**1. Base Conversion**

import java.util.Scanner;

public class BaseConversion {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int arr[] = new int[10];

int num, base, index=0, rem=0;

System.out.println("Enter the number and base to convert");

num = sc.nextInt();

base = sc.nextInt();

while (num>0)

{

rem = num%base;

rem = rem+48;

if (rem>57)

{

rem = rem+7;

}

arr[index] = rem;

index++;

num = num/base;

}

for (int i=index-1;i>=0;i--)

{

System.out.print(arr[i]);

}

sc.close();

}

}

**2. Partitioning Array**

import java.util.\*;

public class PartitioningArray {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.print("Enter size of array");

int n=sc.nextInt();

int arr[]=new int[n];

System.out.println("Enter a no.");

int x=sc.nextInt();

System.out.println("Enter"+n+"Elements");

for(int l=0;l<n-1;l++)

arr[l]=sc.nextInt();

int temp=0;

int i=0;

int j=n-1;

while((arr[i]<=x)&&(i<j))

i++;

while((arr[j]>x)&&(i<j))

j--;

while(i<j)

{

temp=arr[i];

arr[i]=arr[j];

arr[j]=temp;

i++;j--;

while(arr[i]<=x)

i++;

while(arr[j]>x)

j--;

}

for(int k=0;k<n;k++)

{

System.out.print(arr[k]);

}

sc.close();

}

}

**3. Removal of Duplicates**

import java.util.Scanner;

public class RemovalOfDuplicates {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter size of the array");

int n = sc.nextInt();

int arr[] = new int[n];

System.out.println("Input "+n+" vlaues");

for (int i=0;i<n;i++)

{

arr[i] =sc.nextInt();

}

int i=1;

while (arr[i-1]!= arr[i]&&i<n-1)

i++;

if (arr[i-1]!=arr[i])

i++;

int j = i-1;

while (i<n-1)

{

i++;

if (arr[i-1]!=arr[i])

{

j++;

arr[j] = arr[i];

}

}

for (int k=0;k<=j;k++)

System.out.print(arr[k]);

sc.close();

}

}

**4. Kth Smallest**

import java.util.\*;

public class KthSmallest {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter size of the array");

int n=sc.nextInt();

int arr[]=new int[n];

System.out.println("Enter" + n + "Elements");

for(int l=0;l<n;l++)

arr[l]=sc.nextInt();

System.out.println("Enter value of K");

int k=sc.nextInt();

int temp,l=0,u=n-1;

while(l<u)

{

int i=l;

int j=u;

int x=arr[k];

while((i<=k)&&(j>=k))

{

while(arr[i]<x)

i++;

while(arr[j]>x)

j--;

temp=arr[i];

arr[i]=arr[j];

arr[j]=temp;

i++;

j--;

}

if(i>k)

u=j;

if(j<k)

l=i;

System.out.println("Kth Smallest = "+arr[k-1]);

}

sc.close();

}

}

**5. nth Fibonaccy**

import java.util.Scanner;

public class nthFibonacci {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the value of n");

int n = sc.nextInt();

int arr[] = new int[100];

int i=0;

while (n>0)

{

int rem = n%2;

arr[i]=rem;

i++;

n=n/2;

}

int fn=0, fnp1=1, f2n, f2np1;

for (int k=i-2;k>0;k--)

{

f2n = (fn\*fn)+(fnp1\*fnp1);

f2np1 = (2\*fn\*fnp1)+(fnp1\*fnp1);

if (arr[k]==0)

{

fn = f2n;

fnp1 = f2np1;

}

else

{

fn = f2np1;

fnp1 = f2n+f2np1;

}

}

System.out.print("Result = "+fn);

sc.close();

}

}

**6. Char To Int**

import java.util.\*;

public class CharToInt {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

String str;

int len, result=0;

System.out.println("Enter a sring of digits");

str = sc.nextLine();

len = str.length();

for (int i=0;i<len;i++)

{

result = result\*10+(str.charAt(i)-48);

}

System.out.println("Result = "+result);

sc.close();

}

}

**7. Histogram Counting**

import java.util.Scanner;

public class HistogramCounting {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

char ch;

int arr[] = new int[101];

for (int i=0;i<101;i++)

arr[i]=0;

do

{

System.out.println("Input Marks");

int mark = sc.nextInt();

arr[mark] = arr[mark]+1;

System.out.println("Do you have more marks to be inserted ?");

System.out.println("Enter y or n");

ch = sc.next().charAt(0);

}

while (ch=='y');

{

for (int i=0;i<100;i++)

{

System.out.print(arr[i]);

}

}

sc.close();

}

}

**8. Insertion In Array**

import java.util.Scanner;

public class InsertionInArray {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int arr[] = new int[20];

System.out.println("Enter the total number of elements");

int n = sc.nextInt();

System.out.println("Enter the "+n+" values of the array");

for (int i=0;i<n;i++)

{

arr[i] = sc.nextInt();

}

System.out.println("Enter the podition and then the new element");

int pos = sc.nextInt();

int ele = sc.nextInt();

for(int i=n-1;i>=pos;i--)

{

arr[i+1] = arr[i];

}

arr[pos] = ele;

System.out.println("Teh elments of the array are =");

for (int i=0;i<n;i++)

{

System.out.print(arr[i]+" ");

}

sc.close();

}

}

**9. Reverse Array**

import java.util.Scanner;

public class ReverseArray {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the number of elements in the array");

int n = sc.nextInt();

int arr[] = new int[n];

System.out.println("Input "+n+" vlaues");

for (int i=0;i<n;i++)

{

arr[i] =sc.nextInt();

}

for (int i=0;i<n/2;i++)

{

int temp = arr[i];

arr[i] = arr[n-i-1];

arr[n-i-1] = temp;

}

for (int i=0;i<n;i++)

{

System.out.println(arr[i]);

}

sc.close();

}

}

**10. Square Root**

import java.util.\*;

public class Squareroot {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the number");

int num = sc.nextInt();

double r1 = num/20;

double r2;

do

{

r2 = r1;

r1 = (r2+num/r1)/2;

}

while (Math.abs(r2-r1)>0.0001);

{

System.out.println("Result = "+r1);

}

sc.close();

}

}

**11. First n Prime Numbers**

import java.util.Scanner;

public class Problem5{

public static void main(String args[]){

int status = 1;

int num = 3;

Scanner scanner = new Scanner(System.in);

System.out.println("Enter the value of n:");

int n = scanner.nextInt();

if (n >= 1)

{

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

System.out.println(2);

}

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

{

for ( int j = 2 ; j <= Math.sqrt(num) ; j++ )

{

if ( num%j == 0 )

{

status = 0;

break;

}

}

if ( status != 0 )

{

System.out.println(num);

i++;

}

status = 1;

num++;

}

}

}

**12. GCD Of 2 Numbers**

import java.util.Scanner;

public class Problem10 {

public static void main(String[] args) {

Scanner sc =new Scanner(System.in);

System.out.print("Enter the First no : ");

int n1=sc.nextInt();

System.out.print("Enter the Second no : ");

int n2=sc.nextInt();

while(n1 != n2)

{

if(n1 > n2)

n1 = n1-n2;

else

n2 = n2-n1;

}

System.out.print("GCD = "+n1);

sc.close();

}

}

**13. Maximum And Minimum In An Array**

import java.util.\*;

public class Problem6 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int count1=0, count2=0;

System.out.println("Enter the limit of the array");

int n = sc.nextInt();

int numbers[] = new int[n];

System.out.println("Enter "+n+" values");

for (int i=0;i<n;i++)

numbers[i] = sc.nextInt();

int smallest = numbers[0];

int largetst = numbers[0];

for(int i=1; i< numbers.length; i++)

{

if(numbers[i] > largetst)

largetst = numbers[i];

else if (numbers[i] < smallest)

smallest = numbers[i];

}

System.out.println("Largest Number is : " + largetst);

System.out.println("Smallest Number is : " + smallest);

}

sc.close();

}

}

**14. Lucas Series**

import java.util.Scanner;

public class Lucas {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter the number of terms to be printed: ");

int n=sc.nextInt();

int a=1, b=3, i=2;

while(i<n)

{

System.out.print(a+" "+b+" ");

a=a+b;

b=a+b;

i=i+2;

}

if((i-n)==0)

System.out.print(a+" "+b+" ");

else

System.out.print(a);

sc.close();

}

}

**15. Reverse Of A Number**

import java.util.Scanner;

public class Reversal {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int rev=0, r;

System.out.println("Enter the number: ");

int n=sc.nextInt();

while(n>0)

{

r=n%10;

rev=rev\*10+r;

n=n/10;

}

System.out.println("The reversed number is: "+rev);

sc.close();

}

}

**16. Array Reverse Using i=0 and j=n-1**

import java.io.\*;

public class Problem2 {

public static void main(String[] args){

System.out.println("Enter the array Size");

Scanner in=new Scanner(System.in);

int size=in.nextInt();

System.out.println("Enter the array Elements");

int array[]=new int[size];

for(int i=0;i<size;i++){

array[i]=in.nextInt();

}

System.out.println("reverse of entered are given below for Size : " +size );

for(int i=size-1;i>=0;i--)

{

System.out.print(array[i]+" ");

}

in.close();

}

}

**17. Leap Year**

import java.io.\*;

public class Problem2 {

public static void main(String[] args){

Scanner in = new Scanner(System.in);

System.out.println("Enter the year");

int year = in.nextInt();

int y = year/4;

if (y==0)

System.out.println(year+" is a leap year");

else

System.out.println(year+" is not a leap year");

in.close();

}

}

**18. Fibonacci Series Using Efficient Algorithm**

import java.util.Scanner;

public class EffFibo {

public static void main(String[] args){

Scanner sc=new Scanner(System.in);

System.out.println("Enter how many terms of fibonacci sequence you want to print: ");

int n=sc.nextInt();

int a=0,b=1,i=2;

while(i<n)

{

System.out.print(a+" "+b+" ");

a=a+b;

b=a+b;

i=i+2;

}

if((i-n)==0)

System.out.print(a+" "+b+" ");

else

System.out.print(a);

sc.close();

}

}

**19. Fibonacci Series Normal Algorithm**

import java.util.Scanner;

public class LesseffFibo {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter the value of n: ");

int n=sc.nextInt();

int a=0, b=1, i=2,c;

System.out.print(a+" "+b);

while(i<n)

{

c=a+b;

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

a=b;

b=c;

i++;

}

sc.close();

}

}

**20. Swapping Of Two Variables Using XOR**

import java.util.Scanner;

public class LesseffFibo {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter two numbers");

int x = sc.nextInt();

int y = sc.nextInt();

x = x ^ y;

y = x ^ y;

x = x ^ y;

System.out.println("After swapping");

System.out.println("X= "+x+" And Y= "+y);

Sc.close();

}

}

# 21. Second Largest & Smallest Elements in an Array

import java.util.Scanner;

public class SecondLargest\_Smallest{

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(Minimum 2):");

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.println("Second Largest:"+a[n-2]);

System.out.println("Smallest:"+a[0]);

}

}

**22. java program to compute the smallest common divisor other than one of two positive non-zero integers using method**

import java.util.\*;

public class Problem12 {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("enter the numbers");

int x=sc.nextInt();

int y=sc.nextInt();

int z=x,a=y;

int r,gcd,b;

while(y!=0){

r=x%y;

x=y;

y=r;

}

gcd=x;

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

if((z%i==0)&&(a%i==0)){

b=i;

System.out.println(b);

break;

}

}

sc.close();

}

}

**23. HCF And LCM**

import java.util.\*;

public class HCFandLCM{

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

int lcm,hcf;

System.out.println("Enter any 2 numbers....");

int n1=scan.nextInt();

int n2=scan.nextInt();

int x=n1;

int y=n2;

do{

if(n1>n2){

n1=n1-n2;

}

else{

n2=n2-n1;

}

} while(n1!=n2);

hcf=n1;

lcm=x\*y/hcf;

System.out.println("HCF IS = "+hcf);

System.out.println("LCM IS = "+lcm);

scan.close();

}

}

**24. Convert a decimal integer to its corresponding octal representation**

import java.util.\*;

public class ques9 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a decimal number : ");

int dec = sc.nextInt();

int octr=0;

while(dec!=0)

{

int d = dec%8;

octr=octr\*10+d;

dec/=8;

}

int oct=0;

while(octr!=0)

{

int d=octr%10;

oct=oct\*10+d;

octr/=10;

}

System.out.println("Octal : "+oct);

sc.close();

}

}

**25. Java method to compute GCD which does not use either division or mod operator**

import java.util.Scanner;

public class Problem10 {

public static void main(String[] args) {

Scanner sc =new Scanner(System.in);

System.out.print("Enter the First no : ");

int n1=sc.nextInt();

System.out.print("Enter the Second no : ");

int n2=sc.nextInt();

while(n1 != n2)

{

if(n1 > n2)

n1 = n1-n2;

else

n2 = n2-n1;

}

System.out.print("GCD = "+n1);

sc.close();

}

}

**ASSIGNMENT – 10 [IMPORTANT]**

**26. Write a java program that rearranges the elements of an array so that all those originally stored at odd suffixes are placed before those at even suffixes.**

**For example, the set**

**1 3 5 7 2 4 6 8**

**would be transformed to**

**1 2 3 4 5 6 7 8**

import java.io.\*;

import java.util.\*;

public class Problem4{

static void segregateEvenOdd(int arr[]) {

int left = 0, right = arr.length - 1;

while (left < right)

{

while (arr[left]%2 == 0 && left < right)

left++;

while (arr[right]%2 == 1 && left < right)

right--;

if (left < right)

{

int temp = arr[left];

arr[left] = arr[right];

arr[right] = temp;

left++;

right--;

}

}

}

public static void main (String[] args)

{

Scanner sc = new Scanner(System.in);

System.out.println("Enter the limit of the array");

int n = sc.nextInt();

int arr[] = new arr[n];

System.out.println("Enter "+n+" values");

for (int i=0;<n;i++)

arr[i] = sc.nextInt();

segregateEvenOdd(arr);

System.out.print("Array after segregation ");

for (int i = 0; i < arr.length; i++)

System.out.print(arr[i]+" ");

sc.close();

}

}

**27. It is required to generate a histogram distribution for a set of daily average temperatures recorded in India. The temperatures are integer values in the range -5o C to +50o C. Write a java program to input n such temperatures and produce the appropriate distribution.**

import java.util.Scanner;

public class Problem5 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

char ch;

int arr[] = new int[100];

for (int i=0;i<100;i++)

arr[i]=0;

do

{

System.out.println("Input temperatures");

int temp = sc.nextInt();

arr[temp] = arr[temp]+1;

System.out.println("Do you have more temperatures to be inserted ?");

System.out.println("Enter y or n");

ch = sc.next().charAt(0);

}

while (ch=='y');

{

for (int i=0;i<100;i++)

{

System.out.print(arr[i]);

}

}

sc.close();

}

}