ICSE COMPUTER APLICATION
CHAPTER:: ARRAY
SOLVED PROGRAM
Paper 2

Program 1.Write a program to accept 20 integer numbers in a single Dimensional Array. Find and Display the following:

i. Number of even numbers.

ii. Number of odd numbers.

iii. Number of multiples of 4

```
import java.util.*;
public class Numbers
{
   public static void main(String args[])
   {
      Scanner in = new Scanner(System.in);
      int i,j,c1=0,c2=0,c3=0;
      int a[] = new int[20];
      System.out.println("Enter 20 numbers");
      for(i=0;i<20;i++)
      {
      a[i] = in.nextInt();
   }
      for( i=0;i<20;i++)
      {
         if(a[i]%2 == 0)
         c1++;
         if(a[i]%2 !=0)
         c2++;
         if(a[i]%4 ==0)
         c3++;
      }
      System.out.println("Number of even numbers\t "+c1);
      System.out.println("Number of odd numbers\t "+c2);
      System.out.println("Number of multiple of 4\t "+c3);
   }}
```

Program 2.Write a program to accept the marks in Physics, Chemistry and Maths secured by 40 students of a class in a single Dimensional Arry. Find and display the following:

i. Number of students securing 80% and above in aggregate.

ii. Number of students securing 30% and below in aggregate.

```
import java.util.*;
public class Average
{
   public static void main()

{
   Scanner in = new Scanner(System.in);
   int i,j,c1=0, c2=0;
   int phy[] = new int[40];
   int chem[] = new int[40];
   int maths[] = new int[40];
   for(i=0;i<40;i++)
   {
      System.out.println("Maths secured in Physics");
      phy[i]=in.nextInt();
      System.out.println("Marks secured in Chemistry");
chem[i]=in.nextInt();
  System.out.println("Marks secured in Maths");
  maths[i]=in.nextInt();
}
for(i=0;i<40;i++)
{
   if((phy[i]+chem[i]+maths[i])/3.0 >=80)
   c1++;

      if((phy[i]+chem[i]+maths[i])/3.0 <=34)
      c2++;
   }
      System.out.println("Number of students gettinng 80% and above\t"+c1);
       System.out.println("Number of students gettinng 34% and below\t"+c2);
      }}
```

Program 3.program to store 6 elements in an array P and 4 elements in an array Q. Now produce a third array R, containing all the elements of P and Q. Display the resultant array

Input for p[] :

Enter Number :1

Enter Number :2

Enter Number :3

Enter Number :4

Enter Number :5

Enter Number :6

Input for q[] :

Enter Number :7

Enter Number :8

Enter Number :9

Enter Number :10

Elements of r[] :

1

2

3

4

5

6

7

8

9

10

```
import java.util.*;
public class NewArray {
   public static void main(String args[]) {
      Scanner in = new Scanner(System.in);
      int p[] = new int[6];
      int q[] = new int[4];
      System.out.println("Input for p[] :");
      for(int i=0;i<6;i++) {
         System.out.print("Enter Number :");
         p[i]=in.nextInt();
      }
      System.out.println("Input for q[] :");
      for(int i=0;i<4;i++) {
         System.out.print("Enter Number :");
         q[i]=in.nextInt();
      }
      int r[] = new int[10];
      for(int i=0;i<6;i++)
      {
         r[i]=p[i];
      }
      int l=6;//last index of p[];
      for(int i=0;i<4;i++) {
         r[i+l]=q[i];
      }
      System.out.println("Elements of r[] :");
      for(int i=0;i<10;i++) {
         System.out.println(r[i]);
      }
   }
}
```

Program 4. Write a program in Java to accept 20 numbers in a single dimensional array arr[20]. Transfer and store all the even numbers in an array even[ ] and all the odd numbers in another array odd[ ]. Finally, print the elements of both the arrays.

```
import java.util.Scanner;
public class Even_odd
{
 public static void main(String args[]) {

 Scanner in = new Scanner(System.in);
       int i = 0;

       int arr[] = new int[20];
       int even[] = new int[20];
       int odd[] = new int[20];

       System.out.println("Enter 20 numbers:");
       for (i = 0; i < 20; i++) {
          arr[i] = in.nextInt();
       }
       int e = 0, od = 0;
       for (i = 0; i < 20; i++) {
          if (arr[i] % 2 == 0)
             even[e++] = arr[i];
          else
             odd[od++] = arr[i];
       }
      System.out.println("Even Numbers:");
       for (i = 0; i < even[i]; i++) {
          System.out.print(even[i] + " ");
       }
       System.out.println("Odd Numbers:");
       for (i = 0; i < odd[i]; i++) {
          System.out.print(odd[i] + " ");
       }
    }
}
```

Program 5. The class teacher wants to store the marks obtained in English, Maths and Science of her class having 40 students. Write a program to input marks in Eng, Science and Maths by using three single dimensional arrays. Calculate and print the following information:
(i) Average marks secured by each student.
(ii) Class average in each subject.
[Hint: Class average is the average marks obtained by 40 students in a particular subject.]

```
import java.util.*;
public class Average_Marks
{
   public static void main(String args[]) {
   Scanner in = new Scanner(System.in);
      int e[] = new int[40];
      int m[] = new int[40];
      int s[] = new int[40];
      double avg[] = new double[40];
      for (int i = 0; i < 40; i++) {
         System.out.println("Enter student " + (i+1) );
         System.out.print("Marks in English: ");
         e[i] = in.nextInt();
         System.out.print("Marks in Maths: ");
         m[i] = in.nextInt();
         System.out.print("Marks in Science: ");
         s[i] = in.nextInt();
         avg[i] = (e[i] + m[i] + s[i]) / 3.0;
      }
     int t1 = 0,t2 = 0, t3= 0;
    for (int i = 0; i < 40; i++) {
         System.out.println("Average marks of student " + (i+1) + " = " + avg[i]);
        t1=t1+ e[i];
         t2=t2+ m[i];
         t3 = t3+s[i];
      System.out.println("Class Average in English = " + ((double)t1 / 40));
      System.out.println("Class Average in Maths = " + ((double)t2 / 40));
      System.out.println("Class Average in Science = " + ((double)t3 / 40));
   }
}
```

Program 6. Write a program in Java to accept 20 numbers in a single dimensional array arr[20]. Transfer and store all the even numbers in an array even[ ] and all the odd numbers in another array odd[ ].
Finally, print the elements of both the arrays.

```
import java.util.Scanner;
public class Even_Odd
{
public static void main(String args[]) {
Scanner in = new Scanner(System.in);
      int i = 0;
      int arr[] = new int[20];
      int even[] = new int[20];
      int odd[] = new int[20];
      System.out.println("Enter 20 numbers:");
      for (i = 0; i < 20; i++) {
         arr[i] = in.nextInt();
      }
 int e = 0, od = 0;
 for (i = 0; i < 20; i++) {
  if (arr[i] % 2 == 0)
  even[e++] = arr[i];
  else
  odd[od++] = arr[i];   }
      System.out.println("Even Numbers:");
      for (i = 0; i < even[i]; i++) {
         System.out.print(even[i] + " ");
      }
      System.out.println("Odd Numbers:");
      for (i = 0; i < odd[i]; i++) {
         System.out.print(odd[i] + " ");     }}]
```

Program 7. Create an array of size 10. Automatically fill the array with the factorial of number between 1 to 10, and then display the content of array.

```
 import java .util.*;
  public class Array_factorial
{
  public static void main(String args[])
  {
    int i,f = 1;
    Scanner sc=new Scanner(System.in);
    int x[] = new int[10];
    for(i = 0;i<10;i++)
    {
      f = f*(i+1);
      x[i] = f;
    }
    for(i = 0;i<10;i++)
      System.out.println (x[i]);
  }
}
```

Program 8. Write a program to accept 20 integer numbers in a single Dimensional Array. Using menu driven approach display the following, as per user's choice:
i. All the perfect numbers store in the array.
ii. All the Buzz numbers store in the array.[A number whose sum of factors (including 1 and excluding the number itself)
is the same is side to be a perfect number. A number that is divisible by 7 or has last digiit as 7,
is said to buzz nymber.]

```
import java.util.*;
class Number1
{
    public static void main()
    {
    Scanner in = new Scanner(System.in);
        int a[] = new int [20];
        int n,s,i,j;
        System.out.println("Enter integer numbers");
```

```
for(i=0;i<20;i++)
a[i]=in.nextInt();
System.out.println("Menu Items");
 System.out.println(" 1. To display all the perffect numbers");
 System.out.println("1. To display all the Buzz numbers");
 System.out.println("Enter your choice");
 n=in.nextInt();
 switch(n)
 {
    case 1:
    for(i=0;i<20;i++)
    {
       s=0;
       for(j=1;j<a[i];j++)
       {
          if(a[i]%j == 0)
          s = s + j;
         }
         if(s == a[i])
         System.out.println(a[i]);
      }break;
      case 2:
      for(i=0;i<20;i++)
      {
         if(a[i]%7 == 0 || a[i]%10 == 7)
         System.out.println(a[i]);
      }
      break;
      default:
      System.out.println("Invalid choice");
   }}}
```

Program 9. Write a program to accept 10 states and 10 capitals of country in two different single dimensional array. Now, enter a state of the country to display its capital.
If it is present then display its capital otherwise, display a relevant message.
Sample input: enter the state and the capital
Bihar
Patna
West Bengal
Kolkata and so on----------
sample Output: enter the state whose capital is to be searched:
West Bengal
The capital is Kolkata

```
import java.util.*;
public class Capital
{
public static void main(String args[])
{
   Scanner in = new Scanner(System.in);
   int i,a=0,k=0;
   String st;
   String m[]=new String[10];
   String n[]=new String[10];
   for(i=0;i<10;i++)
   {
      System.out.print("Enter states in the cell :");
      m[i]=in.nextLine();
      System.out.print("Entter capital in the cell :");
      n[i]=in.nextLine();
   }
   System.out.print("Enter the states whose capital to be searched");
   st=in.nextLine();
   for(i=0;i<10;i++)
   {
   if(m[i].equals(st))
   {
      k=1;
      a=i;
   }
}
if(k==1)
```

```
 System.out.println("The capital is "+n[a]);
 else
  System.out.println("The state"+st+ "is not found at any location");
}}
```

Program 10 .Using scanner class, write a program to input 10 important cities with their STD code in two different single dimensional arrays. The program display only those cities which begin with a vowel with their corresponding STD code.
To display the STD code of cities which begins with a vowel.

```
 import java.util.Scanner;
 public class STDcode
 {

    public static void main(String[] args)
    {
       Scanner in=new Scanner(System.in);
       int i;
       char ch;
       String st[]=new String[10];
       int code[]=new int[10];
       for(i=0;i<10;i++)
       {
          System.out.println("Enter city and STD code one by one");
          st[i]=in.next();
          code[i]=in.nextInt();
         }
         System.out.println("The city begins wih a vowel & corresponding STD code
:");
         for(i=0;i<10;i++)
         {
            ch=st[i].charAt(0);

if(ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u'||ch=='A'||ch=='E'||ch=='I'||ch=='
O'||  ch=='U')

            System.out.println(st[i]+" "+code[i]);
         }
      }
   }
```

Program 11.Write a program that reads a long number, counts and displays the occurrences of each digit in it.

```
import java.util.*;

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

      Scanner in = new Scanner(System.in);
      System.out.print("Enter a number: ");
      long num = in.nextLong();
      int count[] = new int[10];

      while (num != 0) {
         int d =(int) num % 10;
        count[d] = count[d] + 1;
         num =num/ 10;
      }

      System.out.println("Digit occurance");
      for (int i = 0; i < 10; i++) {
         if (count[i] != 0) {
            System.out.println(i + "\t" + count[i]);
         }
      }
   }
}
```

Program 12Write a program to initialilze the "seven wonders" of the world along with their locations in two different arrays. Search for a name of the country input by the user. If fouond, display the country alonng with its Wonder, otherwise display 'Sorry Not Found!'
seven wonders:chichen Itza, Christ the redeemer, Taj Mahal, Great wall of china, Machu Picchu, Petra, Colosseum.
location: Mexico, Brazil, india, china, Peru, Jordan, Italy
Example: Input: Country Name India
Output: India Taj Mahal
Country name USA
Output: 'Sorry Not Found'!

```
import java.util.*;
class Seven_Wonders
{
   public static void main(String argd[])
   {
      Scanner in=new Scanner(System.in);
      String wond[]=new String[7];
      String locn[]=new String[7];
      int i,f=0;String w="";
      String l;
      System.out.println("Enter seven wonders and location");
      for(i=0;i<7;i++)
      {
         wond[i]=in.next();
         locn[i]=in.next();
      }
      System.out.println("Enter the country name");
     l=in.next();

      f=0;
      for(i=0;i<7;i++)
      {
         if(l.equals(locn[i]))
         {
            f=f+1;
            w=wond[i];
            l=locn[i];
```

```
        }}
        if(f==1)
        {
        System.out.println("Search successful:");
        System.out.println(l+":\tWonders:\t"+w);
      }
      else
      System.out.println("Search unsuccessful, no such location in the list");
   }}
```

Program 13. Write a program to accept 10 different numbers is a single dimension Array. Arrange the number in ascending order by using the 'selection Sort' technique and display them.

```
        import java.util.*;
        public class Selection_Short
        {
        public static void main(String args[])
        {
           Scanner in = new Scanner(System.in);
          int i,j,t,min;
          int m[]=new int[10];;
          for(i=0;i<10;i++)
          {
           System.out.print("Enter the number in the cell :");
             m[i]=in.nextInt();
             }
          for(i=0;i<10;i++)
          {
           min=i;
           for(j=i+ 1;j<10;j++)
           {
             if(m[j]<m[min])
             min=j;
           }
           t=m[i];
           m[i]=m[min];
           m[min]=t;
```

```
    }

    System.out.println("The number arranged in ascending order are");
    for(i=0;i<10;i++)
    System.out.println(m[i]);
}}
```

Program 14. Write program to accept 10 different nos in a SDA. now enter a number and by using binary search technique check whether the number is present or not.

```
import java.util.*;
    public class BinarySearch
    {
      public static void main(String args[])
      {
        Scanner in=new Scanner(System.in);
        int i,k=0,ns;int mid=0,first=0,last=9;
        int m[]=new int[10];
        for(i=0;i<10;i++)
        {
          System.out.print("Enter the number in the cell:");
          m[i]=in.nextInt();
        }
        System.out.print("Enter the number to be searched:");
        ns=in.nextInt();
        while(first<=last)
        {
          mid=(first+last)/2;
          if(m[mid]<ns)
         first =mid+1;
```

```
            if(m[mid]>ns)
            last=mid-1;
            if(m[mid]==ns)
            {
               k=1;
               break;
            }
          }
          if(k==1)
           System.out.println("The number is present");
          else
          System.out.print("The number is not present");
        }}
```

Program 15. Write a program in Java to store 10 city names in a single Dimensional Array. Display only those words/names which begin with a consonant but end with a vowel.

```
import java.util.*;
public class Vowel_Consonant
{
public static void main(String args[])
{
Scanner sc=new Scanner(System.in);

int i,l;String c[]=new String[10],st ;char fl,ll;
System.out.println("Enter 10 city names");

for(i=0;i<10;i++)
{
c[i]=sc.next();
}
```

```
System.out.println("Following are the cities starting with consonant and ending
with vowels");
for(i=0;i<10;i++)
{
st=c[i].toUpperCase();

l=st.length();
fl=st.charAt(0);
ll=st.charAt(l-1);

if(fl!='A'&& fl!='E'&& fl!='I'&& fl!='O'&& fl!='U' )
{
if(ll=='A' || ll=='E' || ll=='I' ||ll=='O' || ll=='U')
System.out.println(c[i]);
}
}
}
}
```