**while loop**

**1.Factorial number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** Pattern41 {

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

**int** i, n, f1 = 1;

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

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

n = sc.nextInt();

i = n;

**while** (i > 1) {

f1 = f1 \* i;

i--;

}

System.***out***.println("Factorial of " +n+ " is " +f1);

}

}

**output:**

Enter a number:

6

Factorial of 6 is 720

**2.Prime number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** Pattern42 {

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

**int** i, n, f1 = 0;

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

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

n = sc.nextInt();

i = 2;

**while** (i <= n / 2)

{

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

{

f1 = 1;

**break**;

}

i++;

}

**if** (f1 == 0)

{

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

} **else**

{

System.***out***.println( n+ " is Not a Prime number");

}

}

}

**output:**

Enter a number:

47

47 is Prime number

**3.Perfect number**

**package** Demo;

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

**public** **class** Pattern43 {

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

**int** i, n, sum = 0;

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

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

n = sc.nextInt();

sc.close();

i = 1;

**while** (i <= n / 2)

{

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

{

sum = sum + i;

}

i++;

}

**if** (sum == n)

{

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

} **else**

{

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

}

}

}

**output:**

Enter a number:

6

6 is a perfect number

**4.Pronic number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** PronicNum2 {

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

**int** n,i=1,flag=0;

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

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

n=sc.nextInt();

**while**(i<+n/2)

{

**if**(n==(i\*(i+1)))

{

flag=1;

**break**;

}

i++;

}

**if**(flag==1)

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

**else**

System.***out***.println(" Not Pronic number");

}

}

**output:**

Enter a number:

12

Pronic number

**5.Multiplication table**

**package** Demo;

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

**public** **class** MultiTable {

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

**int** n,f1=1,i=1;

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

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

n=sc.nextInt();

**while**(i<=10)

{

f1=n\*i;

System.***out***.println(n+ " \* " + i +" = " +f1);

i++;

}

}

}

**output:**

Enter a number:5

5 \* 1 = 5

5 \* 2 = 10

5 \* 3 = 15

5 \* 4 = 20

5 \* 5 = 25

5 \* 6 = 30

5 \* 7 = 35

5 \* 8 = 40

5 \* 9 = 45

5 \* 10 = 50

**7.Fibonacci series**

**package** Demo;

**import** java.util.Scanner;

**public** **class** FibonacciSeries {

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

**int** n, f1 = 0, f2 = 1, f3;

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

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

n = sc.nextInt();

**if** (n <= 0) {

System.***out***.print("Invalid input");

} **else** **if** (n == 1) {

System.***out***.print(f1);

} **else** {

System.***out***.print(f1 + " " + f2);

**int** count = 2;

**while** (count < n) {

f3 = f1 + f2;

System.***out***.print(" " + f3);

f1 = f2;

f2 = f3;

count++;

}

}

}

}

**8.Sum of digit.**

**package** Demo;

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

**public** **class** SumOfDigit {

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

**int** n,n1,sum=0;

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

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

n=sc.nextInt();

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=sum+n1;

}

System.***out***.println("Sum of digit = "+sum);

}

}

**output:**

Enter a number:

1234

Sum of digit = 10

**9.Reverse number**

**package** Demo;

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

**public** **class** RevNum {

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

**int** n,n1,sum=0;

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

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

n=sc.nextInt();

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=(sum\*10)+n1;

}

System.***out***.println("Reverse number = "+sum);

}

}

**output:**

Enter a number:

1234

Reverse number = 4321

**10.Palindrom number**

**package** Demo;

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

**public** **class** Pattern44 {

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

**int** n, n1, sum = 0, p;

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

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

n = sc.nextInt();

p = n;

**while** (n > 0)

{

n1 = n % 10;

sum = (sum \* 10) + n1;

n = n / 10;

}

**if** (sum == p)

{

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

} **else**

{

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

}

}

}

**output:**

Enter a number:

121

121 is a palindrome number

**11.Armstrong number**

**package** Demo;

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

**public** **class** ArmstrongNum {

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

**int** n,n1,sum=0,p;

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

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

n=sc.nextInt();

p=n;

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=sum+(n1\*n1\*n1);

}

**if**(p==sum)

System.***out***.println("Number is Armstrong");

**else**

System.***out***.println("Number is not Armstrong");

}

}

**output:**

Enter a number:

153

Number is Armstrong

**12.Sum of first of last digit.**

**package** Demo;

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

**public** **class** FirstLastDigit {

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

**int** n, fd, ld, sum;

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

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

n = sc.nextInt();

ld = n % 10;

fd = n;

**while** (fd >= 10)

{

fd = fd / 10;

}

sum = fd + ld;

System.***out***.println("Sum of the first and last digits: " + sum);

}

}

**output:**

Enter a number:

3451

Sum of the first and last digits: 4

**13.Count number of digits.**

**package** Demo;

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

**public** **class** Pattern47 {

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

**int** n, count = 0;

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

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

n = sc.nextInt();

**while** (n > 0)

{

count++;

n = n / 10;

}

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

}

}

**output:**

Enter a number:

4320

Number of digits: 4

**14.Count total no of even digit,odd digit & zero digit.**

**package** Demo;

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

**public** **class** Pattern45 {

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

**int** n, n1, sum = 0, cntZ = 0, cntE = 0, cntO = 0;

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

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

n = sc.nextInt();

**while** (n > 0)

{

n1 = n % 10;

n = n / 10;

**if** (n1 == 0)

{

cntZ++;

}

**else** **if** (n1 % 2 == 0)

{

cntE++;

} **else**

{

cntO++;

}

}

System.***out***.println("Count of zero digits: " + cntZ);

System.***out***.println("Count of even digits: " + cntE);

System.***out***.println("Count of odd digits: " + cntO);

}

}

**output:**

Enter a number:

23100

Count of zero digits: 2

Count of even digits: 1

Count of odd digits: 2

**15.Count total number of prime digit in given number.**

**package** Demo;

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

**public** **class** Pattern46 {

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

**int** n, n1, cnt = 0;

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

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

n = sc.nextInt();

**while** (n > 0)

{

n1 = n % 10;

n = n / 10;

**if** (n1 == 2 || n1 == 3 || n1 == 5 || n1 == 7)

{

cnt++;

}

}

System.***out***.println("Count of prime digits: " + cnt);

}

}

**output:**

Enter a number:

328960

Count of prime digits: 2

**16.Krishnmurthy or strong number or not.**

**package** Demo;

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

**public** **class** StrongNum {

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

**int** i, sum = 0, n, n1, f1, p;

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

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

n = sc.nextInt();

p = n;

**while** (n > 0)

{

n1 = n % 10;

n = n / 10;

f1 = 1;

**for** (i = n1; i > 1; i--)

{

f1 = f1 \* i;

}

sum = sum + f1;

}

**if** (p == sum)

{

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

} **else**

{

System.***out***.println("Not Krishnamurthy number");

}

}

}

**output:**

Enter a number:

145

Krishnamurthy number

**17.ip: n=1234**

**op:1\*2+2\*3+3\*4=20**

**package** Demo;

**import** java.util.Scanner;

**public** **class** SumNum {

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

**int** n, currentDigit, nextDigit, sum = 0;

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

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

n = scanner.nextInt();

nextDigit = n % 10;

n = n /10;

**while** (n > 0)

{

currentDigit = n % 10;

sum = sum + currentDigit \* nextDigit;

nextDigit = currentDigit;

n = n /10;

}

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

}

}

**output:**

Enter a number:

1234

The result is: 20

**18.ip:n = 123**

**op: OneTwoThree**

**package** Demo;

**import** java.util.Scanner;

**public** **class** OneTwoThree {

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

**int** n,n1,sum=0;

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

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

n=sc.nextInt();

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=(sum\*10)+n1;

}

n=sum;

**while**(n>0)

{

n1=n%10;

n=n/10;

**switch**(n1)

{

**case** 0:System.***out***.print("Zero ");

**break**;

**case** 1:System.***out***.print("One ");

**break**;

**case** 2:System.***out***.print("Two ");

**break**;

**case** 3:System.***out***.print("Three ");

**break**;

**case** 4:System.***out***.print("Four ");

**break**;

**case** 5:System.***out***.print("Five ");

**break**;

**case** 6:System.***out***.print("Six ");

**break**;

**case** 7:System.***out***.print("Seven ");

**break**;

**case** 8:System.***out***.print("Eight ");

**break**;

**case** 9:System.***out***.print("Nine ");

**break**;

**default**: System.***out***.print("Invalid digit");

}

}

}

}

**output:**

Enter a number:

1203

One Two Zero Three

**19.Dissarium number.**

**package** Demo;

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

**public** **class** DissariumNum {

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

**int** n, n1, sum = 0, temp, digits = 0;

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

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

n = sc.nextInt();

temp = n;

**int** num = n;

**while** (num > 0)

{

digits++;

num = num / 10;

}

num = n;

**while** (num > 0)

{

n1 = num % 10;

num = num / 10;

**int** f1 = 1;

**for** (**int** i = 1; i <= digits; i++)

{

f1 = f1 \* n1;

}

digits--;

sum = sum + f1;

}

**if** (sum == temp)

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

**else**

System.***out***.println("Not a Dissarium number");

}

}

**output:**

Enter a number:

135

Dissarium number

**20.Magic number**

**package** Demo;

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

**public** **class** MagicNum {

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

**int** n,n1,sum=0;

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

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

n=sc.nextInt();

**while**(n>9)

{

sum=0;

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=sum+n1;

}

n=sum;

}

**if**(n==1)

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

**else**

System.***out***.println(" Not magic number");

}

}

**output:**

Enter a number:

55

Magic number

**21.Twins prime or not.**

**package** Demo;

**import** java.util.Scanner;

**public** **class** TwinsPrime2 {

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

**int** a, b, div = 0, div1 = 0, i;

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

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

a = sc.nextInt();

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

b = sc.nextInt();

i = 2;

**while** (i <= a / 2)

{

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

{

div = 1;

**break**;

}

i++;

}

i = 2;

**while** (i <= b / 2)

{

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

{

div1 = 1;

**break**;

}

i++;

}

**if** (div == 0 && div1 == 0 && (a - b == -2))

{

System.***out***.println("Twins prime");

} **else** {

System.***out***.println("Not Twins prime");

}

}

}

**output:**

Enter value of a:

11

Enter value of b:

13

Twins prime

**22.prime palindrome or not.**

**package** Demo;

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

**public** **class** PrimePalindrome {

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

**int** a, n1, original, reversed = 0;

**int** div = 0;

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

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

a = sc.nextInt();

**if** (a <= 1)

{

div = 1;

} **else**

{

**for** (**int** i = 2; i <= a / 2; i++)

{

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

{

div = 1;

**break**;

}

}

}

original = a;

**while** (a > 0)

{

n1 = a % 10;

reversed = reversed \* 10 + n1;

a = a / 10;

}

**if** (div == 0 && original == reversed)

{

System.***out***.println(original + " is a Prime Palindrome");

} **else**

{

System.***out***.println(original + " is Not a Prime Palindrome");

}

}

}

**output:**

Enter a value of a:

2

2 is a Prime Palindrome

**23.xylem number**

**package** Demo;

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

**public** **class** XylemNum {

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

**int** n,n1,num,sume=0,summ=0;

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

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

n=sc.nextInt();

num=n;

**while**(n>0)

{

n1=n%10;

**if**(n==num || n<10)

sume=sume+n1;

**else**

summ=summ+n1;

n=n/10;

}

**if**(sume==summ)

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

**else**

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

}

}

**output:**

Enter a number:

12348

Xylem number

**24.upto n print all armstrong number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** ArmstrongNum2 {

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

**int** p,n,n1,sum=0,j,range;

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

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

range=sc.nextInt();

**for**(j=1;j<=range;j++)

{

sum=0;

n=j;

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=sum+(n1\*n1\*n1);

}

**if**(j==sum)

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

}

}

}

**output:**

Enter a range:

300

1 153

**25.upto n print all palindrom number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** PalindromNum2 {

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

**int** p,n,n1,sum=0,i,range,j;

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

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

range=sc.nextInt();

**for**(j=1;j<=range;j++)

{

sum=0;

n=j;

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=sum\*10+n1;

}

**if**(j==sum)

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

}

}

}

**output:**

Enter a range:

30

1 2 3 4 5 6 7 8 9 11 22

**26.upto n print all strong number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** StrongNum2 {

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

**int** p,n,n1,sum=0,j,i,range,f1;

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

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

range=sc.nextInt();

**for**(j=1;j<=range;j++)

{

sum=0;

n=j;

**while**(n>0)

{

n1=n%10;

n=n/10;

f1=1;

**for**(i=n1;i>1;i--)

f1=f1\*i;

sum=sum+f1;

}

**if**(sum==j)

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

}

}

}

**output:**

Enter a range:

300

1 2 145

**27.upto n print all disarium number**

**package** Demo;

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

**public** **class** DissariumNum2 {

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

**int** n,n1,num,temp,range,sum = 0,i,j;

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

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

range = sc.nextInt();

**for** ( j = 1; j <= range; j++)

{

n = j;

temp = n;

num = n;

sum = 0;

**int** digits = 0;

**while** (num > 0)

{

digits++;

num = num / 10;

}

num = n;

**while** (num > 0)

{

n1 = num % 10;

num = num / 10;

**int** f1 = 1;

**for** ( i = 1; i <= digits; i++)

{

f1 = f1 \* n1;

}

digits--;

sum = sum + f1;

}

**if** (sum == temp)

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

}

}

}

**output:**

Enter a range:

200

1 2 3 4 5 6 7 8 9 89 135 175

**28.upto n print all magic number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** MagicNum2 {

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

**int** n,j,sum=0,range;

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

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

range = sc.nextInt();

**for** ( j = 1; j <= range; j++)

{

n = j;

**while** (n > 9)

{

sum = 0;

**while** (n > 0)

{

sum += n % 10;

n /= 10;

}

n = sum;

}

**if** (n == 1) {

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

}

}

}

}

**output:**

Enter a range:

100

1 10 19 28 37 46 55 64 73 82 91 100

**29.upto n print all twinsprime number**

**package** Demo;

**import** java.util.Scanner;

**public** **class** TwinsPrime2 {

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

**int** a, b, div, div1, i, range, j;

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

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

range = sc.nextInt();

**for** (j = 2; j <= range - 2; j++) {

a = j;

b = j + 2;

div = 0;

div1 = 0;

**for** (i = 2; i <= a / 2; i++)

{

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

{

div = 1;

**break**;

}

}

**for** (i = 2; i <= b / 2; i++)

{

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

{

div1 = 1;

**break**;

}

}

**if** (div == 0 && div1 == 0)

{

System.***out***.println(a + " and " + b + " are twin prime numbers");

}

}

}

}

**output:**

Enter the range:

40

3 and 5 are twin prime numbers

5 and 7 are twin prime numbers

11 and 13 are twin prime numbers

17 and 19 are twin prime numbers

29 and 31 are twin prime numbers

**30.Accept n from user & print those number which does not contain any zero**

**package** Demo;

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

**public** **class** NumExample {

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

**int** n, i, num, digit, f1;

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

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

n = sc.nextInt();

System.***out***.println("Numbers from 1 to " + n + " that do not contain any zeros:");

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

{

num = i;

f1 = 0;

**while** (num > 0)

{

digit = num % 10;

**if** (digit == 0)

{

f1 = 1;

**break**;

}

num = num / 10;

}

**if** (f1 == 0)

{

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

}

}

}

}

**output:**

Enter a number:

20

Numbers from 1 to 20 that do not contain any zeros:

1 2 3 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19

**31.Accept 1 no from user display its digits in ascending order.**

**package** Demo;

**import** java.util.Scanner;

**public** **class** AscendingOrder {

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

**int** n, digit,rev;

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

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

n = scanner.nextInt();

**int**[] count = **new** **int**[10];

**while** (n > 0)

{

digit = n % 10;

count[digit]++;

n = n / 10;

}

digit = 0;

**while** (digit < count.length)

{

rev = count[digit];

**while** (rev > 0)

{

System.***out***.print(digit);

rev--;

}

digit++;

}

}

}

**output:**

Enter a number:

54321

12345

**32.Decimal to Binary**

**package** Demo;

**import** java.util.Scanner;

**public** **class** DecimalToBinary {

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

**int** n,n1,p=1,sum=0;

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

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

n=sc.nextInt();

**while**(n>0)

{

n1=n%2;

n=n/2;

sum=sum+(n1\*p);

p=p\*10;

}

System.***out***.println("Binary = "+sum);

}

}

**output:**

Enter a Decimal number:

15

Binary = 1111

**33.Binary to Decimal**

**package** Demo;

**import** java.util.Scanner;

**public** **class** BinaryToDecimal {

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

**int** n,sum=0,m=1,rem;

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

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

n=sc.nextInt();

**while**(n>0)

{

rem=n%10;

n=n/10;

sum=sum+(rem\*m);

m=m\*2;

}

System.***out***.println("Decimal number = " +sum);

}

}

**output:**

Enter a binary number:

1011

Decimal number = 11

**34.Decimal to Octal**

**package** Demo;

**import** java.util.Scanner;

**public** **class** DecimalToOctal {

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

**int** n,n1,p=1,sum=0;

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

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

n=sc.nextInt();

**while**(n>0)

{

n1=n%8;

n=n/8;

sum=sum+(n1\*p);

p=p\*10;

}

System.***out***.println("Octal number = "+sum);

}

}

**output:**

Enter a Decimal number:

14

Octal number = 16

**35.Octal to Decimal**

**package** Demo;

**import** java.util.Scanner;

**public** **class** OctalToDecimal {

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

**int** n,n1,p=1,sum=0;

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

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

n=sc.nextInt();

**while**(n>0)

{

n1=n%10;

n=n/10;

sum=sum+(n1\*p);

p=p\*8;

}

System.***out***.println("Decimal number = "+sum);

}

}

**output:**

Enter Octal number:

11

Decimal number = 9