**Pattern:**

1.Write a java program to print

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

1 2 3 4 5 6

1 2 3 4 5 6 7

1 2 3 4 5 6

1 2 3 4 5

1 2 3 4

1 2 3

1 2

1

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

**public** **class** Series {

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

{

**int** i,j;

System.***out***.println("enter the size of an array");

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

**int** m=s.nextInt();

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

{

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

{

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

}

System.***out***.println("\n");

}

**for**(i=m;i>0;i--)

{

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

{

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

}

System.***out***.println("\n");

}

s.close();

}

}

2.Write a program to reverse a number.

**Reverse**

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

**public** **class** Reverse {

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

{

**int** sum=0,r;

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

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

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

**while**(n!=0)

{

r=n%10;

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

sum=(sum\*10)+r;

n=n/10;

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

}

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

s.close();

}

}

Program to calculate sum of the digits. (eg. 356 = 14)

**Sum of digits**

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

**public** **class** Sumofdigits {

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

{

**int** sum=0,r;

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

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

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

**while**(n!=0)

{

r= n%10;

sum=sum+r;

n=n/10;

}

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

s.close();

}

}

Program to print fibonacci series ( 1 1 2 3 5 8 ...),limit should be given by you.

**Fibonacci**

**import** java.util.Scanner;

**public** **class** Fibnocii{

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

{

**int** a=0,b=1,c;

System.***out***.println("enter the number to discontinue the fibnocii");

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

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

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

**do**

{

c=a+b;

a=b;

b=c;

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

}**while**(c<n);

s.close();

}

}

**Prime**

Program to check prime number.

**import** java.util.Scanner;

**public** **class** Prime {

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

{

**int** count=0,i;

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

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

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

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

{

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

{

count++;

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

}

}

**if**(count==0)

{

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

}

**else**

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

s.close();

}

}

**Swap**

Program to swap two numbers without using third variable.

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

**public** **class** Swap {

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

System.***out***.println("enter the numbers for swapping");

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

**int** a= s.nextInt();

**int** b=s.nextInt();

System.***out***.println("value of a and b before swapping, a: " + a+" b: " + b);

a = a+ b;

b = a -b;

a = a -b;

System.***out***.println("value of x and y after swapping, a: " + a +" b: " + b);

s.close();

}

}

**Switch**

Program to print day of week name using switch case.

**import** java.util.Scanner;

**public** **class** Weekday {

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

System.***out***.println("enter the week day number");

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

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

**switch**(n)

{

**case** 0:

System.***out***.println("sunday");

**break**;

**case** 1:

System.***out***.println("Monday");

**break**;

**case** 2:

System.***out***.println("Tuesday");

**break**;

**case** 3:

System.***out***.println("Wednesday");

**break**;

**case** 4:

System.***out***.println("Thursday");

**break**;

**case** 5:

System.***out***.println("Friday");

**break**;

**case** 6:

System.***out***.println("saturday");

**default**:

System.***out***.println("out of weekdays");

**break**;

}

s.close();

}

}

**Max of two**

Program to find maximum between two numbers.

**import** java.util.Scanner;

**public** **class** Maxoftwo {

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

{

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

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

**int** a=s.nextInt();

**int** b=s.nextInt();

**if**(a>b)

{

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

}

**else**

System.***out***.println(" is max"+b);

s.close();

}

}

.Write a program which shows multilevel inheritance of (Living things -> Animals -> Dogs).

**Multilevel inheritance :**

**class** Livingthing{

**public** **void** grow()

{

System.***out***.println("all living things grow");

}

}

**class** Animals **extends** Livingthing{

**public** **void** move()

{

System.***out***.println("all animals move in different ways");

}

}

**class** Dogs **extends** Animals{

**public** **void** walk()

{

System.***out***.println("dogs walk on four legs");

}

}

**public** **class** Livingthings{

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

Dogs d= **new** Dogs();

d.grow();

d.move();

d.walk();

}

}

**Polymorphism:**

.Program which shows overriding and overloading using the concept of polymorphism and inheritance.

**class** Animal{

**public** **void** move()

{

System.***out***.println("dogs have ");

}

**public** **void** move(**int** legs)

{

System.***out***.println(" few animals like dog move on "+legs+" legs");

}

}

**class** Dog **extends** Animal{

**public** **void** move()

{

System.***out***.println("dogs walk on four legs");

}

}

**public** **class** Sampleinheritance {

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

{

Animal d= **new** Dog();

d.move();

d.move(4);

Dog c=**new** Dog();

c.move();

}

}