

Lesson 3 –

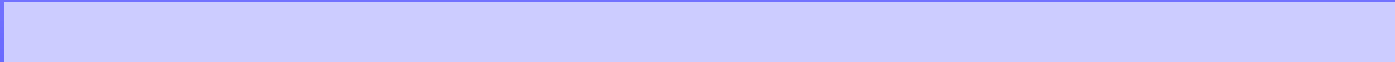
@ Lesson 3 –



if, if else, if else if, switch case



for, while, do while



break, continue



: System.in, args, JOptionPane



for (,)

@

vs.



logic

data



method

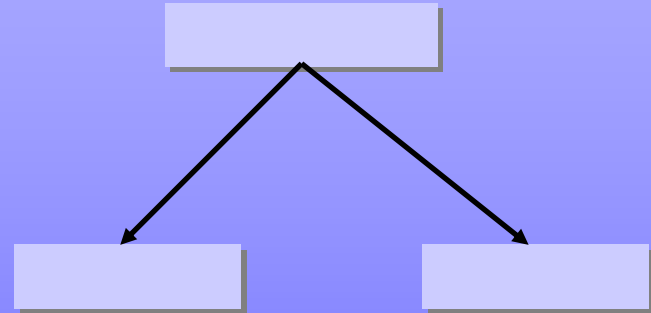
variable



Flow

(Type)

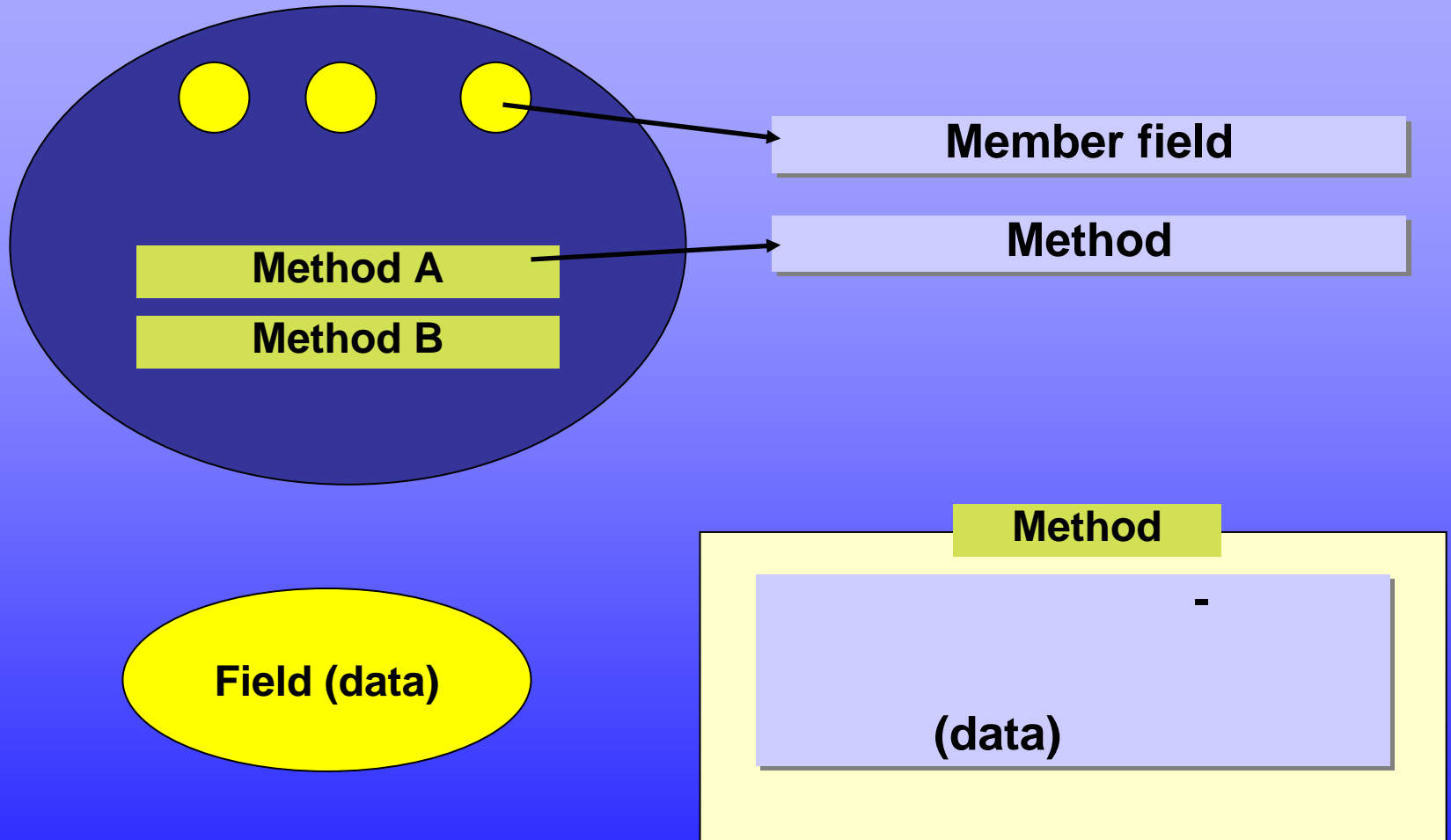
, ()



Data 가

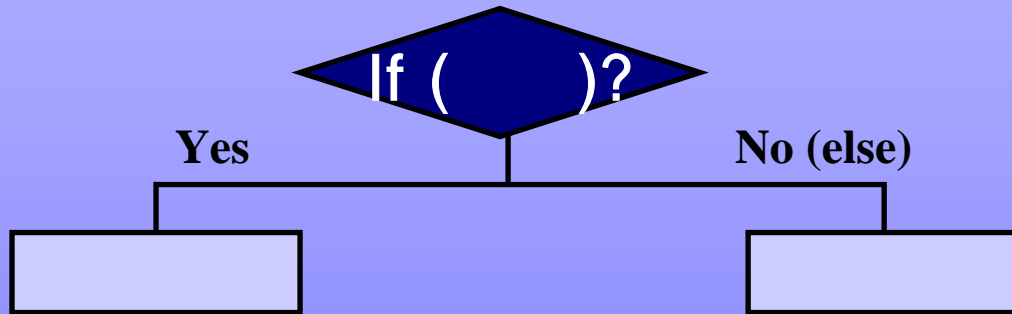
Data

@



@

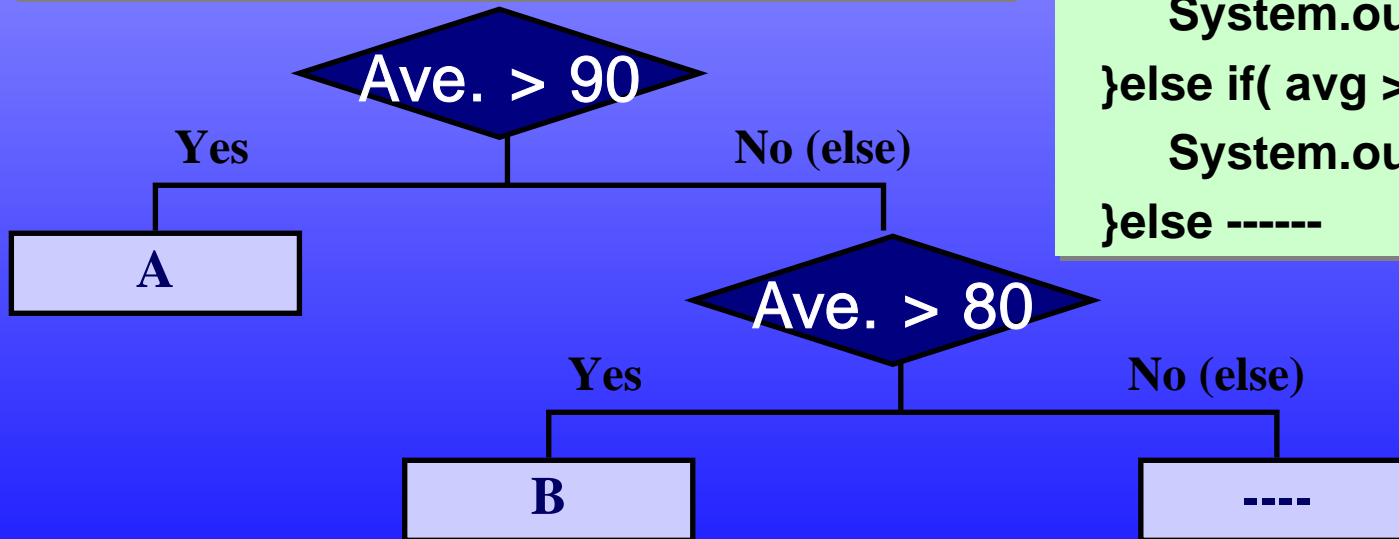
if



if boolean .
 C if (1), if (0) if(true), if(false)

```

if( a%2==0){
    System.out.println(" ");
}else {
    System.out.println(" ");
}
  
```

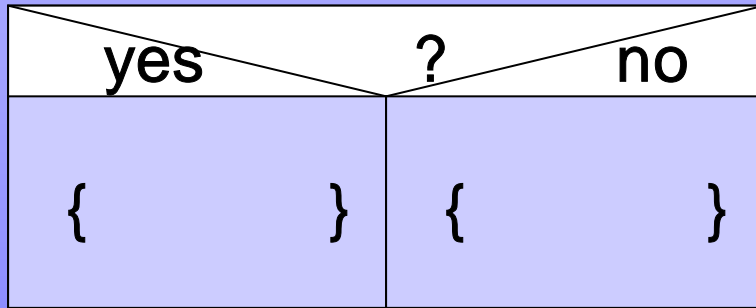


```

if( avg >90){
    System.out.println("A");
}else if( avg >80){
    System.out.println("B");
}else -----
  
```

@

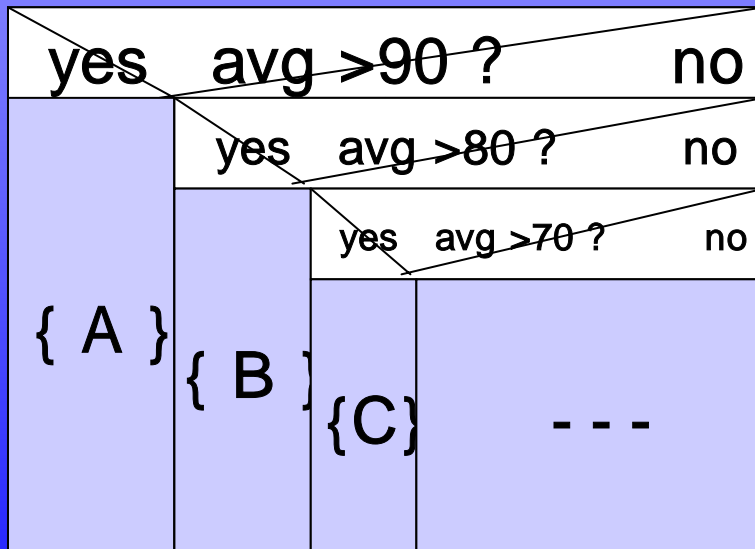
if, if



```

if( a%2==0){
    System.out.println(" ");
}else {
    System.out.println(" ");
}

```



```

int a=15;
1) if(a%2==0)
2) else { }

```

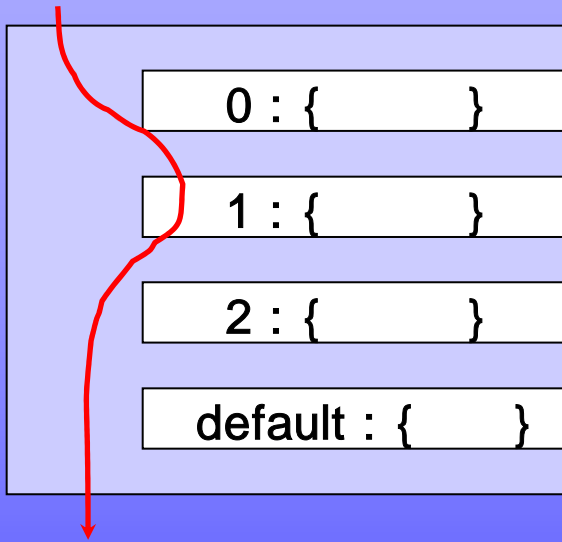
```

int avg=73;
1) if( avg > 90)
2) else if { avg > 80 }
3) else if { avg > 70 }
4) { print C}

```

@

switch



switch(a){

```

case 0: System.out.println("0"); break;
case 1: System.out.println("1"); break;
case 2: System.out.println("2"); break;
default : System.out.println("3"); break;
}

```

```

switch( a ){
    case 0 : --
    -----
}

```

```

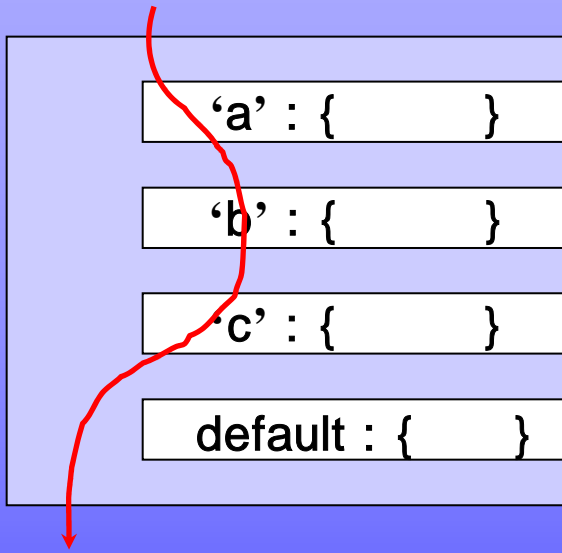
switch          a
primitive type
byte, short, char, int
가              .

```

case

ex) case a>90 : ---- (x)

@ switch



```
char ca='a';
switch(ca){
    case 'a': System.out.println("a");
    case 'b': System.out.println("b");
    case 'c': System.out.println("c"); break;
    default : System.out.println("d"); break;
}
```

break 가 break

```
byte ba=10;
// char cd = ba; (x) // int
char cd=(char)ba; //(0)
```

```
byte cd=10;
switch( cd ){
    case 'a': ---- //error
```


@

for

`i=0 ; i<9``{ }``++i`

```

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

```

```

for( ; ; ){
} // loop → while( true)

```

```

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

```

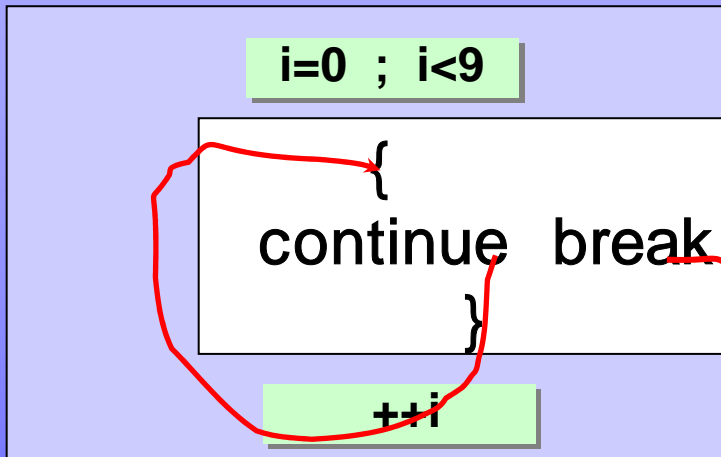
```

for( int i=0, j=1 ; j<9; ++j)

```

@

for



```

for( int i=0; i<20;i++){
    if(i%2==0){
        continue;
    }else {
        System.out.println("    "+i);
    }
}

```

i=0 if(0%2) continue i=1 1<20
else print i=2 2<20
if(2%2) continue i=3 3<20

if(19%2) else print i=20 20<20 → end

@

for

```
for( int i=1; i<500;i*=2){  
    System.out.println("    ==> "+i);  
}
```

```
for( int i=500; i>0;i-=50){  
    System.out.println("    <== "+i);  
}
```

```
for( int i=2; i<500;i=3*i-2){  
    System.out.println(" A3n_2 "+i);  
}
```

@

while

```
while( )
```

```
{ }
```

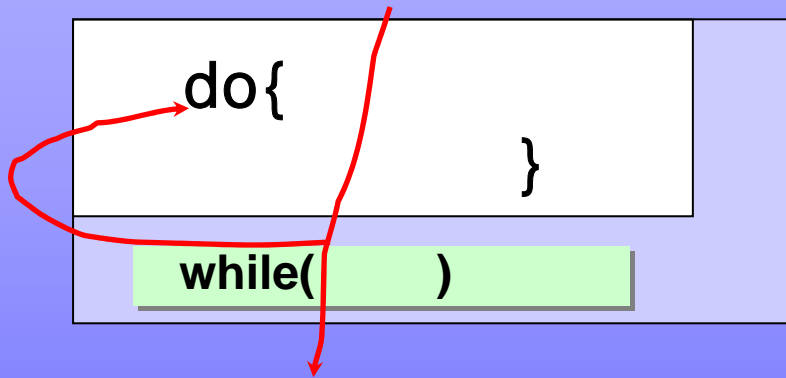
```
int i=0;
while( i<9 ){
    System.out.println(i+" ");
    i++;
}
```

```
while( )
```

```
{
    continue      break
}
```

```
continue { }
break while
```

@ do while



```
int i=15;
do{

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

}while( i<20 );
```

```
while      : while
           { }

do while
  →
```

```
i=15 i=16  print 16  while(16<20)
      i=17  print 17  while(17<20)
      i=18  print 18  while(18<20)
      i=19  print 19  while(19<20)
      i=20  print 20  end
```

@ goto break

```
aa :{  
    break aa;  
}
```

```
for(int i=0;i<10;i++){  
    aa:{  
        for(int j=0;j<2;j++){  
            if(i>5){  
                System.out.println("i : "+i);  
            }else break aa;  
        }// for  
    }// aa:  
}// for
```

i=0 j=0 if(0>5) else break aa;

aa: i=1 j=0 if(1>5) else break aa;

aa: i=2 j=0 if(2>5) else break aa;

aa: i=6 j=0 if(6>5) println(6) j=1 if(6>5) println(6)

 i=7 j=0 if(7>5) println(7) j=1 if(7>5) println(7)

@ keywords in types,

byte

short

int

long

char

float

double

true

false

boolean

if

else

switch

case

default

for

do while

while

continue

break

@

1

```
String sa=args[0];  
String sb=args[1];  
String sc=args[2];  
String sd=args[3];
```

```
System.out.println("                .                4 !! ");
```

```
System.out.println("                java ArgsTest_3Chap_01 My Name is Hyeoun");
```

```
// java ArgsTest_3Chap_01 My Name is Hyeoun
```

```
System.out.println(sa);  
System.out.println(sb);  
System.out.println(sc);  
System.out.println(sd);
```

```
java ArgsTest_3Chap_01 My Name is
```

```
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: 3  
    at ArgsTest_3Chap_01.main(ArgsTest_3Chap_01.java:9)
```


@

1- String

```
System.out.println(" . 4 !! ");
System.out.println(" java ArgsTest_3Chap_01 My Name is Hyoeun");
// java ArgsTest_3Chap_01 My Name is Hyoeun

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

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

}
```

args[0]

args[1]

args[2]

args[3]

My

Name

is

DSU

@

System.in

java.lang
 java.lang.ref
 java.lang.reflect
 java.math
 String
 StringBuffer
 System
 Thread

static PrintStream	err
static InputStream	in
static PrintStream	out

Method Summary

int	available() Returns the number of bytes that can be read (or skipped) without blocking by the next caller of a method for this input stream.
void	close() Closes this input stream and releases any system resources associated with it.
void	mark(int readlimit) Marks the current position in this input stream.
boolean	markSupported() Tests if this input stream supports the mark and reset methods.
abstract int	read() Reads the next byte of data from the input stream.

Method Detail

read

```
public abstract int read()
    throws IOException
```

@

System.in

```
public static void main(String[] args)
    throws java.io.IOException //      read
{
    char c='0';
    int i=0;
    while(true){
        c=(char)System.in.read(); // read -> return int
        i++;
        System.out.println(c); // ad 2      enter
        //--> 'a"d"\n"\r'
        if(i==10){break;}
    }
}
```

enter

\n \r

가

.

Exception Handling

@

System.in

```
public static void main(String[] args)
    throws java.io.IOException //      read
{
    char c='0';
    while(c!='q'){
        do{
            c=(char)System.in.read(); // read -> return int
            System.out.print(c);
        }while(c=='\n' | c=='\r');
    }
}
```

enter

\n \r

가

.

Exception Handling

@

JOptionPane

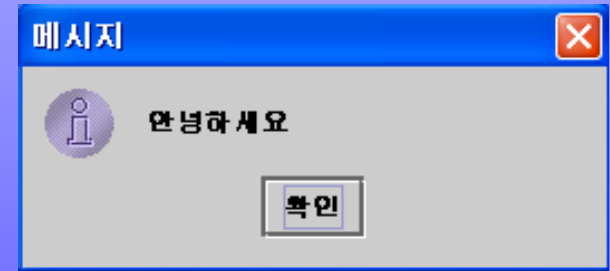
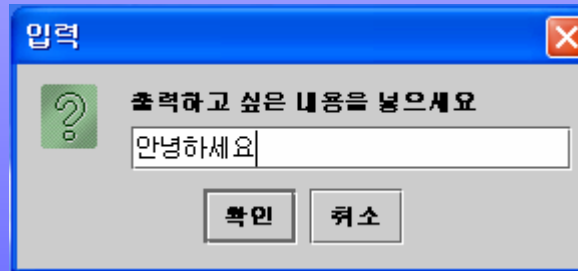
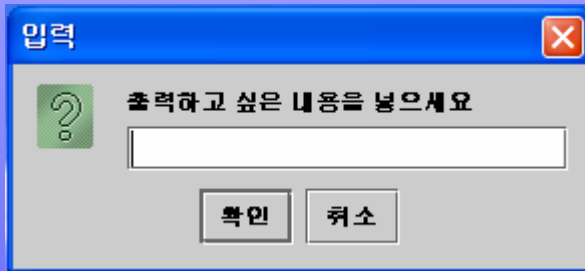
```
String str=  
    javax.swing.JOptionPane.showInputDialog("                ");  
    javax.swing.JOptionPane.showMessageDialog(null,str);  
  
int yesOrNo=  
    JOptionPane.showConfirmDialog(null, "choose one", "choose one",  
                                   JOptionPane.YES_NO_OPTION);  
  
if(yesOrNo==JOptionPane.YES_OPTION ){  
    System.out.println("You choose yes option");  
}else {  
    System.out.println("You choose No option");  
}
```

javax.swing.JOptionPane

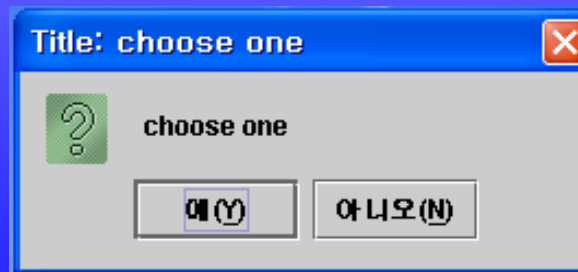
@ JOptionPane

```
String str =  
    javax.swing.JOptionPane. showInputDialog(" ");
```

```
javax.swing.JOptionPane. showMessageDialog( null , str);
```



```
javax.swing.JOptionPane. JOptionPane.showConfirmDialog( null,  
    "choose one", "Title: choose one", JOptionPane.YES_NO_OPTION);
```



@

JOptionPane

```
String str=  
    javax.swing.JOptionPane.showInputDialog("                ");  
    javax.swing.JOptionPane.showMessageDialog(null,str);  
  
int yesOrNo=  
    JOptionPane.showConfirmDialog(null, "choose one", "choose one",  
                                   JOptionPane.YES_NO_OPTION);  
  
if(yesOrNo==JOptionPane.YES_OPTION ){  
    System.out.println("You choose yes option");  
}else {  
    System.out.println("You choose No option");  
}
```

javax.swing.JOptionPane

@ System

Package

[java.awt.print](#)
[java.beans](#)
[java.beans.beancontext](#)
[java.io](#)
[java.lang](#)
[java.lang.ref](#)
[java.lang.reflect](#)

[String](#)
[StringBuffer](#)
[System](#)
[Thread](#)

java.lang Class System

[java.lang.Object](#)
 └─ [java.lang.System](#)

public final class **System**
 extends [Object](#)

currentTimeMillis

public static long **currentTimeMillis()**

Returns the current time in milliseconds. Note that while the unit is millisecond, the granularity of the value depends on the underlying operating system. For example, many operating systems measure time in terms of clock ticks.

See the description of the class [Date](#) for a discussion of standard time, "computer time" and coordinated universal time (UTC).

Returns:

the difference, measured in milliseconds, between the current time and midnight, January 1, 1970 UTC.

See Also:

[Date](#)

Class

Method Summary

static void	arraycopy (Object src, int srcPos, Object dest, int destPos, int length) Copies an array from the specified source array to the specified destination array.
static long	currentTimeMillis () Returns the current time in milliseconds.

@ for execution time

```
for(int i=0;i<1001;i++){
    if(i%2==1){
        System.out.print(i+" ");
    }
}
```

```
for(int i=1;i<1001;i+=2){
    System.out.print(i+" ");
}
```

```
long times1=System.currentTimeMillis();
```

```
for(int i=0;i<1001;i++){
    switch(i%2){
        case 1 : System.out.print(i+" ");
                break;
        default : break;
    }
}
```

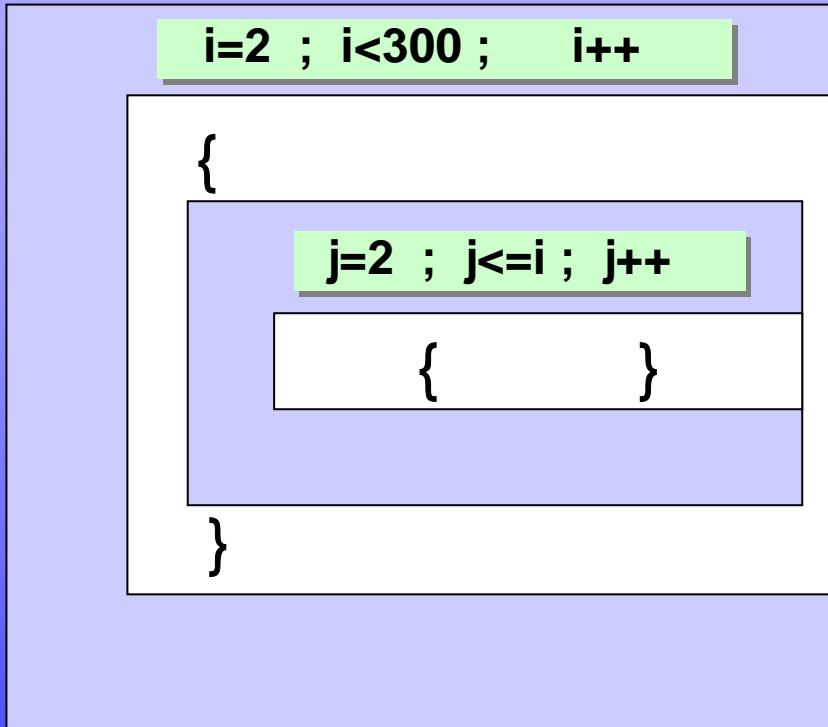
```
1      ++++++
1 3 5 7 9 11 13 15 17 19 21 23 25
time =31 milliseconds

2      ++++++
1 3 5 7 9 11 13 15 17 19 21 23 25
time =15 milliseconds

3      ++++++
1 3 5 7 9 11 13 15 17 19 21 23 25
time =32 milliseconds
```

```
long times2=System.currentTimeMillis();
System.out.println( times2 - times1);
```

@ Nested for



```

for(int i=2;i<300;i++){
  System.out.print(i+"      : 1 ");
  for(int j=2;j<=i;j++){
    if(i%j==0){
      System.out.print(j+" ");
    }
  }
  System.out.println();
}

```

```

2의 약수들 : 1 2
3의 약수들 : 1 3
4의 약수들 : 1 2 4
5의 약수들 : 1 5
6의 약수들 : 1 2 3 6
7의 약수들 : 1 7
8의 약수들 : 1 2 4 8
9의 약수들 : 1 3 9
10의 약수들 : 1 2 5 10
11의 약수들 : 1 11

```

@ Nested for

```
i=2 ; i<100 ; i++
```

```
{
```

```
j=2 ; j<i ; j++
```

```
{ }
```

```
}
```

```
2는 소수
3는 소수
4는 소수가 아님
5는 소수
6는 소수가 아님
7는 소수
```

```
for(int i=2;i<100;i++){
```

```
    boolean isP=true;
```

```
    for(int j=2;j<i;j++){
```

```
        if(i%j==0){
```

```
            isP=false;
```

```
            break; //
```

```
        }else{
```

```
            isP=true;
```

```
        }
```

```
    }
```

```
    if(isP){
```

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

```
    }else{
```

```
        System.out.println(i+"가 ");
```

```
    }
```

```
}
```

@

if, if else, if else if, switch case

for, while, do while

break, continue

for