

Features of Java

1) Simple

Java simple than other language because goes more to basic concept like print(), operator overriding etc. destructor

2) High level programming.

Java is a high level programming language due to high level programming language we can easily program in any java appl'

we convert logic into low by compiling.

Eg:

Java filename.java

Note: high level - Java

middle level - C

low level - Assembly language

3) Portable

Java appl' can be execute on any existing device hence it is consider as portable

4) Platform independent

Java class file (.class) is platform independent

Java class file can be execute in any OS

hence it is platform independent

5) Architectural neutral

Java appl' can be execute on any appl'

32 bit can execute 64 & vice versa

6) Object oriented programming.

Java consider as a object oriented programming language because of primitive data types

f) High scalable

Java considered as a high scalable programming language because more accurate for concept, we can make any assumption easily. Java become easy to learn due to high scalable Java become easy to learn.

g) Secure

Java secure than other language because Java provide security object, encapsulation, Abstraction, inheritance, polymorphism

h) Security

Java considered as robust because Java implying handle implicit exception & garbage collect.

i) Multithreaded.

Java allows to create thread & execute them concurrently

#

j) JDK

- JDK stands for Java development kit
- IDE containing development tools
- Development tool contains keywords, Java commands & JRE

Keywords

- keywords are reserve word can be use to create an app
- keywords are in small cases
- keywords can not be use in other purpose
- In Java there are 52 keywords
- 49 keywords are permissible to use
- 2 keywords not permissible to use goto, const

- 1 Keyword under implementation "previews"

JRE

- JRE stands for Java runtime environment
- JRE set of Java library which contains classes and interfaces

- JRE also containing JVM is responsible to execute Java app'

Java commands

- Java command used for java compiler
- Java compiler can be used to convert high into low

program & creates class file of it.

- e.g. Java filename.java

#

j) Java

- Java command used for jdm
- Jdm used to execute class file
- e.g. java className.

③ JavaP

- JavaP command can be used to represent structure of class
- e.g. Jmap className.

- Java is responsible to build Java app'

variable

- in general variable is a container to store a value

```
if int a = 10
  string s1 = "India";
  demo d1 = new demo();
  double d = 20.4
```

Datatypes variable objects

#

Data types

1) Primitive datatype

- predefine
- one value
- no need to create an object

2) Non-primitive datatype

- user-defined

- multiple value

- need to create an object

list of primitive data type
 int & type
 float
 double
 char

datatype

size

byte 1 byte $2^8 = 256$ $-128 \rightarrow 127$

short 2 byte $2^{16} = 65536$ $-32768 \rightarrow 32767$

int 4 byte $2^{32} = 4294967296$

long 8 byte $2^{64} = 18446744073709551616$

// non-decimal

float 4 byte 32 bit $2^{32} = 4294967296$

double 8 byte 64 bit $2^{64} = 18446744073709551616$

// decimal

char 2 byte
 boolean 1 byte true / false

postfix
 i) post-increment

- First use, then increment by one

e.g.

```
int a = 10; // 10
System.out.println(a++); // 10
```

precedence of datatype

primitive datatype

byte \rightarrow short \rightarrow int \rightarrow long \rightarrow float \rightarrow double \rightarrow object
 char \rightarrow int \rightarrow long \rightarrow float \rightarrow double \rightarrow object

Non-primitive datatype

child \rightarrow parent \rightarrow child \rightarrow super

operators

- ① unary operator - unary operator require single operand.

- unary operator returns a same datatype

prefix

ii) pre-increment

- first increment by 1

eg

```
int a = 10;
```

```
System.out.println (++a); // 11
```

```
System.out.println (a); // 10
```

iii) pre-decrement

- first decrement by one then use

eg.

```
int a = 10;
```

```
System.out.println (--a); // 9
```

```
System.out.println (a); // 10
```

`System.out.println(a);` 11 11

i) post-decrement

- first use then decrement by one

e.g. `int a = 10; 119 - a -`

`System.out.println(a);` 119

`System.out.println(a);` 119

`System.out.println(a);` 119

`System.out.println(a);` 119

`7 - 12`

`- 5`

`int a = 10`

`a++ - a -- - a++ - a -- - a++ - a++ + a++ - a++ - a++`

`11 - 9 - 11 - 9 - 11 - 11 + 11 - 11 - 11 - 11`

`2 - 11 - 9 - 11 - 11 + 11 - 11 - 11 - 11`

`- 9 - 9 - 11 - 11 + 11 - 11 - 11 - 11`

`- 40 + 11 - 11 - 11 - 11`

`correct ans = -71`

`- 29 - 11 - 11 - 11`

`- 89 - 11 - 11`

`- 59 - 11 - 11 - 11 - 11`

`- 61 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

`- 11 - 11 - 11 - 11 - 11 - 11`

~~aff - aff - aff + aff - aff - aff + aff + aff + aff -
aff + aff + aff + aff - aff - --a~~

~~10 - 11 - 11 + 11 - 11 - 11 + 9 + 9 +
10 - 11 + 9 + 9 - 12~~

~~12~~

2) Arithmetic operators

- Arithmetical operators required atleast 2 operand.
- Arithmetical operator returns atleast int or bigger datatype
- $+, -, *, /, \%$

3) Assignment operator

- Assignment operator can be used to assign to operand
- Assignment operator returns same datatype
- $=, +=, -=, *=, /=, %=$

4) Relational operator / conditional operator

- Relational operator also known as conditional operator
- Relational operator can be used to compare two objects
- Relational operator returns boolean value to comparison
- Relational operator can be used two objects on the basis of memory
- $<$ less than
- $>$ greater than
- \geq greater than or equal
- \leq less than or equal
- \neq not equal

- 5) logical operators
- logical operator can be used to have multiple comparison
 - logical operator return boolean value on one basis
 - & comparison
 - or logical AND
 - logical AND returns boolean true, if all conditions gets satisfied
 - so we use logical and we use & sign

e.g.
`System.out.println((10>20) && (20<40)); // false`

b) logical OR

input output

0 0
0 1
1 1
1 1

- logical OR returns return true when any one condition true.

- to use logical OR we can use '||' sign

e.g.
`System.out.println((10>20)|| (20<40)); // true`

c) logical NOT

input output

0 1
1 0

- logical NOT return inverse of given value
- to use logical NO we can use '!' sign

e.g.
`System.out.println('!true'); // false`

d) shift operators

- 6) shift operators

<< left shift → multiply by 2

>> right shift → divide by 2

- 7) bitwise operators
- 8) ternary operators

e.g.
`MAP to swap 2 values`

class program

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

```
        int a = 10;
        int b = 20;
        int c = a;
        a = b;
        b = c;
```

`System.out.println("a = " + a);`

`System.out.println("b = " + b);`

without using 3rd variable
 class program

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

```
    int a = 10;
    int b = 20;
```

```
    a = b;
    b = a - b;
```

```
a = b;
```

```
System.out.println("a = " + a);
System.out.println("b = " + b);
```

3

* WAP to sum of two numbers without using "+" operator

class program

```
public static void main (String args[])
{
    int a = 10;
    int b = 20;
    int c = (a - (-b));
    System.out.println ("Addition of numbers" + c);
}
```

int a = 10;

int b = 20;

int c = (a - (-b));

System.out.println ("Addition of numbers" + c);

4

```
int a = 4212;
int b = (a / 10) % 10;
System.out.println ("Second last digit" + b);
```

* write a program to find area of circle

class program

```
public static void main (String args[])
{
    double area = 3.14 * r * r;
    System.out.println ("Area of circle" + area);
}
```

5

* WAP to find last digit of given no

class program

```
public static void main (String args[])
{
    int a = 1234;
    int b = a % 10;
    System.out.println ("last digit is" + b);
}
```

6

* WAP to find simple interest

class program

```
public static void main (String args[])
{
    double principle = 2000;
    double rate = 7;
    double time = 2;
    double simpleInterest = (principle * rate * time) / 100;
    System.out.println ("Simple interest" + simpleInterest);
}
```

7

* Compound interest

class program

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

```
    double principle = 2000;
```

```
    double rate = 8;
```

```
    double time = 1;
```

```
    double amount = principle * (1 + rate / 100 * time);
```

```
    double compoundInterest = amount - principle;
```

```
    System.out.println ("Compound Interest : " + compoundInterest);
```

}

*

Looping structure

- In Java looping structure is block of statement, which can be used to execute repeated statement.
- due to looping structure, we don't have to write repeated statement
- by using looping structure, we can remove code complexity

Types of Looping structure

1) while loop

- To create while loop we can use do while loop

2) for loop

- To create while loop, we can create while keyword

3) do loop

- While loop required boolean true value to get satisfied

1) Statement:

```
{ System.out.println ("Hello World"); }
```

- To make a condn, we can use relational & logical operator

- while loop checks condn as beginning, hence it is considered as an entry control loop

eg.
int a = 100;
do

```
    { System.out.println (a++); }
```

```
    } while (a < 100);
```

2) do loop

- To create do while loop we can use do while loop

```
int a = 100;
```

```
do
```

```
    { System.out.println (a++); }
```

```
    } while (a < 100);
```

3) for loop

- To create a for loop we can use for keyword

```
for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    { System.out.println (i); }
```

```
    } for (int i = 0; i < 10; i++)
```

```
    } for (int i = 0; i < 10; i++)
```

```
    } for (int i = 0; i < 10; i++)
```

```
    } for (int i = 0; i < 10; i++)
```

*

+ initialization phase

- in this phase we can initialized required no. variable
- in initial phase, assignment & equality operator can be used

- here declared variable considered as local variable
- this phase executes once at beginning

+ condition phase

- conditional phase requires boolean value to get satisfied

- In control flow selection & assignment operator used

- this phase executes each time at beginning.

+ increment-decrement phase

- In this phase working & assignment operator used
- these operators act each time at exit

cg

```
for (int i=1; i<=10; i++)
```

```
{  
    System.out.println(i);  
}
```

Bike meter

class program

```
{  
    public static void main (String args[])  
}
```

write program to print table

class program

```
{  
    for (int i=0; i<=9; i++)  
        {  
            for (int j=0; j<=9; j++)  
                {  
                    System.out.println (" " + i + " * " + j + " = " + (i*j));  
                }  
        }  
}
```

public static void main (String args[])

output

for (int i=1; i<=10; i++)

{
 for (int j=1; j<=10; j++)
 {
 System.out.println (" " + i + " * " + j + " = " + (i*j));
 }
}

10*10=100

output

10*1 = 10 5*10 = 50

10*10 = 100 5*1 = 5

class program

```
{  
    public static void main (String args[])  
    {  
        for (int i=1, j=10; i<=10; i++, j--)  
        {  
            System.out.print ("10*x" + i + " = " + (10*i));  
            System.out.print ("5*x" + j + " = " + (5*j));  
        }  
    }  
}
```

```
System.out.println ("10*x" + i + " = " + (10*i));  
System.out.println ("5*x" + j + " = " + (5*j));
```

```
class program
```

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

```
for (int i=1; i<=5; i++)  
    for (int j=1; j<=5; j++)
```

```
        System.out.print ("*").  
        System.out.print ("\t").  
        System.out.println () .
```

```
class program
```

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

```
for (int i=1; i<=5; i++)
```

```
    for (int j=1; j<=5; j++)
```

```
        System.out.print ("*").
```

```
System.out.println ();
```

1
 2
 3 * 5
 4
 5

class program

```

public static void main (String args[])
{
  int n=5;
  for (int i=1; i<=5; i++)
  {
    for (int j=1; j<=5; j++)
    {
      System.out.println ("");
    }
    System.out.println ();
  }
}
  
```

1
 2
 3 * 5
 4
 5

class program

```

public static void main (String args[])
{
  for (int j=1; j<=5; j++)
  {
    System.out.print ("");
  }
  System.out.println ();
}
  
```

1
 2
 3 * 5
 4
 5

class program

```

public static void main (String args[])
{
  int n=5;
  for (int i=0; i<=5; i++)
  {
    for (int j=0; j<=5; j++)
    {
      System.out.print ("");
    }
    System.out.println ();
  }
}
  
```



```

for (int j=1; j<=n; j++)
{
    System.out.print("*", (Color)(j+64));
}
System.out.println();
}

class program
{
    public static void main (String args[])
    {
        int n=5;
        for (int i=1; i<=n; i++)
        {
            for (int j=1; j<=i; j--)
            {
                System.out.print ("*");
            }
            System.out.println ();
        }
    }
}

public static void main (String args[])
{
    for (int i=1; i<=n; i++)
    {
        for (int j=n; j>=i; j--)
        {
            System.out.print ((char) (i+j));
        }
        System.out.println ();
    }
}

class program
{
    public static void main (String args[])
    {
        for (int n=5;
            for (int i=1; i<=n; i++)
            {
                for (int j=i; j<=n; j++)
                {
                    System.out.print ("*");
                }
                System.out.println ();
            }
        }
    }
}

```

```

{
    System.out.print('*');
}

System.out.println();
}
}

class program
{
    public static void main (String args[])
    {
        int n = 5;
        for (i=n; i>=1; i--)
        {
            for (j=1; j<=i; j++)
            {
                System.out.print(j);
            }
            System.out.println();
        }
    }
}

class program
{
    public static void main (String args[])
    {
        int n = 5;
        for (int i=n; i>=1; i--)
        {
            for (j=1; j<=i; j++)
            {
                System.out.print(j);
            }
            System.out.println();
        }
    }
}

```

```
for (int j=1; j<=i; j++)
```

```
    System.out.print(j);
```

```
System.out.println();
```

```
}
```

```
}
```

```
5 4 3 2 1
```

```
4 3 2 1
```

```
3 2 1
```

```
2 1
```

```
class program
```

```
{ public static void main (String args[]) }
```

```
int n=5;
```

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

```
{ for (int j=i; j>=1; j--)
```

```
    System.out.print(j);
```

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

```
}
```

```
5 4 3 2 1
```

```
4 3 2 1
```

```
3 2 1
```

```
2 1
```

```
class program
```

```
{ public static void main (String args[]) }
```

```
int n=5;
```

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

```

for (j=n; j>=1; j--)
{
    System.out.print((char)(j+64));
}
System.out.println();
}

class program
{
    public static void main (String args[])
    {
        int n=5;
        for (int i=n; i>=1; i--)
        {
            for (int j=1; j<=i; j++)
            {
                System.out.print((char)(j+96));
            }
            System.out.println();
        }
    }
}

System.out.println();
}

class program
{
    public static void main (String args[])
    {
        int n=5;
    }
}

```

abcde
abcd
abc
ab
a

For (j=n; j>=1; j--)
{
 System.out.print((char)(j+64));
}
System.out.println();

```

for (int i=1; i<=n; i++)
{
    for (int j=i; j<=n; j++)
    {
        System.out.print(" ");
    }
    System.out.print("*");
    for (int j=n; j>i; j--)
    {
        System.out.print(" ");
    }
    System.out.println();
}

```

A B C D E

A B C D

A B C

A B

A

t eeee

d ddd

c c c

b b

a a

class program

public static void main (String args[])

int n=5;

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

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

{ int k=j; j=n-k; }

System.out.print(" ");

for (int j=1; j<=n; j++)

{ System.out.print((char)(i+j+64)); }

System.out.println();

A

B

C

D

E

F

class program

```
public static void main (String args[])
{
    int n=5;
    for (i=n; i>=1; i--)
        for (j=i; j>=1; j++)
            System.out.print ("");
}
```

int n=5;

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

for (j=i; j>=1; j++)

System.out.print ("");

System.out.print ("");

for (j=i; j>=1; j++)

System.out.print ("");

System.out.print ("");

System.out.println ("");

class program

```
public static void main (String args[])
{
    int n=5;
    for (int i=n; i>=1; i--)
        for (int j=i; j>=1; j--)
            System.out.print ("");
}
```

int n=5;

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

for (int j=i; j>=1; j--)

System.out.print ("");

System.out.print ("");

5
4
3
2
1

```

System.out.println(" ");
for (int j=n; j>i; j--)
{
    System.out.print(j);
}

System.out.println();
for (int i=1; i<n; i++)
{
    System.out.print(i);
}

class program
{
    public static void main (String args[])
    {
        int n=5;
        int count=1;
        for (int i=1; i<n; i++)
        {
            for (int j=i; j>=1; j--)
            {
                System.out.print(j);
            }
            System.out.println();
            count++;
        }
        System.out.print(count+"t");
    }
}

```

public static void main (String args[])

```

15
14 15
12 10
9 7 6
5 4 3 2 1
    
```

class program

```

public static void main (String args[])
{
    int n=5;
    int count=(n*(n+1))/2;
    for (int i=1; i<=n; i++)
    {
        for (int j=i; j>i; j--)
        {
            int c=count;
            System.out.print(c+"t");
            count--;
            c--;
        }
        System.out.println();
    }
}
    
```

```

15
14 15
12 10
9 7 6
5 4 3 2 1
    
```

class program

```

public static void main (String args[])
{
    int n=5;
    int count=(n*(n+1))/2;
    for (int i=1; i<=n; i++)
    {
        for (int j=i; j>i; j--)
        {
            System.out.print(count+"t");
            count--;
        }
        System.out.println();
    }
}
    
```

```

int c = count;
for (int j = i; j >= 1; j--) {
    system.out.println(c + "\t");
    count++;
    count = i + j;
}
system.out.println();
count = 1;
for (int i = 1; i <= 5; i++) {
    for (int j = 1; j <= i; j++) {
        System.out.print(j);
    }
    System.out.println();
}
System.out.println("class program");
public static void main (String args[]) {
    int n = 5;
    int count = 0;
    for (int i = n; i >= 1; i--) {
        int c = count;
        for (int j = n; j >= i; j--) {
            System.out.print(c + "\t");
            c += i;
        }
        System.out.println();
        count--;
    }
    System.out.println(count);
}

```

15

14 10

13 9 6

12 8 5 3

11 7 4 2 1

class program

public static void main (String args[])

{

public static void main (String args[])

{

int n = 5;

int count = (n * (n + 1)) / 2;

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

{

int c = count;

for (int j = n; j >= i; j--)

{

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

}

c--;

}

System.out.println ();

count--;

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}

}
<div

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

```
    system.out.println();
    count -= i;
```

```
for (int j = i; j < n; j++)
```

```
{
```

```
}
```

```
    system.out.print(c + "\t");
    c += j + 1;
```

```
    System.out.println();
    count -= i - 1;
```

```
B G K N
```

```
A F I M O
```

```
}
```

```
5
```

```
15
```

```
10
```

```
6
```

```
3
```

```
1
```

```
9
```

```
5
```

```
8
```

```
12
```

```
2
```

```
7
```

```
11
```

```
4
```

```
8
```

```
14
```

```
class program
```

```
{
```

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

```
{
```

```
    int n = 5;
```

```
    int count = (n * (n + 1)) / 2;
```

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

```
{
```

```
    int c = count;
```

```
    for (int j = n; j >= i; j--)
```

```
{
```

```
        System.out.print(c + "\t");
```

```
        c += j;
```

```
}
```

```
5
```

```
System.out.println();
count =;
```

```
{
```

```
}
```

```
0
```

```
15
```

```
N
```

```
14 10
```

```
M
```

```
13 6
```

```
L
```

```
12 8
```

```
H
```

```
5 3
```

```
E
```

```
11 7
```

```
C
```

```
4 2
```

```
B
```

```
1 1
```

```
A
```

```
0 0
```

```
class program
```

```
{
```

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

```
int n=5;
int count=(n*(n+1))/2;
for (int i=n; i>=1; i--)
    for (int j=i; j>=1; j--)
        System.out.print((i+j));
        count++;
}
```

```
System.out.println();
count =;
```

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

```
int n=5;
int count=1;
for (int i=n; i>=1; i--)
    for (int j=i; j>=1; j--)
        System.out.print((i+j));
        count++;
}
```

```
System.out.println();
count =;
```

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

```
int n=5;
int count=1;
for (int i=n; i>=1; i--)
    for (int j=i; j>=1; j--)
        System.out.print((i+j));
        count++;
}
```

```
System.out.println();
count =;
```

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

```
int n=5;
int count=1;
for (int i=n; i>=1; i--)
    for (int j=i; j>=1; j--)
        System.out.print((i+j));
        count++;
}
```

```
System.out.println();
count =;
```

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

```
int n=5;
int count=1;
for (int i=n; i>=1; i--)
    for (int j=i; j>=1; j--)
        System.out.print((i+j));
        count++;
}
```

1	6	10	13	15
2	7	11	14	
3	8	12		
4	9			
5				

class program

```
{
    public static void main (String args[])
    {
        int n=5;
        int count=n;
        for (int i=n; i>=1; i--)
        {
            int c = count;
            for (int j=i; j>=1; j--)
            {
                System.out.print (c+"\\t");
            }
            System.out.println ();
            count++;
        }
    }
}
```

```

int c = count;
for (int j=n; j>=1; j--)
{
    System.out.print(c+"\\t");
    c = j;
}

```

```

int c = count;
for (int j=n; j>=1; j--)
{
    int c = count;
    for (int i=j; i>=1; i--)
    {
        System.out.print (c+"\\t");
    }
    System.out.println ();
    count++;
}

```

```

int c = count;
for (int j=n; j>=1; j--)
{
    int c = count;
    for (int i=j; i>=1; i--)
    {
        System.out.print (c+"\\t");
    }
    System.out.println ();
    count++;
}

```

class program

```
{
    public static void main (String args[])
    {
        int n=5;
        int count = ((n*(n-1))/2);
        for (int i=1; i<=n; i++)
        {
            int c = count;
            for (int j=1; j<=n; j++)
            {
                System.out.print (c+"\\t");
            }
            System.out.println ();
            count++;
        }
    }
}
```

class program

```
{
    public static void main (String args[])
    {
        int n=5;
        int count = ((n*(n-1))/2);
        for (int i=1; i<=n; i++)
        {
            int c = count;
            for (int j=1; j<=n; j++)
            {
                System.out.print (c+"\\t");
            }
            System.out.println ();
            count++;
        }
    }
}
```

System.out.println();
 count = i + 1;

ABDGK	1	2	4	7	11
C EHL	3	5	8	12	
FIM	6	9	13		
JN	10	14			
O	15				

class program

public static void main (String args[])

```

int n=5;
int count=1;
for (int i=1; i<=n; i++)
{
    int c=count;
    for (int j=i; j<=n; j++)
        System.out.print(c);
    System.out.println();
    count+=i;
}
    
```

class program

```

public static void main (String args[])
{
    int n=5;
    for (int i=1; i<=n; i++)
    {
        int c=count;
        for (int j=i; j<=n; j++)
            System.out.print(c);
        System.out.println();
        count+=i;
    }
}
    
```

```

    {
        int c=count;
        for (int j=i; j<=n; j++)
            System.out.print(c);
        System.out.println();
        count+=i;
    }
}
    
```

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

```

    {
        int c=count;
        for (int j=i; j<=n; j++)
            System.out.print(c);
        System.out.println();
        count+=i;
    }
}
    
```

```

    {
        int c=count;
        for (int j=i; j<=n; j++)
            System.out.print(c);
        System.out.println();
        count+=i;
    }
}
    
```

```

    {
        int c=count;
        for (int j=i; j<=n; j++)
            System.out.print(c);
        System.out.println();
        count+=i;
    }
}
    
```

class program

{ public static void main(String args[])

{ int n=5;

int count=1;

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

{ int c= count;

for(int j=i; j>=1; j--)

{ system.out.print(c + "\t")

for(int j=i; j>=1; j--)

system.out.print(c + "\t")

c+=j;

c+=j;

system.out.println();

count=1;

class program

{ public static void main(String args[])

```
int n=5;
int count=1;
for (int i=1; i<=n; int i++) {
    int c = count;
    for (int j=i; j>=n; int j--) {
        System.out.print("\t");
    }
    for (int j=n; j>i; j--) {
        System.out.print(c + "\t");
        c += 1;
    }
    System.out.println();
    count++;
}
}
}

class program {
    public static void main (String args[]) {
        int n=5;
        int count = (n*(n+1))/2;
        for (int i=1; i<=n; int i++) {
            int c = count;
            for (int j=i; j>=n; int j--) {
                System.out.print("\t");
            }
            for (int j=n; j>i; j--) {
                System.out.print(c + "\t");
                c += 1;
            }
            System.out.println();
            count++;
        }
    }
}
```

```

for (int j = i; j > 1; j--) {
    system.out.print(" ");
    for (int j = i; j > 1; j--) {
        system.out.print((char)(c + 'A')) ;
        c = j;
        system.out.println();
        count = i;
    }
}

for (int j = i; j > 1; j--) {
    system.out.print(" ");
    for (int j = i; j > 1; j--) {
        system.out.print((char)(c + 96)) ;
        c = j;
        system.out.println();
        count = i;
    }
}

for (int j = i; j > 1; j--) {
    system.out.print(" ");
    for (int j = i; j > 1; j--) {
        system.out.print((char)(c + 96)) ;
        c = j;
        system.out.println();
        count = i;
    }
}

for (int j = i; j > 1; j--) {
    system.out.print(" ");
    for (int j = i; j > 1; j--) {
        system.out.print((char)(c + 96)) ;
        c = j;
        system.out.println();
        count = i;
    }
}

for (int j = i; j > 1; j--) {
    system.out.print(" ");
    for (int j = i; j > 1; j--) {
        system.out.print((char)(c + 96)) ;
        c = j;
        system.out.println();
        count = i;
    }
}

```

c--;

f

System.out.println();

Count= i++;

{

f

--i;

e i no

d h m 5 9 12 14 15

c g i 4 8 11 13

b p 3 7 10

a 2 6

1

class program

public static void main (String args[])

{

int n=5;

int count=1

for(;;)

{

int c= count

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

class

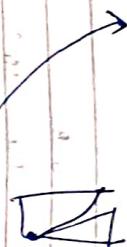
* Double Counter for

Page No.	
Date	

Page No.	
Date	

```

    1 A
    2 C   6 D
    3 F   7 G   10 C
    4 M   8 K   11 H   13 P
    5 B   9 N   12 L   14 I   15 E
    6 G   7 J   11 V
    8 L   9 O
    10 R
    11 S
    12 T
    13 U
    14 V
    15 W
  
```



class program

```

public static void main (String args[])
{
    int n = 5;
    int count1 = 1;
    int count2 = 1;
    for (int j1 = n; j2 = 1; j1 >= n; j2++)
    {
        int c1 = count1;
        int c2 = count2;
        System.out.print ((char) (c1 + 64));
        c1 += j2;
        c2 -= j2;
    }
}
  
```

class program

```

public static void main (String args[])
{
    int n = 5;
    int count1 = 1;
    int count2 = n;
    for
    {
        int c1 = count1;
        int c2 = count2;
        System.out.print ((char) (c1 + 64));
        System.out.print ((char) (c2 + 64));
        count1 += j2;
        count2 -= j2;
    }
}
  
```

```

      5   6   10  14  15
      9   4   7   11  13
      8   3   8   12  17
      12   2   9
      1   11  19
      10  1
      13  15
      14  1
      15  1
  
```

```

Ae Ci Fi In Oo   1   3   6   10  15
Bd Ek Sk Nr   2   5   9   14
Dc Hg Mj   4   8   13
Gb Lp   7   12
ka
  
```

control structure :

- In form control structure is block of statement which can be used to control flow of execution
- by using control structure, we can execute code as per requirement

Types of control structure.

i) if condn

- to make if condn we can use if keyword

- Syntax

- to make if condn we can use if keyword

if

{
if (condn)

{
Statement;

}
else if condn

- do create 'condn' we can use relational & logical operator

- to execute condn it required boolean true value
- to make condn we can use relational & logical

- e.g.
if (true)
{
System.out.println("we are in if condn");
}
else if (false)
{
System.out.println("we are in if condn");
}

ii) else if condn

- do create 'condn' we can use if & else keyword

- Syntax
if (condn)

{
Statement;

}
else if condn

- to make if condn we can use if keyword

- Syntax
if (condn)

{
Statement;

}
else if condn

- to make if condn we can use if keyword

- Syntax
if (condn)

{
Statement;

}
else if condn

- to make if condn we can use if keyword

- Syntax
if (condn)

{
Statement;

}
else if condn

- to make if condn we can use if keyword

- Syntax
if (condn)

{
Statement;

}
else if condn

- to make if condn we can use if keyword

- Syntax
if (condn)

{
Statement;

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to make if condn we can use if keyword

- Syntax
if (condn)

- to execute if condn we can use if keyword

- to make a condn we can use relational & logical operator

- here else part can be used as an alternative

- else part will be execute only if condn gets unsatisfied

c.g.

```
if (a<20)
    System.out.println ("we are in first condn");
else if (a>=20)
    System.out.println ("we are in second condn");
```

s.o.p("we are in nested if")

- nested if condn can b. used, do perform minimum comparison

e.g.

class compares

```
public static void main (String args[])
{
    int a=50; b=40; c=30;
```

```
    if (a>b)
```

```
        if (a>c)
```

```
            System.out.println ("a is biggest");
```

```
        else
```

```
            System.out.println ("c is biggest");
```

```
    else
```

```
        if (b>c)
```

```
            System.out.println ("b is biggest");
```

```
    else
```

```
        System.out.println ("c is biggest");
```

3) switch condn

- to create switch condn we can use switch, case, break

default segment

student

switch (operator)

class find a
class program

```
public static void main (String args[])
{
    int a = 50; b=40; c=30, d=50;
```

```
    if (a>b)
        if (a>c)
            System.out.println ("a is biggest");
```

```
    else
        System.out.println ("d is biggest");
```

case value 3:

- switch condn required single operand to be compared

- switch condn does not required any operator to

make comparison

- switch condn executes directly cases by matching value, hence it is considered as fastest control structure
- here default acts as an else part

Ex:

```
int choice=4;
switch (choice)
{
    case 1:
        System.out.println ("tea");
        break;
    case 2:
        System.out.println ("coffee");
        break;
    case 3:
        System.out.println ("sandwich");
        break;
    default:
        System.out.println ("milk shake");
        break;
}
```

Note: switch condn mostly used in menu driven appl.

- v) special condn
- special condn can be created using ternary operator

Format: `datatype result = (condn)? value1: value2;`

- It is a shorthand of if-else condn

Ex:

```
int check (2>4)? 10 : 20;
System.out.println (check);
```

Ans:

```
double p = 68.34;
String ans = (p>=70)? "distinct":(p>=60)? "first class":
(p>=50)? "second class":(p>=40)? "third class": "failed";
System.out.println (ans);
```

Along w using ternary
operator

public static void main (String args[])
{

```
int a = 10, b = 20, c = 30, d = 40, e = 50;
String ans = (a>b)?(a>c)?(a>d)?(a>e)? "a is bigger": "e is big":
(d>c)? "d is big": "e is big": (c>d)?(c>e)? "c is big": "e is big": "c
is big": (d>e)? "d is big": "e is big": ((c>d)&(c>e))?"c is big v.e is
big":(d>e)? "d is big": "e is big";
System.out.println (ans);
}
```

Ex:

WAP to find 1st digit of given
input : 1234

Output : 1
class program

public static void main (String args[])
{

```
int n = 1234;
```

```
int ans = n / 10;
```

System.out.println (Ans),

f
,

```
int n = 29875
while (n > 10)
    n /= 10;
System.out.println(n);
```

2nd digit

class program

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

 class program

```
    int n = 497325;
    while (n > 99)
        n /= 10;
    System.out.println(n);
}
```

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

 int b = 5;

```
    for (int i = n, j = 1; i > 0; i--)
        for (int k = n; j >= i; j--)
            if (j == 0)
                System.out.println
                    System.out.println((char) (i + 48));
    else
        System.out.println ((char) (i + 48));
}
```

1
2
3
4
5
6
7
8

class program

public static void main (String args [])

```
for (int i = 1; i <= 10; i++)
    if (i % 3 == 0)
        System.out.println (i);
```

3

E

E d

E d c

E d c b A

class program

public static void main (String args [])

```
{
```

1
2
3
4
5
6
7
8

10

1111
12222
12333
12344
12345

12345
12344
12333
12222
11111

class program

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

```
int n=5;
```

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

```
for (int j=i; j<=n; j++)
{
```

```
i<j)
```

```
{
```

```
System.out.print(i);
else
{
```

```
System.out.print(j);
}
```

```
}
```

```
System.out.print(i);
else
{
```

```
System.out.print(j);
}
```

```
}
```

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

```
}
```

```
}
```

class program

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

```
int n=5;
```

```
for (int i=n; i>=1; i--)
{
```

```
for (int j=1; j<=n; j++)
{
```

```
i>j)
{
```

```
{
```

```
System.out.print(i);
else
{
```

```
System.out.print(j);
}
```

```
}
```

```
System.out.print(i);
else
{
```

```
System.out.print(j);
}
```

```
}
```

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

```
}
```

```
}
```

11111
22221
33321
44321
54321

54321
54322
54333
54444
55555

class program

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

```
int n=5;
for (int i=1; i<=n; i++)
{
```

```
    for (int j=n; j>i; j--)
    {
```

```
        if (i>j)
        {
```

```
            System.out.print ('*');
        }
    }
```

```
    else
    {
        System.out.print (' ');
    }
}
```

else

```
    System.out.print ('*');
}
```

```
System.out.println();
```

9

class program

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

```
int n=5;
for (int i=1; i<n; i++)
{
```

```
    for (int j=n; j>i; j--)
    {
```

```
        if (i>j)
        {
```

```
            System.out.print ('*');
        }
    }
```

```
    else
    {
        System.out.print (' ');
    }
}
```

```
    System.out.print ('*');
}
```

```
System.out.println();
```

5

3

2

1

```

class program
{
    public static void main (String args[])
    {
        int n=5;
        for (int i=1; i<=n; i++)
        {
            for (int j=i; j>=1; j--)
            {
                System.out.print ("*");
            }
            System.out.println ();
        }
        for (int i=n-1; i>=1; i--)
        {
            for (int j=i; j>=1; j--)
            {
                System.out.print ("*");
            }
            System.out.println ();
        }
    }
}

```

AAAAA
bbbb
ccc
dd

E
d
ccc
bbbb

AAAAA

class program

{ public static void main (String args[])

{ int n=5;

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

{ if (i%2==0)

{ int n=5; for (int i=1; i<=n*2-1; i++)

if (i%4)

System.out.print ((char)(i+64));

else

System.out.print ((char)(i+96));

System.out.println();

for (int i=1; i<=n*2-1; i++)

{ for (int j=1; j<=n*2-1-i; j++)

{ if (j%2==0)

System.out.print (" ");

else

System.out.print ("#");

System.out.print ("#");

else

11
15
15
15
15
15
15
15
15
15

class program

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

```
int n=5
```

```
for (int i=1; i<=(n+2)-1; i++)
{
```

```
if (i>n)
{
```

```
for (int j=i; j<=n; j++)
{
```

```
System.out.print("*");
}
```

```
for (int j=i; j>=1; j--)
{
```

```
System.out.print(" ");
}
```

```
for (int j=i; j<=n; j++)
{
```

```
System.out.print("*");
}
```

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

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

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

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

1
2
3 3 3
4 4 4
5 5 5 5
4 4 4
2 2
3 3 3
4 4 4
5 5 5 5

5
4 4
3 3 3
2 2 2 2
1 1 1 1
2 2 2 2
3 3 3
4 4
5

5
5 4
5 4 3
5 4 3 2
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5

class program

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

int n=5;

for(i=1;i<=(n+2)-1;i++)
{

if(i<=n) { i-- ; i++ ; }

for(int j=i;j>=n;j--)
{

if(system.out.print(i+n-i))
{

system.out.print(j);
}

else

{

for(int j=n;j>=i-n+1;j++)
{

system.out.print(i-n+1);

system.out.print(i);

system.out.println();
}

}

if (i+2j == 0)

{

System.out.print((char)(int+i+j))

}

else

{

System.out.print((char)(int+i+j))

}

```
class program
{
    public static void main (String args[])
    {
        int n=5;
        for (int i=1; i<(n*2)-1; i++)
        {
            if (i==n)
                {
                    for (int j=i; j<n; j++)
                    {
                        if (i+j==0)
                            System.out.print((char)(int+i+j));
                    }
                }
            else
                {
                    n=i+56;
                    System.out.print((char)(int+i+j));
                }
        }
    }
}
```


1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

E
d E
c d E
b c d E
A b c d E
b c d E
c d E
d E
E

class program

{
public static void main (String args [])

{
int n=5;

for (int i=1; i<=(n+2)-1; i++)

{
if (i<=n)

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

System.out.print (" ");

for (int j=1; j<=n+1; j++)

System.out.print (j);

}
else

{
for (int j=i; j<(n+2)-1; j++)

System.out.print (" ");

for (int j=1; j<=i-n+1; j++)

System.out.print (j);

}
System.out.println ();

else

{
for (int j=i; j>n--;

S. O. P (" ");

for (int j=1; j<i-n+1; j++)

System.out.print (j);

}
for (int j=1; j<n; j++)

S. O. P (" ");

for (int j=n; j>0; j--)


```
for (int j=i; j<n; j++)
    s.o.p(" ");
for (int j=i; j<n; j++)
    s.o.p(" * ");
s.o.println(j);
```

5
444
333333
2222222
1111111

class program

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

```
    int n=5;
    for (int i=n; i>0; i--)
        for (int j=i; j>0; j--)
            s.o.p(" ");
        for (int j=i; j<=(i*2)-1; j++)
            s.o.p("*");
    s.o.p("\n");
    System.out.print("x");
}
```

or

```
    for (int i=n; i>0; i--)
        for (int j=i; j>0; j--)
            s.o.p(" ");
        for (int j=i; j<=(i*2)-1; j++)
            s.o.p("*");
    s.o.p("\n");
    System.out.print("x");
}
```

```
s.o.p();
```

or

```
    for (int i=n; i>0; i--)
        for (int j=i; j>0; j--)
            s.o.p(" ");
        for (int j=i; j<=(i*2)-1; j++)
            s.o.p("*");
    s.o.p("\n");
    System.out.print("x");
}
```

or

```
    for (int i=n; i>0; i--)
        for (int j=i; j>0; j--)
            s.o.p(" ");
        for (int j=i; j<=(i*2)-1; j++)
            s.o.p("*");
    s.o.p("\n");
    System.out.print("x");
}
```

class program

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

```
    int n=5;
    for (int i=1; i<=n; i++)
        for (int j=i; j<=n; j++)
            s.o.p(" ");
        for (int j=i; j<=(i*2)-1; j++)
            s.o.p("*");
    s.o.p("\n");
    System.out.print("x");
}
```

for (int j=1; j<n; j++)

g.o.p(" "j;

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

g.o.p(l(j));

for (int j=i-1; j>=1; j--)

s.o.p(l(j));

s.o.println();

}

,

}

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

l(i);

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

l(i);

for (int j=i; j>1; j--)

l(j);

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

l(j);

class program

{

public static void main (String args[])

{

int n=5;

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

for (int j=i; j>1; j--)

System.out.print (" "j);

for (int j=n; j>=i; j--)

System.out.print (" "j);

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

System.out.print (" "j);

System.out.println();

System.out.println();

}

class program

{

public static void main (String args[])

{


```

if(i==n)
{
    for(int j=1; j<=(n+2)-i; j++)
        System.out.print(i)
}
else
{
    for(int j=i; j>=1; j--)
        System.out.print(i)
    for(int j=1; j<=(n-i+1)*2-3; j++)
        System.out.print(" ")
    for(int j=n; j>=i; j--)
        System.out.print(i)
    System.out.println();
}
}

1 2 3 4 5 4 3 2 1
2 3 4 5 5 4 3 2
3 4 5 5 4 3
4 5 5 4
5 5
class program
{
    public static void main (String args[])
    {
        int n=5;
        for(int i=1; i<=n; i++)
            for(int j=n; j>=1; j--)
                for(int k=1; k<=i; k++)
                    System.out.print(k)
                System.out.println();
    }
}

```

```
System.out.print(j);
for (int j = 2; j <= n; j++)
    System.out.print(j);
}
else
{
    for (int j = i; j >= 1; j--)
        System.out.print((n-i+1)*2-3);
    System.out.print(" ");
    for (int j = i; j <= i; j++)
        System.out.print(i);
}
```

```
System.out.println();
```

```
for (int j = 1; j <= i; j++)
    System.out.print(j);
```

```
for (int j = 1; j <= (n-i+1)*2-3; j++)
    System.out.print(" ");
```

```
for (int j = i; j <= i; j++)
    System.out.print(j);
```

```
for (int j = i; j >= 1; j--)
    System.out.print(j);
```

```
System.out.println(j);
```

```
class program
```

```
{
```

```
public static void main (String args[])
{
    int n=5;
    for (int i=1; i<n; i++)
    {
        if (i==n)
            System.out.println();
    }
}
```

```
class program
```

```
{
```

```
public static void main (String args[])
{
    int n=5;
    for (int i=1; i<n; i++)
    {
        if (i==n)
            System.out.println();
    }
}
```

class program

{

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

{

```
int n=5;
```

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

~~```
{ i=1 till i==5 }
```~~

```
i=
```

~~```
i=1 till i==5 }
```~~~~```
i=1 till i==5 }
```~~

class program

{

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

{

```
int n=
```

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

~~```
{ for (j=1; j<=n; j++) }
```~~~~```
if (i==1
 & (i+j)%2==0)
```~~~~```
System.out.print ("*");
```~~~~```
else
```~~~~```
System.out.print ("-");
```~~~~```
etc
```~~

7 9 9 System.out.println();



Three empty rectangular boxes stacked vertically, used for writing answers.

class proportion

public static void main ( )  
{ int

for lint in join(it))

Exhibit 13-1-1

Syndicate out loud. (A "plus")

```
 .system.out.println(" "));
```

System.out.println();

ج

1

二

17

卷之三

1. .....

```
int n=5
for (int i=1; i<=n; i++)
{
 for (int j=1; j<=n; j++)
 {
 if (j==1 || j==n || i==j)
 System.out.print(" " + j);
 else
 System.out.print(" " + j);
 }
 System.out.println();
}
```