Simple

1. Programe to Hello SOIS

```
package pack1;

public class Main {
          public static void main(String args[]){
           System.out.println("Hello SOIS");
          }
      }
```

2.check which is greater no use assert

```
 package pack1;
import java.util.Scanner;

public class Main {
          public static void main(String args[]){
          Scanner sc=new Scanner(System.in);
          System.out.println("Enter A");
          int a=sc.nextInt();
          System.out.println("Enter B");
          int b=sc.nextInt();
          assert a==b:"equal";
          System.out.println("value is"+a);

          }
      }
```

3.Square no

```
package pack1;
import java.util.*;
public class Square
{
public static void main(String args[])
{
Scanner sc=new Scanner(System.in);
int num;
System.out.print("Enter an integer number: ");
num=sc.nextInt();
System.out.println("Square of "+ num + " is: "+ Math.pow(num, 2));
}
}
```

4.Quadratic equation

```
  package pack1;
import java.util.Scanner;

public class Main {
          public static void main(String args[]){
          Scanner input=new Scanner(System.in);
          System.out.print("input a");
          double a=input.nextDouble();
          System.out.print("input b");
```

```
            double b=input.nextDouble();
            System.out.print("input c");
            double c=input.nextDouble();

            double result=b*b-4.0*a*c;
            if(result>0.0) {
               double r1=(-b+Math.pow(result, 0.5))/(2.0*a);
               double r2=(-b+Math.pow(result, 0.5))/(2.0*a);
               System.out.println("The roots os"+r1+"and"+r2);
            }else if(result==0.0) {
               double r1=-b/(2.0*a);
               System.out.println("The roots os"+r1);
            }
            else {
               System.out.println("no real roots os");
            }
            }
      }
```

5.Centroid program X=x1+x2+x3/3 Y=y1+y2+y3/3

```
package pack1;
import java.util.Scanner;

public class Main {
            public static void main(String args[]){
            float x1=1,x2=3,x3=6;
            float y1=2,y2=-4,y3=-7;

            float x=(x1+x2+x3)/3;
            float y=(y1+y2+y3)/3;
            System.out.println("Centroid="+"("+x+","+y+")");

      }
}
```

6.Distance between sqrt.(x2-x1)2+(y2-y1)2

```
package pack1;
import java.lang.Math;

public class Main {
            public static void main(String args[]){
            int x1,x2,y1,y2;
            double dis;
            x1=1;y1=1;x2=4;y2=4;
            dis=Math.sqrt((x2-x1)*(x2-x1)+(y2-y1)*(y2-y1));
            System.out.println("Distance between====>"+dis);

      }
}
```

7.find the triangle and circle

```
package pack1;
import java.util.Scanner;

public class Main
{
   public static void main(String[] args)
   {
      Scanner sc = new Scanner(System.in);
      System.out.println("MENU:");
      System.out.println("1.Area of circle");
      System.out.println("2.Area of triangle");
      System.out.println("Please enter any of the above option: ");
      int num = sc.nextInt();
      switch(num)
      {
         case 1: System.out.println("Please enter radius of circle: ");
         double radius = sc.nextFloat();
         double areaCircle = (22 * radius * radius) / 7;
         System.out.println("Area of circle is: " + areaCircle);
         break;

         case 2: System.out.println("Please enter base and height of triangle: ");
         double base = sc.nextFloat();
         double height = sc.nextFloat();
         double areaTriangle = (base* height) / 2;
         System.out.println("Area of triangle is: " + areaTriangle);
break;

         default:System.exit(0);
      }
      sc.close();
   }
}
```

8. Factorial no

```
public class Main {
          public static void main(String args[]){
          int num=12;
          long factorial=multiplyno(num);
          System.out.println("Factorail of"+num+"="+factorial);
       }
          public static long multiplyno(int num)
          {
             if(num>=1)
                    return num*multiplyno(num-1);
             else
                    return 1;

          }
}
```

9.Armstrong no

```
package pack1;
import java.lang.Math;

public class Main {
           public static void main(String args[]){
           int num=371,roriginalno,remainder,result=0;
           roriginalno=num;
           while(roriginalno!=0)
           {
              remainder=roriginalno%10;
              result+=Math.pow(remainder,3);
              roriginalno/=10;
           }
           if(result==num)
              System.out.println(num+"  is an Armstrong no");
           else
              System.out.println(num+"not Armstrong no");
           }
}
```

10. Pythagoras

```
package pack1;
import java.lang.Math;
import java.util.Scanner;

public class Main {
           public static void main(String args[]){
           Scanner sc=new Scanner(System.in);
           System.out.println("enetr A");
           int a=sc.nextInt();
           System.out.println("enetr B");
           int b=sc.nextInt();
           double d,c;
           a=a*a;
           b=b*b;
           c=a+b;
           d=Math.sqrt(c);
           System.out.println("Pyrhogoras "+d);
           }
}
```

11. Multiplication table

```
import java.util.Scanner;

public class Main {
           public static void main(String args[]){
          Scanner sc=new Scanner(System.in);
          System.out.println("Enetr the no");
          int n=sc.nextInt();
          for(int i=1;i<=10;++i)
          {
```

```
                System.out.printf("%d* %d = %d \n",n,i,n*i);
            }
             }
}
```

ARRAY

1.find min and Max in Array

```
import java.lang.Math;
import java.util.Scanner;
import java.util.Arrays;
import java.util.Collections;
import java.util.Scanner;

public class Main {


           public static void main(String[] args)
           {

               // Creates an array of integer numbers in it.
               System.out.println("Enter Up To 10 Numbers");
               Scanner sc=new Scanner(System.in);
               Integer[] numbers =new Integer[10];

               for (int i=0;i<numbers.length;i++)
               {
                   System.out.print("enter numbers["+i+"]:");
                   numbers[i]=sc.nextInt();
               }

               int min = (int) Collections.min(Arrays.asList(numbers));
               int max = (int) Collections.max(Arrays.asList(numbers));

               System.out.println("Min number: " + min);
               System.out.println("Max number: " + max);
           }
       }
```

2.ADD 2x2 matrix

```
public class Main {


       public static void main(String[] args) {
         int rows = 2, columns = 3;
         int[][] firstMatrix = { {2, 3, 4}, {5, 2, 3} };
         int[][] secondMatrix = { {-4, 5, 3}, {5, 6, 3} };

         // Adding Two matrices
         int[][] sum = new int[rows][columns];
```

```
        for(int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                sum[i][j] = firstMatrix[i][j] + secondMatrix[i][j];
            }
        }

        // Displaying the result
        System.out.println("Sum of two matrices is: ");
        for(int[] row : sum) {
            for (int column : row) {
                System.out.print(column + "    ");
            }
            System.out.println();
        }
    }
}
```

3.Add mxn matrix

```
package pack1;
import java.lang.Math;
import java.util.Scanner;
import java.util.Arrays;
import java.util.Collections;
import java.util.Scanner;

public class Main {


      public static void main(String[] args)
    {
        int p, q, m, n;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter number of rows in first matrix:");
        p = s.nextInt();
        System.out.print("Enter number of columns in first matrix:");
        q = s.nextInt();
        System.out.print("Enter number of rows in second matrix:");
        m = s.nextInt();
        System.out.print("Enter number of columns in second matrix:");
        n = s.nextInt();
        if (p == m && q == n)
        {
            int a[][] = new int[p][q];
            int b[][] = new int[m][n];
            int c[][] = new int[m][n];
            System.out.println("Enter all the elements of first matrix:");
            for (int i = 0; i < p; i++)
            {
                for (int j = 0; j < q; j++)
                {
                    a[i][j] = s.nextInt();
                }
            }
            System.out.println("Enter all the elements of second matrix:");
```

```
            for (int i = 0; i < m; i++)
            {
                for (int j = 0; j < n; j++)
                {
                    b[i][j] = s.nextInt();
                }
            }
            System.out.println("First Matrix:");
            for (int i = 0; i < p; i++)
            {
                for (int j = 0; j < q; j++)
                {
                    System.out.print(a[i][j]+" ");
                }
                System.out.println("");
            }
            System.out.println("Second Matrix:");
            for (int i = 0; i < m; i++)
            {
                for (int j = 0; j < n; j++)
                {
                    System.out.print(b[i][j]+" ");
                }
                System.out.println("");
            }
            for (int i = 0; i < p; i++)
            {
                for (int j = 0; j < n; j++)
                {
                    for (int k = 0; k < q; k++)
                    {
                        c[i][j] = a[i][j] + b[i][j];
                    }
                }
            }
            System.out.println("Matrix after addition:");
            for (int i = 0; i < p; i++)
            {
                for (int j = 0; j < n; j++)
                {
                    System.out.print(c[i][j]+" ");
                }
                System.out.println("");
            }
        }
        else
        {
            System.out.println("Addition would not be possible");
        }
    }
      }
```

3.transpose matrix of 3x3

```
package pack1;
```

```
public class Main {


        public static void main(String args[]) {
             int a[][] = { { 1, 3, 4 }, { 2, 4, 3 }, { 3, 4, 5 } };
             int t[][] = new int[3][3];
             // transpose the matrix
             for (int i = 0; i < 3; i++) {
                for (int j = 0; j < 3; j++) {
                   t[i][j] = a[j][i];
                }
             }
             System.out.println("Original Matrix:");
             for (int i = 0; i < 3; i++) {
                for (int j = 0; j < 3; j++) {
                   System.out.print(a[i][j] + " ");
                }
                System.out.println();
             }
             System.out.println("Transposed Matrix:");
             for (int i = 0; i < 3; i++) {
                for (int j = 0; j < 3; j++) {
                   System.out.print(t[i][j] + " ");
                }
                System.out.println();
             }
          }  }
```

5. Average of n size array

```
package pack1;
import java.util.Scanner;
       public class Main
       {
           public static void main(String[] args)
           {
               int n, sum = 0;
               float average;
               Scanner s = new Scanner(System.in);
               System.out.print("Enter no. of elements you want in array:");
               n = s.nextInt();
               int a[] = new int[n];
               System.out.println("Enter all the elements:");
               for(int i = 0; i < n ; i++)
               {
                   a[i] = s.nextInt();
                   sum = sum + a[i];
               }
               System.out.println("Sum:"+sum);
               average = (float)sum / n;
               System.out.println("Average:"+average);
           }
       }
```

6.Array standard deviation, mean, varience, sum

```
class Main
{

	static double variance(double a[],
	                                  double n)
	{
		double sum = 0;

		for (int i = 0; i < n; i++)
			sum += a[i];
		double mean = (double)sum /
		                        (double)n;
		double sqDiff = 0;
		for (int i = 0; i < n; i++)
			sqDiff += (a[i] - mean) *
		                        (a[i] - mean);

		return (double)sqDiff / n;
	}

	static double standardDeviation(double arr[],
	                                                    double n)
	{
		return Math.sqrt(variance(arr, n));
	}

	// Driver Code
	public static void main (String[] args)
	{
	double average=0;
	double sum=0;
	double arr[] = {600, 470, 170, 430, 300};
	double n = arr.length;

	System.out.println( "Variance: " +
	                                  variance(arr, n));
	System.out.println ("Standard Deviation: " +
	                                  standardDeviation(arr, n));
	for(int i = 0; i < n ; i++)
    {
        sum = sum + arr[i];
    }
    System.out.println("Sum:"+sum);
    average = sum / n;
    System.out.println("Average:"+average);
	}
}
```

7.detrminant matrix 3x3

```
import java.io.BufferedReader;
import java.io.InputStreamReader;
```

```java
public class Main {
    // Function to read array elements and calculate the determinant
    public static void main(String[] args)
    {
        BufferedReader br= new BufferedReader(new InputStreamReader(System.in));
        int order=3;
        int[][] matrix=new int[3][3];
        System.out.println("Enter the elements of 3x3 matrix");
        int i,j;
        for(i=0;i<matrix.length;i++){
            for(j=0;j<matrix[i].length;j++){
                try{
                    matrix[i][j]=Integer.parseInt(br.readLine());
                }
                catch(Exception e){
                    System.out.println("An error occured. Please retry");
                    return;
                }
            }
        }}}
```

Moderate

1.Three arguments using command line argument

```java
public class CommandLine {
   public static void main(String args[]) {
      for(int i = 0; i<3; i++) {
         System.out.println("args[" + i + "]: " + args[i]);
      }
   }
}
```

2.Addition of 3no using CLA

```java
class Add
{
public static void main(String[] args)
{
int a,b,c,d;
Scanner sc=new Scanner(System.in);
a=Integer.parseInt(args[0]);
System.out.println("number one is : "+a);
b=Integer.parseInt(args[1]);
System.out.println("number two is : "+b);
c=Integer.parseInt(args[1]);
System.out.println("number three is : "+c);

d=a+b+c;
System.out.println("Addition of two numbers is : "+d);
}
}
```

3.String sort in alphabetical order

```
package pack1;
import java.util.Arrays;
import java.util.Scanner;
public class Main {
   public static void main(String args[]) {
      Scanner sc = new Scanner(System.in);
      System.out.println("Enter a string value: ");
      String str = sc.nextLine();
      int length=str.length();
      System.out.println(length);
      char charArray[] = str.toCharArray();
      Arrays.sort(charArray);
      System.out.println(new String(charArray));
   }
}
```

4.check string is palindrome or not

```
package pack1;
import java.util.Scanner;
public class Main
{
    public static void main(String args[])
    {
        String a, b = "";
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the string you want to check:");
        a = s.nextLine();
        int n = a.length();
        for(int i = n - 1; i >= 0; i--)
        {
            b = b + a.charAt(i);
        }
        if(a.equalsIgnoreCase(b))
        {
            System.out.println("The string is palindrome.");
        }
        else
        {
            System.out.println("The string is not palindrome.");
        }
    }
}
```

5.Fahrenhit to Celsius c=(F-32)/1.8

```
package pack1;
import java.util.Scanner;
public class Main {

    public static void main(String[] Strings) {

        Scanner input = new Scanner(System.in);
```

```
        System.out.print("Input a degree in Fahrenheit: ");
        double fahrenheit = input.nextDouble();

        double  celsius =(((fahrenheit - 32.0)) / 1.8);
        System.out.println(fahrenheit + " degree Fahrenheit is equal to " + celsius +
" in Celsius");
    }
}
```

6.sort an array of number

```
package pack1;
import java.util.Scanner;
public class Main
{
    public static void main(String[] args)
    {
        int n, temp;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter no. of elements you want in array:");
        n = s.nextInt();
        int a[] = new int[n];
        System.out.println("Enter all the elements:");
        for (int i = 0; i < n; i++)
        {
            a[i] = s.nextInt();
        }
        for (int i = 0; i < n; i++)
        {
            for (int j = i + 1; j < n; j++)
            {
                if (a[i] > a[j])
                {
                    temp = a[i];
                    a[i] = a[j];
                    a[j] = temp;
                }
            }
        }
        System.out.print("Ascending Order:");
        for (int i = 0; i < n - 1; i++)
        {
            System.out.print(a[i] + ",");
        }
        System.out.print(a[n - 1]);
    }
}
```

7.reverse the string

```
package pack1;
import java.util.Scanner;
class Main
{
```

```
  public static void main(String args[])
  {
    String original, reverse = "";
    Scanner in = new Scanner(System.in);

    System.out.println("Enter a string to reverse");
    original = in.nextLine();

    int length = original.length();

    for (int i = length - 1 ; i >= 0 ; i--)
      reverse = reverse + original.charAt(i);

    System.out.println("Reverse of the string: " + reverse);
  }
}
```

8.divisble by 7 between 100 to 200 and sum of all no

```
package pack1;
public class Main {

	public static void main(String args[]) {

		int result = 0;

		for (int i = 100; i <= 200; i++) {

			if (i % 7 == 0){
				System.out.println(i);
				result += i;
		 }
		}

		System.out.println("Output of Program is : " + result);
	}
}
```

9.Floyd’s triangle

```
package pack1;
import java.util.Scanner;

class Main
{
   public static void main(String args[])
   {
      int n, num = 1, c, d;
      Scanner in = new Scanner(System.in);
      System.out.println("Enter the number of rows of floyd's triangle you want");
      n = in.nextInt();
      System.out.println("Floyd's triangle :-");
      for ( c = 1 ; c <= n ; c++ )
      {
         for ( d = 1 ; d <= c ; d++ )
```

```
            {
               System.out.print(num+" ");
               num++;
            }
           System.out.println();
       }
   }
}
```

10.Floyd's triangle

1
01
101
0101
10101

```
package pack1;
import java.util.Scanner;
class Main{
public static void main(String args[]){
int i,j,rows;
int count=1;
Scanner scan=new Scanner(System.in);
System.out.print("Enter the number of rows: ");

rows=scan.nextInt();

for(i=1; i<=rows; i++){
  for(j=1; j<=i; j++){
  if((i+j)%2==1){
      System.out.print("0");
  }
  else{
      System.out.print("1");
  }


}
System.out.println();

}
}
}
```

10.reverse digit using while loop

```
package pack1;
import java.util.Scanner;
public class Main {

    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("enetr Number: ");
```

```
        int num=sc.nextInt();
        int reversed = 0;

        while(num != 0) {
            int digit = num % 10;
            reversed = reversed * 10 + digit;
            num /= 10;
        }

        System.out.println("Reversed Number: " + reversed);
    }
}
```

11.Display QN user to answer 3 chance to answer

```
import java.util.Scanner;
public class Main
{
      public static void main (String[] args)
      {
            System.out.println("Where is Golgumbaz is situated? ");
            String c="Bijapur";

            for (int i = 0; i < 3; i++)
       {
            Scanner sc=new Scanner(System.in);
            System.out.println("Enter u r answer   ");
            String s = sc.nextLine();
            System.out.println("You entered string "+s);
           if(c.equals(s)) {
            System.out.println("Good");
            break;
           }
           else
            System.out.println("Wrong");
       }
            System.out.println(" Correct Answer is Bijapur  ");
      }
}
```

12.Devlop QUIZ application

```
import java.io.*;
class Quiz{
    public static void main(String args[])
    throws IOException{
        InputStreamReader in = new InputStreamReader(System.in);
        BufferedReader br = new BufferedReader(in);
        System.out.print("Number of participants: ");
        int n = Integer.parseInt(br.readLine());
        int highest = 0;
        if(n < 4 || n > 10){
            System.out.println("INPUT SIZE OUT OF RANGE.");
            return;
        }
```

```
        char q[][] = new char[n][5];
        char a[] = new char[5];
        int score[] = new int[n];
        System.out.println("Key to the questions:");
        for(int i = 0; i < a.length; i++)
            a[i] = br.readLine().charAt(0);
        System.out.println("Answers by participants:");
        for(int i = 0; i < n; i++){
            System.out.println("Participant " + (i + 1));
            for(int j = 0; j < 5; j++){
                q[i][j] = br.readLine().charAt(0);
                if(q[i][j] == a[j])
                    score[i]++;
            }
            if(highest < score[i])
                highest = score[i];
        }
        for(int i = 0; i < n; i++)
            System.out.println("Participant " + (i + 1) + " = " + score[i]);
        System.out.println("Highest score(s):");
        for(int i = 0; i < n; i++)
            if(score[i] == highest)
                System.out.println("Participant " + (i + 1));
    }
}
```

13.enetr 10 no Find max, min, sort the input

```
package pack1;
import java.util.Scanner;
public class Main
{
    public static void main(String[] args)
    {
        int n, temp,firstNumber,lastNum;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter no. of elements you want in array:");
        n = s.nextInt();
        int a[] = new int[n];
        System.out.println("Enter all the elements:");
        for (int i = 0; i < n; i++)
        {
            a[i] = s.nextInt();
        }
        for (int i = 0; i < n; i++)
        {
            for (int j = i + 1; j < n; j++)
            {
                if (a[i] > a[j])
                {
                    temp = a[i];
                    a[i] = a[j];
                    a[j] = temp;
                }
            }
```

```
        }
        System.out.print("Ascending Order:");
        for (int i = 0; i < n - 1; i++)
        {
            System.out.print(a[i] + ",");
        }
        System.out.println(a[n - 1]);
        firstNumber = a[0];
        System.out.println("Min no  "+firstNumber);
        lastNum = a[a.length-1];
        System.out.println("Max no  "+lastNum);
    }
}
```

14. generate 10 random no

```
package pack1;
import java.util.*;
class Main {
   public static void main(String[] args) {
      int counter;
      Random rnum = new Random();
      System.out.println("Random Numbers:");
      System.out.println("***************");
      for (counter = 1; counter <= 10; counter++) {
         System.out.println(rnum.nextInt(200));
      }
   }
}
```

15.Stack implementation

```
package pack1;
import java.util.*;

/*  Class arrayStack  */
class arrayStack
{
    protected int arr[];
    protected int top, size, len;
    /*  Constructor for arrayStack */
    public arrayStack(int n)
    {
        size = n;
        len = 0;
        arr = new int[size];
        top = -1;
    }
    /*  Function to check if stack is empty */
    public boolean isEmpty()
```

```
    {
        return top == -1;
    }
    /*  Function to check if stack is full */
    public boolean isFull()
    {
        return top == size -1 ;
    }
    /*  Function to get the size of the stack */
    public int getSize()
    {
        return len ;
    }
    /*  Function to check the top element of the stack */
    public int peek()
    {
        if( isEmpty() )
            throw new NoSuchElementException("Underflow Exception");
        return arr[top];
    }
    /*  Function to add an element to the stack */
    public void push(int i)
    {
        if(top + 1 >= size)
            throw new IndexOutOfBoundsException("Overflow Exception");
        if(top + 1 < size )
            arr[++top] = i;
        len++ ;
    }
    /*  Function to delete an element from the stack */
    public int pop()
    {
        if( isEmpty() )
            throw new NoSuchElementException("Underflow Exception");
        len-- ;
        return arr[top--];
    }
    /*  Function to display the status of the stack */
    public void display()
    {
        System.out.print("\nStack = ");
        if (len == 0)
        {
            System.out.print("Empty\n");
            return ;
        }
        for (int i = top; i >= 0; i--)
            System.out.print(arr[i]+" ");
        System.out.println();
    }
}

/*  Class StackImplement  */
public class Main
{
```

```
public static void main(String[] args)
{
    Scanner var = new Scanner(System.in);
    System.out.println("Stack Test\n");
    System.out.println("Enter Size of Integer Stack ");
    int n = var.nextInt();
    /* Creating object of class arrayStack */
    arrayStack stk = new arrayStack(n);
    /* Perform Stack Operations */
    char ch;
    do{
        System.out.println("\nStack Operations");
        System.out.println("1. push");
        System.out.println("2. pop");
        System.out.println("3. peek");
        System.out.println("4. check empty");
        System.out.println("5. check full");
        System.out.println("6. size");
        int choice = var.nextInt();
        switch (choice)
        {
        case 1 :
            System.out.println("Enter integer element to push");
            try
            {
                stk.push( var.nextInt() );
            }
            catch (Exception e)
            {
                System.out.println("Error : " + e.getMessage());
            }
            break;
        case 2 :
            try
            {
                System.out.println("Popped Element = " + stk.pop());
            }
            catch (Exception e)
            {
                System.out.println("Error : " + e.getMessage());
            }
            break;
        case 3 :
            try
            {
                System.out.println("Peek Element = " + stk.peek());
            }
            catch (Exception e)
            {
                System.out.println("Error : " + e.getMessage());
            }
            break;
        case 4 :
            System.out.println("Empty status = " + stk.isEmpty());
            break;
```

```
            case 5 :
                System.out.println("Full status = " + stk.isFull());
                break;
            case 6 :
                System.out.println("Size = " + stk.getSize());
                break;
            default :
                System.out.println("Wrong Entry \n ");
                break;
            }
            /* display stack */
            stk.display();
            System.out.println("\nDo you want to continue (Type y or n) \n");
            ch = var.next().charAt(0);

        } while (ch == 'Y'|| ch == 'y');
    }
}
```

16.Queue implementation

```
package pack1;
import java.io.*;
class Main
{
    static int i,front,rear,item,max=5,ch;
    static int a[]=new int[5];
    Main()
    {
        front=-1;
        rear=-1;
    }
    public static void main(String args[])throws IOException
    {

        while((boolean)true)
        {
            try
            {
                System.out.println("Select Option 1.add 2.remove 3.display 4.empty
5.exit");
                BufferedReader br=new BufferedReader(new
InputStreamReader(System.in));
                ch=Integer.parseInt(br.readLine());
            }
            catch(Exception e)
            {    }
            if(ch==5)
                break;
            else
            {
                switch(ch)
                {
```

```
                case 1:
                    add();
                    break;
                case 2:
                    remove();
                    break;
                case 3:
                    display();
                    break;
                case 4:
                    Empty();
                    break;
                }
            }
        }
    }
    static boolean Empty()
    {
        return rear == -1;
    }

    static void add()
    {
        if(rear>=max)
        {
            System.out.println("Queue is Full");
        }
        else
        {
            try
            {
                BufferedReader br=new BufferedReader(new
InputStreamReader(System.in));
                System.out.println("Enter the Element: ");
                item=Integer.parseInt(br.readLine());
            }
            catch(Exception e)
            {}
            rear=rear+1;
            a[rear]=item;
        }
    }
    static void remove()
    {
        if(front==-1)
        {
            System.out.println("Queue is Empty");
        }
        else
        {
            front=front+1;
            item=a[front];
            System.out.println("Deleted Item: "+item);
        }
    }
```

```
    static void display()
    {
        System.out.println("Elements in the Queue are:");
        for(int i=front+1; i<=rear; i++)
        {
            System.out.println(a[i]);
        }
    }
}
```

17.Bank system management

```
package pack1;
import java.util.Scanner;

class Bank
{
	private String accno;
	private String name;
	private long balance;

	Scanner KB=new Scanner(System.in);

	//method to open an account
	void openAccount()
	{
		System.out.print("Enter Account No: ");
		accno=KB.next();
		System.out.print("Enter Name: ");
		name=KB.next();
		System.out.print("Enter Balance: ");
		balance=KB.nextLong();
	}

	//method to display account details
	void showAccount()
	{
		System.out.println(accno+","+name+","+balance);
	}

	//method to deposit money
	void deposit()
	{
		long amt;
		System.out.println("Enter Amount U Want to Deposit : ");
		amt=KB.nextLong();
		balance=balance+amt;
	}

	//method to withdraw money
	void withdrawal()
	{
		long amt;
```

```
                System.out.println("Enter Amount U Want to withdraw : ");
                amt=KB.nextLong();
                if(balance>=amt)
                {
                        balance=balance-amt;
                }
                else
                {
                        System.out.println("Less Balance..Transaction Failed..");
                }
        }

        //method to search an account number
        boolean search(String acn)
        {
                if(accno.equals(acn))
                {
                        showAccount();
                        return(true);
                }
                return(false);
        }
}

class Main
{
        public static void main(String arg[])
        {
                Scanner KB=new Scanner(System.in);

                //create initial accounts
                System.out.print("How Many Customer U Want to Input : ");
                int n=KB.nextInt();
                Bank  C[]=new Bank[n];
                for(int i=0;i<C.length;i++)
                {
                        C[i]=new Bank();
                        C[i].openAccount();
                }

                //run loop until menu 5 is not pressed
                int ch;
                do
                {
                        System.out.println("Main Menu\n 1.Display All\n 2.Search By
Account\n 3.Deposit\n 4.Withdrawal\n 5.Exit");
                        System.out.println("Ur Choice :");
                        ch=KB.nextInt();
                        switch(ch)
                        {
                                case 1:
                                        for(int i=0;i<C.length;i++)
                                        {
                                                C[i].showAccount();
                                        }
```

```
                        break;

                    case 2:
                        System.out.print("Enter Account No U Want to
Search...: ");
                        String acn=KB.next();
                        boolean found=false;
                        for(int i=0;i<C.length;i++)
                        {
                            found=C[i].search(acn);
                            if(found)
                            {
                                break;
                            }
                        }
                        if(!found)
                        {
                            System.out.println("Search Failed..Account
Not Exist..");
                        }
                        break;

                    case 3:
                        System.out.print("Enter Account No : ");
                        acn=KB.next();
                        found=false;
                        for(int i=0;i<C.length;i++)
                        {
                            found=C[i].search(acn);
                            if(found)
                            {
                                C[i].deposit();
                                break;
                            }
                        }
                        if(!found)
                        {
                            System.out.println("Search Failed..Account
Not Exist..");
                        }
                        break;

                    case 4:
                        System.out.print("Enter Account No : ");
                        acn=KB.next();
                        found=false;
                        for(int i=0;i<C.length;i++)
                        {
                            found=C[i].search(acn);
                            if(found)
                            {
                                C[i].withdrawal();
                                break;
                            }
                        }
```

```
                                    if(!found)
                                    {
                                          System.out.println("Search Failed..Account
Not Exist..");
                                    }
                                    break;

                              case 5:
                                    System.out.println("Good Bye..");
                                    break;
                        }
                  }
                  while(ch!=5);
            }
}
```

18.Eucational institution employee database

```
package pack1;
import java.io.*;

class staff
{
         String code,name;
         void getStaff()
         {
              try{
                  BufferedReader obj = new BufferedReader(new
InputStreamReader(System.in));
                  System.out.print("Enter Code : ");
                  System.out.flush();
                  code=obj.readLine();

                  System.out.print("Enter Name : ");
                  System.out.flush();
                  name=obj.readLine();
                 }
             catch(Exception e)
                 {    }
        }

    void displayStaff()
    {
           System.out.println("\nCODE :  "+code);
           System.out.println("NAME  :  "+name);
    }
}

class teacher extends staff
{
         String subject,publication;
          void getTeacher()
           {
                 getStaff();   //calling getStaff
                 try
                 {
```

```
                    BufferedReader obj = new BufferedReader(new
InputStreamReader(System.in));
                    System.out.print("Enter Subject : ");
                    System.out.flush();
                    subject=obj.readLine();

                    System.out.print("Enter Publication : ");
                    System.out.flush();
                    publication=obj.readLine();
                    }
               catch(Exception e)
                   {    }
            }

          void displayTeacher()
          {
              displayStaff();   //calling displayStaff
             System.out.println("SUBJECT :  "+subject);
             System.out.println("PUBLICATION  :  "+publication);
          }
}

class typist extends staff
{
          String speed;
           void getTypist()
           {
              getStaff();   //calling getStaff
              try
              {
                    BufferedReader obj = new BufferedReader(new
InputStreamReader(System.in));
                    System.out.print("Enter Speed : ");
                    System.out.flush();
                    speed=obj.readLine();
                    }
               catch(Exception e)
                   {    }
          }

      void displayTypist()
      {
              displayStaff();   //calling displayStaff
             System.out.println("SPEED :  "+speed);
      }
}

class officer extends staff
{
       String grade;
        void getOfficer()
           {
                getStaff(); //calling getStaff()
                try{
```

```
                    BufferedReader obj = new BufferedReader(new
InputStreamReader(System.in));
                    System.out.print("Enter Grade : ");
                    System.out.flush();
                    grade=obj.readLine();
                    }
              catch(Exception e)
                  {

                  }
         }

     void displayOfficer()
     {
            displayStaff();   //calling displayStaff
            System.out.println("GRADE :  "+grade);
     }
}


class regular extends typist
{
}

class casual extends typist
{
       String wages;
        void getCasual()
          {
               getTypist(); //calling getTypist()
               try{
                    BufferedReader obj = new BufferedReader(new
InputStreamReader(System.in));
                    System.out.print("Enter Daily Wages : ");
                    System.out.flush();
                    wages=obj.readLine();
                    }
              catch(Exception e)
                  { }
         }

     void displayCasual()
     {
            displayTypist(); //calling displayTypist
            System.out.println("WAGES :  "+wages);
     }
}

class Main
{
       public static void main(String args[])
       {

            int choice=1;
            String str;
```

```
            while(choice!=0){
                  System.out.println("\n\nChoose Your Choice...");
                  System.out.println("1) Teacher Details");
                  System.out.println("2) Typist Details ");
                  System.out.println("3) Officer Details");
                  System.out.println("Press 0 (ZERO) to exit ");
                  System.out.print("Enter your choice :  ");
                  System.out.flush();
                  try{
                        BufferedReader obj = new BufferedReader(new
InputStreamReader(System.in));
                        str=obj.readLine();
                        choice=Integer.parseInt(str);
                 }catch(Exception e) {}

                   if(choice==0)
                   {
                       System.out.println("\n\nThanks for Visiting\nDo Visit next
time....\n");
                        System.exit(1);
                   }

                  switch(choice){
                        case 1 :     System.out.println("\n=====TEACHER
DETAILS=====");
                                          System.out.println("\nInputing Data");
                                          teacher obj_teacher=new teacher();
                                          obj_teacher.getTeacher();
                                          System.out.println("\nDisplaying Data");
                                          obj_teacher.displayTeacher();
                                          break;
                         case 2 :    System.out.println("\n=====TYPIST
DETAILS=====\n");
                                          System.out.println("\nInputing Data");
                                          casual obj_casual=new casual();
                                          obj_casual.getCasual();
                                          System.out.println("\nDisplaying Data");
                                          obj_casual.displayCasual();
                                          break;
                         case 3 :    System.out.println("\n=====OFFICER
DETAILS=====\n");
                                          System.out.println("\nInputing Data");
                                          officer obj_officer=new officer();
                                          obj_officer.getOfficer();
                                          System.out.println("\nDisplaying Data");
                                          obj_officer.displayOfficer();
                                          break;
                         }
           }
     }
}
```

19.Class student ,class result, class test using multilevel inheritance

```
package pack1;
```

```
class Student

{
	private int rollno;

	private String name;
	public void storeDetails(int rno, String sname)
	{

		rollno = rno;

		name = sname;
		}

		public void showDetails()

		{

		System.out.println("ROll No :: " + rollno);

		System.out.println("Name :: " + name);
		}

		}

		class Test extends Student

		{

		protected int marksSubjectl;

		protected int marksSubject2;

		public void storeMarks(int ml, int m2)

		{

		marksSubjectl = ml;

		marksSubject2 = m2;
		}

		public void showMarks()

		{

		System.out.println("Marks of Subjectl :: " + marksSubjectl);

		System.out.println("Marks of Subject2 :: " + marksSubject2);
		}

		}
```

```
class Result extends Test

{

private int totalMarks;

private float percentage;

private char grade;

public void evaluateResult()

{

totalMarks = marksSubjectl + marksSubject2 ;

percentage = (totalMarks*100.00F/200.00F);
if(percentage >=55.00F && percentage<=60.00F)

grade = 'C';

else if (percentage >=61.00F && percentage<=70.00F)

grade = 'B';

else if (percentage >=85.00F && percentage<=100.00F)

grade = 'A';

else if (percentage >=76.00F && percentage<=85.00F)

grade = 'H';

else

grade = 'S';

}

public void showResult()

{

showDetails();

showMarks();

System.out.println("Total Marks :: " + totalMarks);

System.out.println("percentage :: " + percentage);

System.out.println("Grade :: " + grade);

}
```

```
}

public class Main

{

public static void main(String ar[])

{

Result ob = new Result();

ob.storeDetails(191039005, "Akshay Jeurkar");

ob.storeMarks(88,96);

ob.evaluateResult();

ob.showResult();

}

}
```

20.Modify above code add sports class and calculate overall percentage

```
package pack1;
class Student

{
	private int rollno;

	private String name;
	public void storeDetails(int rno, String sname)
	{

		rollno = rno;

		name = sname;
		}

		public void showDetails()

		{

		System.out.println("ROll No :: " + rollno);

		System.out.println("Name :: " + name);
		}

		}

		class Test extends Student

		{
```

```
        protected int marksSubject1;

        protected int marksSubject2;

        public void storeMarks(int m1, int m2)

        {

        marksSubject1 = m1;

        marksSubject2 = m2;
        }

        public void showMarks()

        {

        System.out.println("Marks of Subject1 :: " + marksSubject1);

        System.out.println("Marks of Subject2 :: " + marksSubject2);
        }

        }
class sports extends Test
{
       public int sportmarks;

       public void sportmar(int m3)

       {

        sportmarks = m3;

       }

       public void showMarks()

       {

       System.out.println("Marks of Subject1 :: " + marksSubject1);
       System.out.println("Marks of Subject2 :: " + marksSubject2);
       System.out.println("Marks of sports :: " + sportmarks);

       }



}


        class Result extends sports

        {
```

```
        private int totalMarks;

        private float percentage;

        private char grade;

        public void evaluateResult()

        {

        totalMarks = marksSubjectl + marksSubject2+sportmarks ;

        percentage = (totalMarks*100.00F/300.00F);
    if(percentage >=55.00F && percentage<=60.00F)

        grade = 'C';

        else if (percentage >=61.00F && percentage<=70.00F)

        grade = 'B';

        else if (percentage >=85.00F && percentage<=100.00F)

        grade = 'A';

        else if (percentage >=76.00F && percentage<=85.00F)

        grade = 'H';

        else

        grade = 'S';

        }

        public void showResult()

        {

        showDetails();

        showMarks();

        System.out.println("Total Marks :: " + totalMarks);

        System.out.println("percentage :: " + percentage);

        System.out.println("Grade :: " + grade);

        }

        }

        public class Main
```

```
{

public static void main(String ar[])

{

Result ob = new Result();

ob.storeDetails(191039005, "Akshay Jeurkar");

ob.storeMarks(88,96);
ob.sportmar(88);
ob.evaluateResult();

ob.showResult();

}

}
```

21.Above programe different package

```
package StudentTest;

public class Student
{
public int rollno;
public String name;
public void
storeDetails(int rno,
String sname)
{
rollno = rno;
name = sname;
}
public void
showDetails()
{
System.out.println("ROll
No :: " + rollno);
System.out.println("Name
:: " + name);
}

public static class
Test1
{
public int
marksSubject1;
public int
marksSubject2;
public void
storeMarks(int m1, int
m2)
{
```

```
package Sports;


public class sports
{
public int sportmarks;
public void sportmar(int
m3)
{
sportmarks = m3;
System.out.println("Mark
s of sports :: " +
sportmarks);
}
}
```

```
package  Results;
import java.util.Scanner;
import Sports.*;
import StudentTest.*;
class Result
{
public int totalMarks;
public float percentage;


public char grade;
public void
evaluateResult(int a,int
b,int c)
{
      int marksSubject2 = b;
      int sportmarks = c;
int marksSubject1=a;
totalMarks = marksSubject1 +
marksSubject2 + sportmarks ;
percentage =
(totalMarks*100.00F/300.00F);
if(percentage >=55.00F &&
percentage<=60.00F)
grade = 'C';
else if (percentage >=61.00F
&& percentage<=70.00F)
grade = 'B';
else if (percentage >=85.00F
&& percentage<=100.00F)
grade = 'A';
else if (percentage >=76.00F
&& percentage<=85.00F)
```

```
marksSubject1 = m1;
marksSubject2 = m2;
}
public void showMarks()
{
System.out.println("Mark
s of Subject1 :: " +
marksSubject1);
System.out.println("Mark
s of Subject2 :: " +
marksSubject2);
}
}
}
```

```
grade = 'H';
else
grade = 'S';
}
public void showResult()
{
//showDetails();
//showMarks();
System.out.println("Total
Marks :: " + totalMarks);
System.out.println("percentag
e :: " + percentage);
System.out.println("Grade ::
" + grade);
}
}
public class checka
{
public static void
main(String args[])
{
Student ob=new Student();
ob.storeDetails(191039005,
"Akshay Jeurkar");
Student.Test1 a=new
Student.Test1();
System.out.println("enetr
subject subject1");
Scanner sc=new
Scanner(System.in);
int ac=sc.nextInt();
System.out.println("enetr
subject subject2");
int ab=sc.nextInt();
a.storeMarks(ac,ab);
ob.showDetails();
a.showMarks();
sports b=new sports();
int cb=88;
b.sportmar(cb);
Result o=new Result();
o.evaluateResult(ac,ab,cb);
o.showResult();
}}
```

JAVA String

1.concatenation two string

```
package pack1;
```

```
import java.util.Scanner;
public class Main
{
    public static void main(String[] args)
    {
        String a, b, c;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter first string:");
        a = s.nextLine();
        System.out.print("Enter second string:");
        b = s.nextLine();
        Main obj = new  Main();
        c = obj.concat(a, b);
        System.out.println("New String:"+c);
    }
    String concat(String x, String y)
    {
        String z;
        z = x + " " + y;
        return z;
    }
}
```

2.check if given string is getChar from specific index

```
package pack1;
class Main {

      public static char
      getCharFromString(String str, int index)
      {
            char[] singleCharArray = new char[1];
            str.getChars(index, index + 1, singleCharArray, 0);
            return singleCharArray[0];
      }
      public static void main(String[] args)
      {
            String str = "Akshay Jeurkar";
            int index = 5;
            char ch = getCharFromString(str, index);

            System.out.println("Character from " + str
                                    + " at index " + index
                                    + " is " + ch);
      }
}
```

3.Find the length of String

```
package pack1;
public class Main {
public static void main(String[] args)
  {
    String str = "Akshay";
    int len = str.length();
    System.out.println("The string length of '"+str+"' is: "+len);
```

```
   }}
```

4.Find all possible subsets of given length in string

```
package pack1;
public class Main {
    public static void main(String[] args) {

        String str = "AKSHAY";
        int len = str.length();
        int temp = 0;
        String arr[] = new String[len*(len+1)/2];
        for(int i = 0; i < len; i++) {
                for(int j = i; j < len; j++) {
                arr[temp] = str.substring(i, j+1);
                temp++;
            }
        }
        System.out.println("All subsets for given string are: ");
        for(int i = 0; i < arr.length; i++) {
            System.out.println(arr[i]);
        }
    }
}
```

5.remove whitespace from string

```
package pack1;
public class Main {

    public static void main(String[] args) {
        String sentence = "A    ksh ay /  1910     39005.";
        System.out.println("Original sentence: " + sentence);

        sentence = sentence.replaceAll("\\s", "");
        System.out.println("After replacement: " + sentence);
    }
}
```

6.Split a regular expression

```
package pack1;
public class Main{
public static void main(String args[]){
String s1="Manipal School of Information Sciences Manipal";
String[] words=s1.split("\\s");
for(String w:words){
System.out.println(w);
}
}}
```

Socket

27.send a value to get the square and square root of the no from the server

```
//Send a value and get the square and square root of the number from
the server.
import java.net.ServerSocket;
import java.net.Socket;
```

```
import java.util.Scanner;
import java.io.PrintStream;

public class Q27Server {
	public static void main(String[] args) throws Exception {
		ServerSocket server = new ServerSocket(1234);
		Socket ss = server.accept();
		Scanner req = new Scanner(ss.getInputStream());
		PrintStream resp = new PrintStream(ss.getOutputStream());
		float inp, outp;

		System.out.println("Started heated up");

		inp = Float.parseFloat(req.next());
		System.out.println(inp);
		outp = (float) Math.pow(inp, 2);
		resp.print("Square: " + outp + "\n" + "Sqrt: " + Math.pow(inp, 0.5));

		System.out.println("Done");

		req.close();
		server.close();
	}
}
```

CLIENT

```
import java.net.Socket;
import java.util.Scanner;
import java.io.PrintStream;

public class Q27Client {
	public static void main(String[] args) throws Exception {
		Socket client = new Socket("127.0.0.1", 1234);
		Scanner resp = new Scanner(client.getInputStream());
		Scanner in = new Scanner(System.in);
		PrintStream req = new PrintStream(client.getOutputStream());

		System.out.print("Enter number: "); req.println(in.nextFloat());
		System.out.println(resp.nextLine());
System.out.println(resp.nextLine());

		resp.close();
		in.close();
		req.close();
		client.close();
	}
}
```

28.simple calculator on the server and get the result on client

Server

```
import java.net.ServerSocket;
import java.net.Socket;
import java.util.Scanner;
import java.io.PrintStream;
```

```java
public class Q28Sever {
	public static void main(String[] args) throws Exception {
		ServerSocket server = new ServerSocket(1234);
		Socket ss = server.accept();
		Scanner req = new Scanner(ss.getInputStream());
		PrintStream resp = new PrintStream(ss.getOutputStream());
		float inp1, inp2, outp = 0;
		String op, str;
		String []expr;

		System.out.println("Started heated up");

		str = req.nextLine();
		System.out.println(str);
		expr = str.split(" ");
		inp1 = Float.valueOf(expr[0]);
		inp2 = Float.valueOf(expr[2]);
		op = expr[1];
		System.out.println("" + inp1  + op + inp2);
		switch (op) {
		case "+" : outp = inp1 + inp2; break;
		case "-" : outp = inp1 - inp2; break;
		case "*" : outp = inp1 * inp2; break;
		case "/" : outp = inp1 / inp2; break;
		}
		System.out.println("" + inp1  + op + inp2 + " = " + outp);
		resp.println("" + inp1  + op + inp2 + " = " + outp);
		System.out.println("Done");

		req.close();
		ss.close();
		server.close();
	}
}
```

Client

```java
import java.net.Socket;
import java.util.Scanner;
import java.io.PrintStream;

public class Q28Client {
	public static void main(String[] args) throws Exception {
		Socket client = new Socket("127.0.0.1", 1234);
		Scanner resp = new Scanner(client.getInputStream());
		//Scanner in = new Scanner(System.in);
		PrintStream req = new PrintStream(client.getOutputStream());

		req.println("5 + 2.1");
		System.out.println(resp.nextLine());

		resp.close();
		//in.close();
		req.close();
		client.close();
```

```
	}
}
```

JAVA IO

21.Create a CSV file with SNo, MOVIENAME, DIRECTOR with 5 records. Also read the csv file and display.

```
package JavaIO;
import java.util.Scanner;
import java.io.File;

public class Q1 {
	public static void main(String[] args) throws Exception{
		Scanner csv = new Scanner(new File("F:\\ESD\\Assignment\\Java
IO\\files\\q1.csv"));
		String record;
		String fields[];

		while (csv.hasNext()) {
			record = csv.nextLine();
			fields = record.split(",");
			for (String s : fields)
				System.out.print(s + "\t\t\t");
			System.out.println("");
		}

		csv.close();
	}
}
```

22. Read a file and redirect the odd and even lines into even.txt and odd.txt.

```
package JavaIO;
import java.util.Scanner;
import java.io.File;
import java.io.FileWriter;

public class Q22 {
	public static void main(String[] args) throws Exception {
		Scanner read = new Scanner(new File("G:\\ESD\\Assignment\\Java
IO\\files\\q1.csv"));
		FileWriter even = new FileWriter("G:\\ESD\\Assignment\\Java
IO\\files\\q2even.txt");
		FileWriter odd = new FileWriter("G:\\ESD\\Assignment\\Java
IO\\files\\q2odd.txt");
		int lineCount = 1;
		String line;

		while (read.hasNext()) {
			line = read.nextLine() + "\n";
			if (lineCount % 2 == 0)
				even.write(line);
```

```
                else
                        odd.write(line);
                ++lineCount;
            }

            even.close();
            odd.close();
            read.close();
        }
}
```

23. Extend the above problem, read the odd and even files in a sequence and write into one single file.

```
package JavaIO;
import java.io.SequenceInputStream;
import java.io.FileWriter;
import java.io.FileInputStream;

public class Q23 {
        public static void main(String[] args) throws Exception {
            FileInputStream even = new FileInputStream("G:\\ESD\\Assignment\\Java
IO\\files\\q2even.txt");
            FileInputStream odd = new FileInputStream("G:\\ESD\\Assignment\\Java
IO\\files\\q2odd.txt");
            FileWriter write = new FileWriter("G:\\ESD\\Assignment\\Java
IO\\files\\q3.txt");
            SequenceInputStream read = new SequenceInputStream(odd, even);

            for (int i; (i = read.read()) != -1; )
                write.write((char) i);

            read.close();
            write.close();
            even.close();
            odd.close();
        }
}
```

24. Create a multiplication table of file as 1.txt, 2.txt....10.txt with corresponding tables till 10.

```
package JavaIO;
import java.io.FileWriter;

public class Q24 {
        public static void main(String[] args) throws Exception {
            String path = "G:\\ESD\\Assignment\\Java IO\\files\\";
            String fileType = ".txt";
            for (int i = 1; i <= 10; ++i) {
                String name = path + Integer.toString(i) + fileType;
                FileWriter write = new FileWriter(name);
                String table = "";

                for (int j = 1; j <= 10; ++j)
```

```
                        table += Integer.toString(i) + " * " + Integer.toString(j)
+ " = " + Integer.toString(i * j) + "\n";
                    write.write(table);

                    write.close();
                }
        }
}
```

23.read file segregate even and odd line into even.txt odd.txt

```
package pack1;
import java.io.BufferedReader;
import java.io.BufferedWriter;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileWriter;
import java.io.IOException;
import java.io.InputStreamReader;

public class Main {
        public static void main(String[] args) throws IOException {
                File dir = new File(".");

                String source = dir.getCanonicalPath() + File.separator + "Code.txt";
                String dest1 = dir.getCanonicalPath() + File.separator + "odd.txt";
                String dest2= dir.getCanonicalPath() + File.separator + "even.txt";

                File fin = new File(source);
                FileInputStream fis = new FileInputStream(fin);
                BufferedReader in = new BufferedReader(new InputStreamReader(fis));

                FileWriter fstream1 = new FileWriter(dest1, true);
                BufferedWriter out1 = new BufferedWriter(fstream1);
                FileWriter fstream2 = new FileWriter(dest2, true);
                BufferedWriter out2 = new BufferedWriter(fstream2);
         int a=1;
                String aLine = null;
                while ((aLine = in.readLine()) != null) {
                        if(a%2==0)
                        {
                                out2.write(aLine);
                                out2.newLine();
                                a++;
                        }
                        //Process each line and add output to Dest.txt file
                        else {
                        out1.write(aLine);
                        out1.newLine();
                        a++;
                        }
                }
```

```
            // do not forget to close the buffer reader
            in.close();

            // close buffer writer
            out1.close();
            out2.close();
      }
}
```

25. Create a JSON format file and read the file using JAVA application

Write

```
import java.io.FileWriter;
import java.io.IOException;
import org.json.simple.JSONObject;
public class CreatingJSONDocument {
   public static void main(String
args[]) {
      //Creating a JSONObject object
      JSONObject jsonObject = new
JSONObject();
      //Inserting key-value pairs into
the json object
      jsonObject.put("ID", "1");
      jsonObject.put("First_Name",
"Shikhar");
      jsonObject.put("Last_Name",
"Dhawan");
      jsonObject.put("Date_Of_Birth",
"1981-12-05");
      jsonObject.put("Place_Of_Birth",
"Delhi");
      jsonObject.put("Country",
"India");
      try {
         FileWriter file = new
FileWriter("E:/output.json");

file.write(jsonObject.toJSONString());
         file.close();
      } catch (IOException e) {
         // TODO Auto-generated catch
block
         e.printStackTrace();
      }
      System.out.println("JSON file
created: "+jsonObject);
   }
}
```

Read

```
import java.io.FileNotFoundException;
import java.io.FileReader;
import java.io.IOException;
import org.json.simple.JSONObject;
import
org.json.simple.parser.JSONParser;
import
org.json.simple.parser.ParseException;
public class ReadingJSON {
   public static void main(String
args[]) {
      //Creating a JSONParser object
      JSONParser jsonParser = new
JSONParser();
      try {
         //Parsing the contents of the
JSON file
         JSONObject jsonObject =
(JSONObject) jsonParser.parse(new
FileReader("E:/sample.json"));
         String id = (String)
jsonObject.get("ID");
         String first_name = (String)
jsonObject.get("First_Name");
         String last_name = (String)
jsonObject.get("Last_Name");
         String date_of_birth = (String)
jsonObject.get("Date_Of_Birth");
         String place_of_birth =
(String)
jsonObject.get("Place_Of_Birth");
         String country = (String)
jsonObject.get("Country");
         //Forming URL
         System.out.println("Contents of
the JSON are: ");
         System.out.println("ID :"+id);
         System.out.println("First name:
"+first_name);
```

	System.out.println("Last name: "+last_name);
	System.out.println("Date of birth: "+date_of_birth);
	System.out.println("Place of birth: "+place_of_birth);
	System.out.println("Country: "+country);
	System.out.println(" ");
	} catch (FileNotFoundException e) {
	e.printStackTrace();
	} catch (IOException e) {
	e.printStackTrace();
	} catch (ParseException e) {
	e.printStackTrace();
	}
	}
	}