enter marks of subject B: 82**

**Enter marks of subject C: 91**

**Total marks for Student\_1 is 263 and Average is 87.**

**Enter marks of Three subjects for Student\_2:**

**Enter marks of subject A: 85**

**Enter marks of subject B: 92**

**Enter marks of subject C: 89**

**Total marks for Student\_2 is 266 and Average is 88.**

**Enter marks of Three subjects for Student\_3:**

**Enter marks of subject A: 81**

**Enter marks of subject B: 79**

**Enter marks of subject C: 90**

**Total marks for S3 is 250 and Average is 83.**

**Total marks for all students is 779 and Average is 202.**