**1.Find area of the rectangle**

import java.util.Scanner;

public class Rectangle {

public static void main(String[] args) {

Scanner sc=new Scanner(System.***in***);

System.***out***.println("length of the rectangle");

double length=sc.nextDouble();

System.***out***.println("breadth of the rectangle");

double breadth=sc.nextDouble();

double area=length\*breadth;

System.***out***.println(area);

System.***out***.println("area of the rectangle");

}

}

**2.find value of ASCII value of character**

import java.util.Scanner;

public class AsciiValue {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a character: ");

char character = scanner.next().charAt(0); // Read a single character

// Get ASCII value by casting the character to int

int asciiValue = character;

// Display the ASCII value

System.out.println("The ASCII value of '" + character + "' is: " + asciiValue);

scanner.close();

}

}

**3.convert Celsius to Fahrenheit**

import java.util.Scanner;

public class celsiustofahrenheit {

public static void main(String[] args) {

Scanner sc=new Scanner(System.***in***);

System.***out***.println("enter temperature in celsius");

double celsius=sc.nextDouble();

double fahrenheit=(celsius\*9/5)\*32;//formula

System.***out***.println(celsius +" celsius equal to "+ fahrenheit + " fahrenheit ");

sc.close();

}}

**4.swapping**

**import** java.util.Scanner;

**public** **class** swap {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**int** a,b;

a=sc.nextInt();

b=sc.nextInt();

System.***out***.println("Before swapping:");

System.***out***.println("A="+a);

System.***out***.println("B="+b);

**int** temp=a;

a=b;

b=temp;

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

System.***out***.println("A="+a);

System.***out***.println("B"+b);

}

}

**5.Even or Odd**

**import** java.util.\*;

**public** **class** Evenorodd {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter a value:");

**int** a;

a=sc.nextInt();

**if**(a%2==0) {

System.***out***.println("given number is even");

}

**else**

{

System.***out***.println("given number is odd");

}}}

**6.check whether a character is vowel or consonant**

**import** java.util.\*;

**public** **class** vowelorconsonant {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter an character:");

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

**if**( Character.*isLetter*(ch)) {

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

{

System.***out***.println("the character is vowel");

}**else** {

System.***out***.println("the character is consonant");

}}

**else** {

System.***out***.println("invalid input,enter an correct alphabet");}}}

**7.print largest of two numbers**

**import** java.util.Scanner;

**public** **class** printlargestoftwo {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**int** a,b;

System.***out***.println("enter a value:");

a=sc.nextInt();

System.***out***.println("enter b value:");

b=sc.nextInt();

**if**(a>b) {

System.***out***.println("a is greater");

}

**else** {

System.***out***.println("b is greater");

}

}

}

**8.print largest of three numbers**

import java.util.Scanner;

public class printlargestofthree {

public static void main(String[] args) {

Scanner sc=new Scanner(System.*in*);

int a,b,c;

System.*out*.println("enter a value:");

a=sc.nextInt();

System.*out*.println("enter b value:");

b=sc.nextInt();

System.*out*.println("enter c value:");

c=sc.nextInt();

if(a>b&&a>c) {

System.*out*.println("a is largest");

}

if(b>a&&b>c) {

System.*out*.println("b is largest");

}

if(c>a&&c>b) {

System.*out*.println("c is largest");

}

}

}

**Another method**

**public** **class** lot {

**public** **static** **void** main(String[] args) {

**int** a=1000,b=2000,c=3000;

String largest="";

largest=(a>b&&a>c)?"a":(b>a&&b>c)?"b":(c>a&&c>b)?"c":"";

System.***out***.println(largest);

}

}

**9.checking leap year or not**

import java.util.Scanner;

public class LeapYearCheck {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a year: ");

int year = scanner.nextInt();

**// Check if the year is a leap year**

if (year % 4 == 0) {

if (year % 100 == 0) {

**// If year is divisible by 100, it must also be divisible by 400 to be a leap year**

if (year % 400 == 0) {

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

} else {

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

}

} else {

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

}

} else {

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

}

// Close the scanner

scanner.close();

}

}

**10)positive or negative**

**import** java.util.Scanner;

**public** **class** positivenegative {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

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

**int** number = scanner.nextInt();

// Check if the number is positive, negative, or zero

**if** (number > 0) {

System.***out***.println(number + " is positive.");

} **else** **if** (number < 0) {

System.***out***.println(number + " is negative.");

} **else** {

System.***out***.println("The number is zero.");

}

}}

**11.Quadratic equation**

**import** java.util.Scanner;

**public** **class** quadraticequation {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

System.***out***.print("Enter coefficient a: ");

**double** a = sc.nextDouble();

System.***out***.print("Enter coefficient b: ");

**double** b = sc.nextDouble();

System.***out***.print("Enter coefficient c: ");

**double** c = sc.nextDouble();

**double** discriminant = b \* b - 4 \* a \* c;

// Check if the equation has real solutions

**if** (discriminant >= 0) {

**double** root1 = (-b + Math.*sqrt*(discriminant)) / (2 \* a);

**double** root2 = (-b - Math.*sqrt*(discriminant)) / (2 \* a);

System.***out***.println("Root 1: " + root1);

System.***out***.println("Root 2: " + root2);

} **else** {

System.***out***.println("The equation has no real roots.");

}

sc.close();

}

}

12.**factorial of a number**

**import** java.util.Scanner;

**public** **class** Factorial{

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter a number");

**int** num;

num=sc.nextInt();

**long** factorial=1; //to handle lrge numbers

**for**(**int** i=1;i<=num;i++) {

factorial=i;

}}}}

**13.square of N**

import java.util.\*;

public class squareofN {

public static void main(String Args[]) {

Scanner sc=new Scanner(System.*in*);

System.*out*.println("enter a number:");

int num;

num=sc.nextInt();

int square=num\*num;

System.*out*.println("the square of " + num + " is: " +square);

}

}

**14.x to the power y**

**import** java.util.\*;

**public** **class** XtothepowerY {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter the base(x):");

**double** base=sc.nextDouble();

System.***out***.println("enter the exponent(y):");

**double** exponent=sc.nextDouble();

**double** result=Math.*pow*(base,exponent);

System.***out***.println(base + " power of " + exponent + " is: " + result );

}

}

**15.multiplication table**

**import** java.util.\*;

**public** **class** multiplicationtable {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**int** n;

System.***out***.println("enter n value:");

n=sc.nextInt();

**for**(**int** i=1;i<=n;i++) {

**for**(**int** j=1;j<=10;j++) {

System.***out***.println(i+ " \* " +j+ " = " +i\*j);

}System.***out***.println();

}}}

**16.sum of N natural numbers**

**public** **class** sumofnaturalnumbers {

**public** **static** **void** main(String[] args) {

**int** sum=0;

**for**(**int** num=1;num<=10;num++) {

sum=sum+num;

}System.***out***.println(" sum is:" + sum );

} }

**17.Fibonacci series**

import java.util.\*;

public class Fibonaccisequence {

public static void main(String[] args) {

Scanner sc=new Scanner(System.*in*);

System.*out*.println("enter no of terms:");

int n=sc.nextInt();

System.*out*.println("the terms upto " + n + " is: ");

int first=0,second=1;

for(int i=1;i<=n;i++) {

System.*out*.print(first+" ");

int next=first+second;

first=second;

second=next;

}}}

**18.Fibonaaci sequence with any sequence**

**import** java.util.Scanner;

**public** **class** fibonaccistartsanynumber {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter no.of terms:");

**int** n=sc.nextInt();

System.***out***.println("enter first number:");

**int** first=sc.nextInt();

System.***out***.println("enter second number:");

**int** second=sc.nextInt();

System.***out***.println("the fibonacci series starts with " + first + "and" + second + "is:");

**for**(**int** i=1;i<=n;i++) {

System.***out***.print(first+"");

**int** next=first+second;

first=second;

second=next;

}}}

**19.lowercase to uppercase**

**import** java.util.\*;

**public** **class** LowerToUpper {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter LowerCase String:");

String input=sc.nextLine();

String UpperCaseString=input.toUpperCase();

System.***out***.println("Uppercase String:"+UpperCaseString);

}}

**20.uppercase to lower**

**import** java.util.\*;

**public** **class** UpperToLower {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter UpperCase String:");

String input=sc.nextLine();

String LowerCaseString=input.toLowerCase();

System.***out***.println("LowerCase String:"+LowerCaseString);

}}

**21)gcd lcm**

import java.util.\*;

public class GCDLCM {

public static int gcd(int a,int b) {

while(b!=0) {

int temp=b;

b=a%b;

a=temp;

}

return a;

}

public static int lcm(int a,int b) {

return(a\*b)/gcd(a,b); //lcm=(a\*b)

}

public static void main(String args[]) {

Scanner sc=new Scanner(System.in);

System.out.println("enter first number:");

int num1=sc.nextInt();

System.out.println("enter second number:");

int num2=sc.nextInt();

int gcdvalue=gcd(num1,num2);

int lcmvalue=lcm(num1,num2);

System.out.println("Gcd of"+num1+"and"+num2+"is:"+ gcdvalue);

System.out.println("lcm of"+num1+"and"+num2+"is:"+ lcmvalue);

}

}

22) **Prime numbers**

**import** java.util.\*;

**public** **class** Basicprimenumber {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("enter a value:");

**int** number=sc.nextInt();

**if**(*isprime*(number)) {

System.***out***.println(number + " is a prime number ");

}**else**

{

System.***out***.println(number + " is not a prime number ");

}

}

**public** **static** **boolean** isprime(**int** n) {

**if**(n<=1) **return** **false**;

**for**(**int** i=2;i<Math.sqrt(n);i++) {

**if**(n%i==0)

{ **return** **false**;

}}

**return** **true**;

} }

**23)Prime numbers between range**

import java.util.Scanner;

public class PrimeNumbersBetweenRanges {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the start element of the range: ");

int start = sc.nextInt();

System.out.println("Enter the end element of the range: ");

int end = sc.nextInt();

System.out.println("Prime numbers between " + start + " and " + end + " are: ");

for (int i = start; i <= end; i++) {

if (isPrime(i)) {

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

}

}

}

// Function to check if a number is prime

public static boolean isPrime(int n) {

if (n <= 1) return false; // numbers less than or equal to 1 are not prime

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

if (n % i == 0) {

return false; // if divisible, not prime

}

}

return true; // if no divisors found, the number is prime

}

}

**24)Prime numbers upto given number**

**import** java.util.\*;

**public** **class** Primenumbersupto {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("Find Prime numbers upto:");

**int** limit=sc.nextInt();

System.***out***.println("Find Prime numbers upto"+limit);

**for**(**int** i=2;i<=limit;i++)

{

**if**(*isPrime*(i)) {

System.***out***.println(i+"");

}

}

}

**public** **static** **boolean** isPrime(**int** n) {

**if** (n <= 1)

{

**return** **false**;

}

**for** (**int** i = 2; i <= Math.*sqrt*(n); i++) {

**if** (n % i == 0) {

**return** **false**; // if divisible, not prime

}}

**return** **true**; // if no divisors found, the number is prime

} }

**25) Factors of a number**

**public** **class** FactorsofaNumber {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println(" enter a number: ");

**int** number=sc.nextInt();

System.***out***.println("Factors of " + number + " are : ");

**for**(**int** i=1; i <= number; i++) {

**if**(number % i == 0);

{

System.***out***.println(i+" ");

}

}

sc.close();

}

}

**26)Prime Factors of a number**

**import** java.util.\*;

**public** **class** PrimefactorsofaNumber {

**public** **static** **void** main(String[] args) {

Scanner sc= **new** Scanner(System.***in***);

System.***out***.println("Enter a number: ");

**int** number=sc.nextInt();

System.***out***.println("Prime factors of" + number +"are");

**while**( number % 2 == 0) {

System.***out***.println(2+" ");

number/=2;

}

**for**(**int** i = 3; i <= Math.*sqrt*(number); i+=2) {

**while**(number%i==0) {

System.***out***.println( i +" ");

number/=i;

}

}

**if**(number > 2) {

System.***out***.println(number);

}

} }

**27)Bin to Dec and Oct**

import java.util.Scanner;

public class BinaryConverter {

public static void main(String[] args) {

// Create a Scanner object for user input

Scanner scanner = new Scanner(System.in);

// Get the binary number input from the user

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

String binaryStr = scanner.nextLine();

// Convert binary to decimal

int decimal = Integer.parseInt(binaryStr, 2);

System.out.println("Decimal: " + decimal);

// Convert decimal to octal

String octal = Integer.toOctalString(decimal);

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

// Close the scanner

scanner.close();

}

}

**28)** **Count the number of digits in an integer**

import java.util.Scanner;

public class DigitCounter {

public static void main(String[] args) {

// Create a Scanner object for user input

Scanner scanner = new Scanner(System.in);

// Prompt the user to enter an integer

System.out.print("Enter an integer: ");

int number = scanner.nextInt();

// Handle negative numbers by converting them to positive

number = Math.abs(number);

// Initialize a counter

int count = 0;

// Count digits in the number

if (number == 0) {

count = 1; // 0 has 1 digit

} else {

while (number > 0) {

number /= 10; // Remove the last digit from the number

count++; // Increment the digit counter

}

}

// Output the result

System.out.println("Number of digits: " + count);

// Close the scanner

scanner.close();

}

}

**29)**   **the sum of digits in an integer**

**import** java.util.\*;

**public** **class** SumofDigitsinInteger {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("Enter an integer : ");

**int** number=sc.nextInt();

number=Math.*abs*(number);

**int** count=0;

**if**(number==0) {

count=1;

}

**else**

{

**while**(number>0) {

**int** lastdigit=number%10;

count+=lastdigit;

number/=10;

}

}

System.***out***.println(" Sum of digits value is : " + count );

}

}

**30)Reverse the given string**

**import** java.util.\*;

**public** **class** ReversetheGivenString {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("Enter the string :");

**int** number=sc.nextInt();

number=Math.*abs*(number);

**int** count=0;

**if**(number==0)

{

count=1;

}

**else**

{

**while**(number>0) {

**int** lastdigit=number%10;

count=count\*10+lastdigit;

number/=10;

} }

System.***out***.println("Reverse the string is : " + count);

} }

**31) Number palindrome**

**import** java.util.\*;

**public** **class** Reverseapalindrome {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("Enter a integer : ");

**int** number=sc.nextInt();

**int** originalnumber=number;

number=Math.*abs*(number);

**int** reversednumber=0;

**while**(number!=0) {

**int** digit=number%10;

reversednumber=reversednumber\*10+digit;

number/=10;

}

**if**(originalnumber==reversednumber) {

System.***out***.println(originalnumber + " is a palindrome " );

}

**else** {

System.***out***.println(originalnumber + " is not a palindrome ");

} } }

**32)checking Amstrong number**

import java.util.Scanner;

public class ArmstrongNumber {

public static void main(String[] args) {

// Create a scanner object to take input from the user

Scanner scanner = new Scanner(System.in);

// Ask the user for input

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

int number = scanner.nextInt();

// Store the original number for comparison later

int originalNumber = number;

int result = 0;

int numberOfDigits = String.valueOf(number).length()

// Calculate the sum of each digit raised to the power of the number of digits

while (number != 0) {

int digit = number % 10;

result += Math.pow(digit, numberOfDigits);

number /= 10;

}

// Check if the calculated result matches the original number

if (result == originalNumber) {

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

} else {

System.out.println(originalNumber + " is not an Armstrong number.");

}

}

}

**Programs using Arrays**

**33)Array creation**

**Method-I:**

**public** **class** arraycreation {

**public** **static** **void** main(String[] args) {

**int**[] a= {1,2,3,4,5,6,7,8,9,10};

a[6]=10; /\* update \*/

**for**(int i:a) {

System.***out***.println(i);

} } }

**Method-II:**

**public** **class** arraycreation2 {

**public** **static** **void** main(String[] args) {

**int**[] a= {1,2,3,4,5,6,7,8,9,10};

a[5]=10; /\* update\*/

**for**(**int** i=0;i<=9;i++) {

System.***out***.println(a[i]);

} } }

**34) Arrays as Function Arguments**

**public** **class** arrayusingfunctionarguments {

**public** **static** **void** main(String[] args) {

**int**[] a= {1,2,3,4,5,6,7,8,9};

*changeArrayvalues*(a); //\* changes after declaration\*/

**for**(int i:a) {

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

}

}

**static** **void** changeArrayvalues(**int**[] arr) {

arr[0]=10;

arr[1]=11;

}

}

**35)Linear search**

**public** **class** linearsearch {

**public** **static** **void** main(String[] args) {

**int**[] arr= {1,5,4,3,2,6,8,9,7};

**int** target=2;

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

**if**(arr[i]==target) {

System.***out***.println(i + " element is found " );

}

}

}

}

**36)Largest in the array**

**For negative numbers:**

**public** **class** largestofthearray {

**public** **static** **void** main(String[] args) {

**int**[] arr= {-12,-34,-5,-45,-78,-95,-46,-78,-54,-456,-234,-6789};

**int** max=Integer.***MIN\_VALUE***;//\*for negative\*//

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

**int** current=arr[i];

**if**(current>max) {

max=current;

}

}

System.***out***.println(max);

}

}

**For positive numbers:**

**public** **class** largestofthearray {

**public** **static** **void** main(String[] args) {

**int**[] arr= {12,34,5,45,78,95,46,78,54,456,234,6789};

**int** max=Integer.***MIN\_VALUE***; // \* int max=0 also used \*//

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

**int** current=arr[i];

**if**(current>max) {

max=current;

}

}

System.***out***.println(max);

}

}

**37)Binary search**

**public** **class** binarysearch {

**public** **static** **void** main(String[] args) {

**int**[] arr= {1,2,3,4,5,6,7,8,9};

**int** k=9;

**int** index=*search*(arr,k);

System.***out***.println(index);

}

**static** **int** search(**int**[] arr,**int** k) {

**int** mid,low=0,high=arr.length;

**while**(low<=high) {

mid=(low+high)/2;

**if**(arr[mid]==k) {

**return** mid;

}

**else** **if**(arr[mid]<k){

low=mid+1;

}

**else** **if**(arr[mid]>k) {

high=mid-1;

}

}

**return** -1;

}

}