

# كتاب الجافا العربي

النسخة الأولى

اعداد و تأليف

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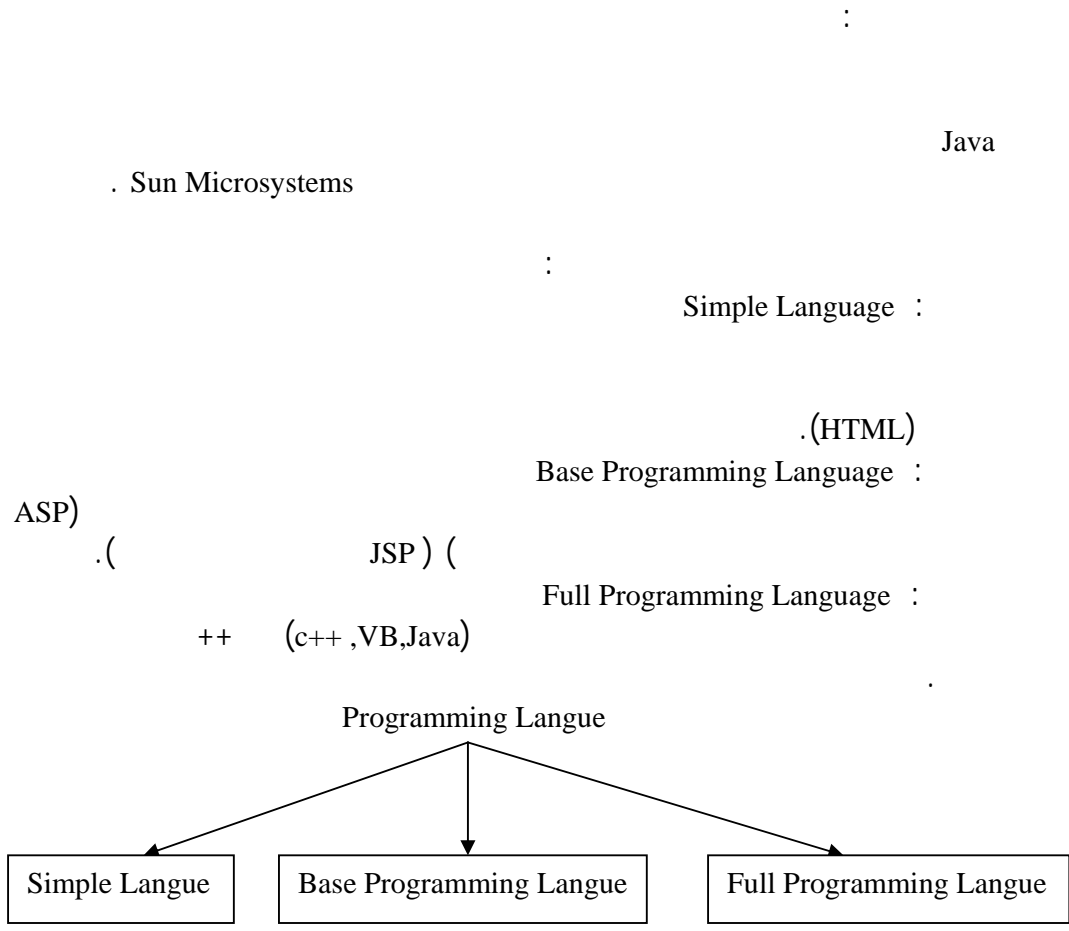
شكر الى الأخ

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الموقع : <http://www.the-soft.net>

جميع الحقوق محفوظة للمؤلف و سواالف سوفت 2004



(Object Oriented Programming)

-2

-3

:

:

++

:

class

:

++  
 machine) (compiler) ( )  
 (code  
 ++

C++\_Compiler → Machine code

class ( )  
 class

Java file → JDK → Class file → JVM → Machine file

class JDK  
 class JVM  
 :  
 (java applet)

:

(Java 2 Platform)

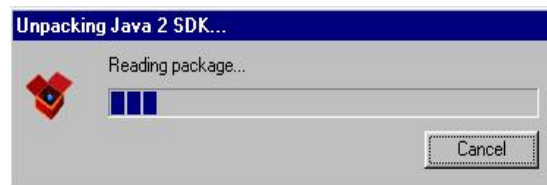
java.sun.com

Java 2 Platform, Standard Edition 1.3

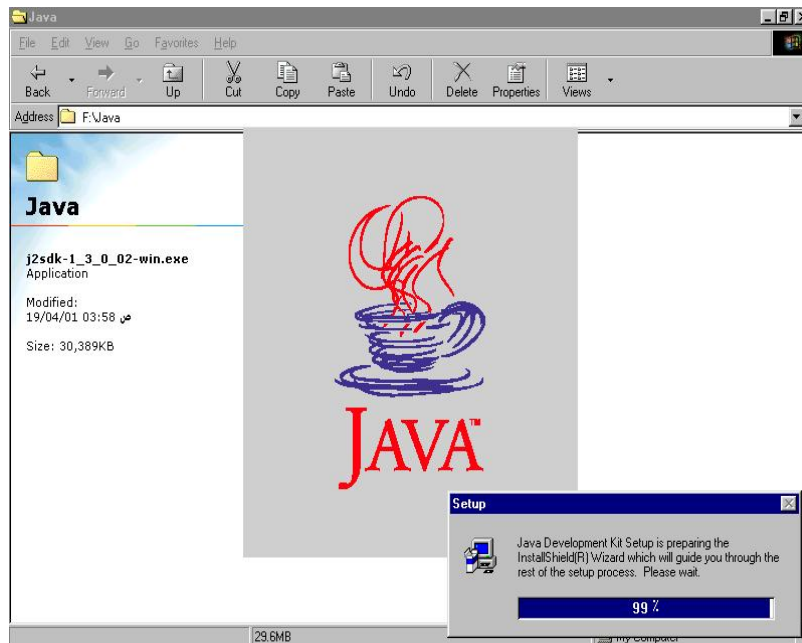


(Double Click)

-1



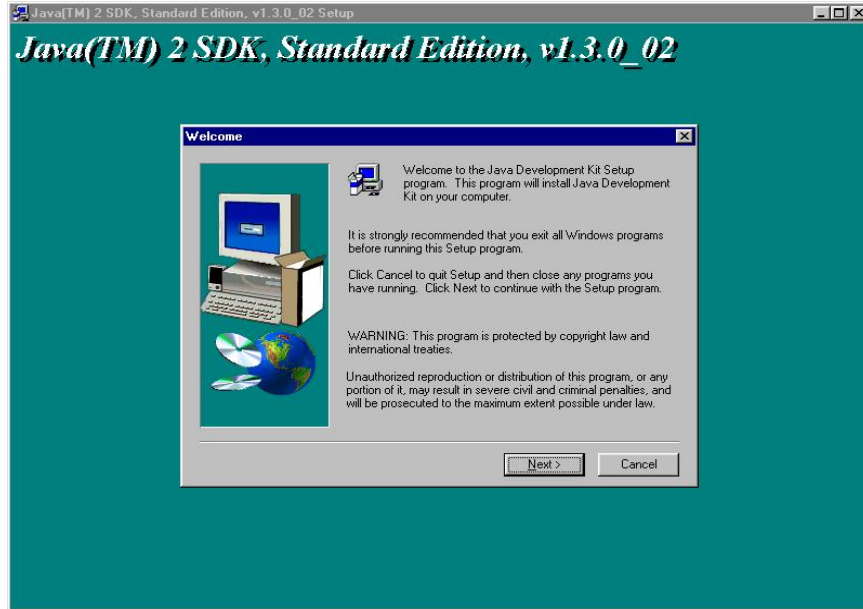
-2



-3

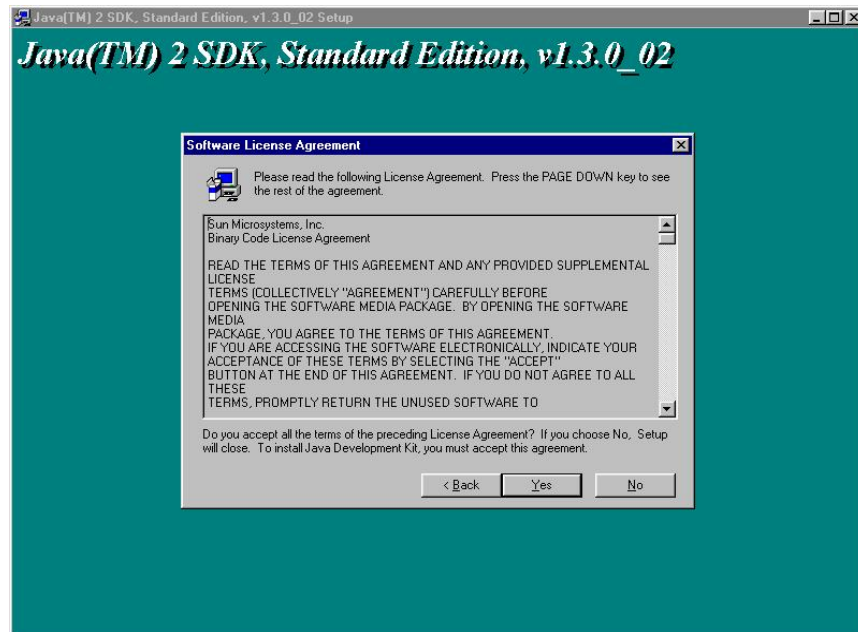
Next

-4



-5

Yes



-6

Browse

Next

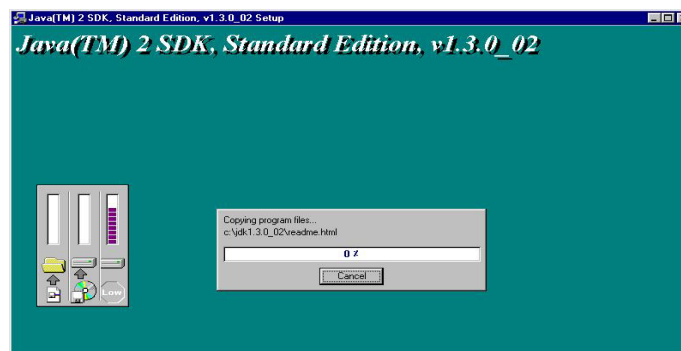


Next

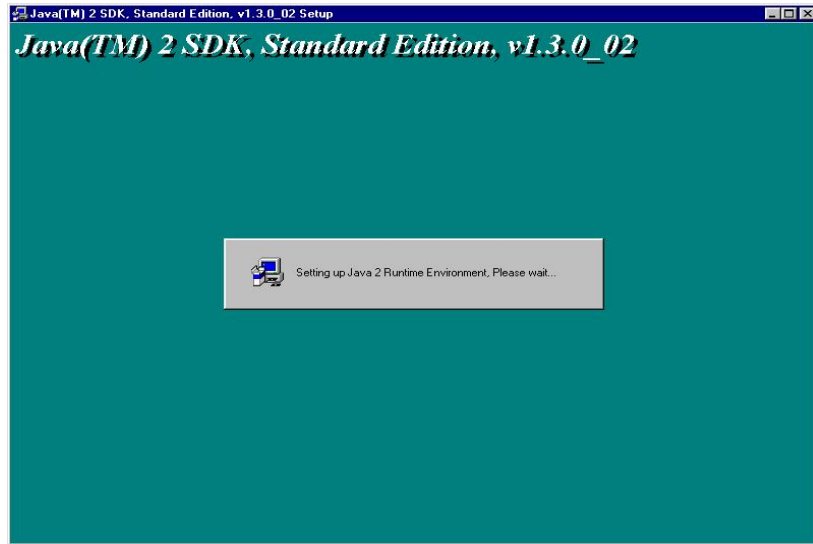
-7



-8  
%100



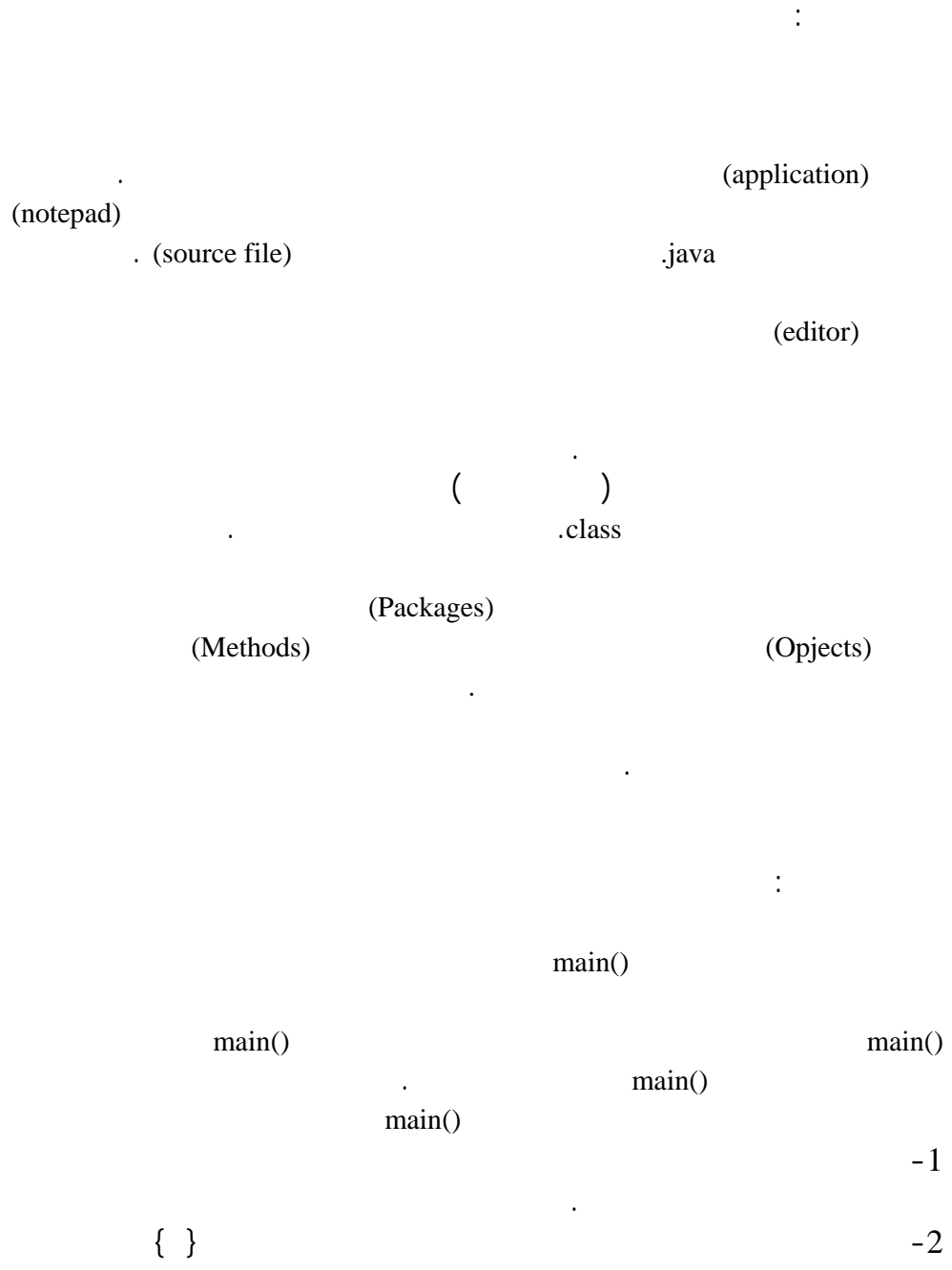
-9



Finish

-10





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



}

.main

:

Z A (Capital letters) (letters) -1  
z a (Small letters)  
9 0 (Digits) -2  
(Special Characters) -3

	+ - / * = % ! \ " . . ; ; ) ( ] [ < > ? :

\n

(escape sequences)

n \

.

:

(main words)

(reserved words)

auto	,	extern	,	sizeof	,	break	,	if
float	,	static	,	case	,	struct	,	for
char	,	goto	,	switch	,	const	,	int
typeof	,	continue	,	union	,	default	,	do
long	,	register	,	void	,	double	,	else
return	,	volatile	,	short	,	while	,	for
while	,	enum	,	signed	,	near	,	asm
entry	,	fortran	,	huge	,	pascal	,	ada

:

:

:

(identifiers)

' '

:

(under score) ( \_ )

-1

-2

(

)

( \_ )

( \_ )

-3

)

-4

VALUE

value (

-5

-6

-7

```

X      ,      area10      ,      Y15      ,      tax_rate
Sum_4,      total_value ,      REAL      ,      Name
_temperature

&address      ,      5th      ,      last name      ,      order-no      ,
      char      ,      "a"

```

(comments)

```

*/      /*

```

```

//

```

(escape character)

```

\

```

\b	
\n	
\r	
\t	7
\"	
'	
\?	
\\	

	:		
		integer constant	-1
		-	
		floating point	-2
10			
		E e 10	
		4e5 40000	
(0.999999999999999)		1	
		character constants	-3
'a' , '5' , '\n' , 65			
		'A' 65	
		ASCII	
		7	
		string constant	-4
		" "	

( )

:

: -1

: -2

: -3

: -4

( )

Data Type

:

1 bit

( )

boolean -1

(true or false)

false

-128  
 (100-,6-,10,20) ( 1 byte) 8 bit  
 byte -2  
 127  
 char -3  
  
 (a , n , \t , 56 , 126) ( 2 byte) 16 bit  
 -32768 short -4  
 32767  
 16 bit  
 -2147483648 int -5  
 2147483647  
 4 byte 32 bit  
 (218888-,20000,50000)  
 float -6  
  
 +/-1.40239846E-45 , +/-3.40282347E+38  
 (88.65 , 222.357 , 2.555) 32 bit  
 (500) ( 5e2) 10  
 double float double -7  
 +/-4.9e-324 +/-1.8e308  
 8 byte 64 bit  
 long -8

Type	Contains	Default value	Size (bits)	Min and Max values
boolean	true or false	false	1	Not Applicable
char	Unicode character	\u0000	16	\u0000 to \uFFFF
byte	signed integer	0	8	-128 to 127
short	signed integer	0	16	-32768 to 32767
int	signed integer	0	32	-2147483648 to 2147483647
long	signed integer	0	32	-2147483648 to 2147483647
float	signed integer	-	64	-9223372036854775808 to 9223372036854775807
double	IEEE754 flt. pt.	0.0	32	+/-3.40282347E+38 to +/-1.40239846E-45
	IEEE754 flt. pt.	0.0	64	+/-1.79769313486231570E+308 to +/-4.94065645841246544E-324

:  
  
 operators  
  
 : +  
 : -  
 : \*

: /

a,b

a=15 , b=4  
a/b=3.75

3

b=4.0 a=15.0  
3.75  
: %

a=11 , b=2  
- a%b = -1 a%-b=1 a%b = 1

:

(-)

increment operator

a++ a=5

a++

a=a+1

: ++

a=6

a

b=15

a=5

b=(a++)\*3

6

a

b=18

b=(++a)\*3

decrement operator

a=4 a-- a=5

a--

a=a-1

: --

:

( )

:

false true

: <

: =<

: >

: =>

a=5, b=6

z=true

z=a<b

a true

a!=b

!=

b

== =

==

5

z

z=a

a=5, b=6

false

a == b

.

:

:

. false true

true

:and &&

&

a=5, b=6 :

a>0

true

( a > 0 ) && ( a < b )

. a<b

:

( true )	( true )	&&	( true )
( false )	( true )	&&	( false )
( false )	( false )	&&	( true )
( false )	( false )	&&	( false )

true

: or ||

(

shit + \

) |



:

( true )	( true )		( true )
( true )	( true )		( false )
( true )	( false )		( true )
( false )	( false )		( false )

: not !

:

( false )	!	( true )
( true )	!	( false )

:

assignment

expression

. assignment ststment

( = )

identifier = expression

.

( )

j = k = 6

. 6

j

6

k

== =

:

+= ,

-= ,

\*= ,

/= ,

% =

y = 6 , x = 5

x = x + y x

x = 11

x = 5 + 6 x

x += y

x = x + y

x += y	x = x + y
x -= y	x = x - y
x *= y	x = x * y
x /= y	x = x / y
x %= y	x = x % y

:

( )

	!, -, ++, --	
	%, /, *	
	+, -	
	>=, >, <=, <	( )
	!=, ==	
	&&	And
		Or
	+=, -=, *=, /=, %=, =	

:

data type

boolean

casting

int i , char c='A'  
A

int char

65  
int

i  
char

i=c

f=c

float f , char c='A'

float

char

65.0

f

.

float , double

byte,int,short,long

:

( )

expression

( )

statement

:

-1

-2

{ }

:

-3

:

class

( )

c:

c:\jdk1.3.0\_02\bin  
j2sdk

.java

( filename.java)

dos

: 98



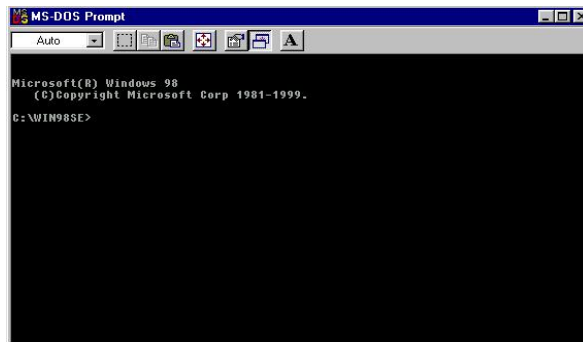
start -1



programs -2



Ms-Dos Prompt -3



start -1

Run -2

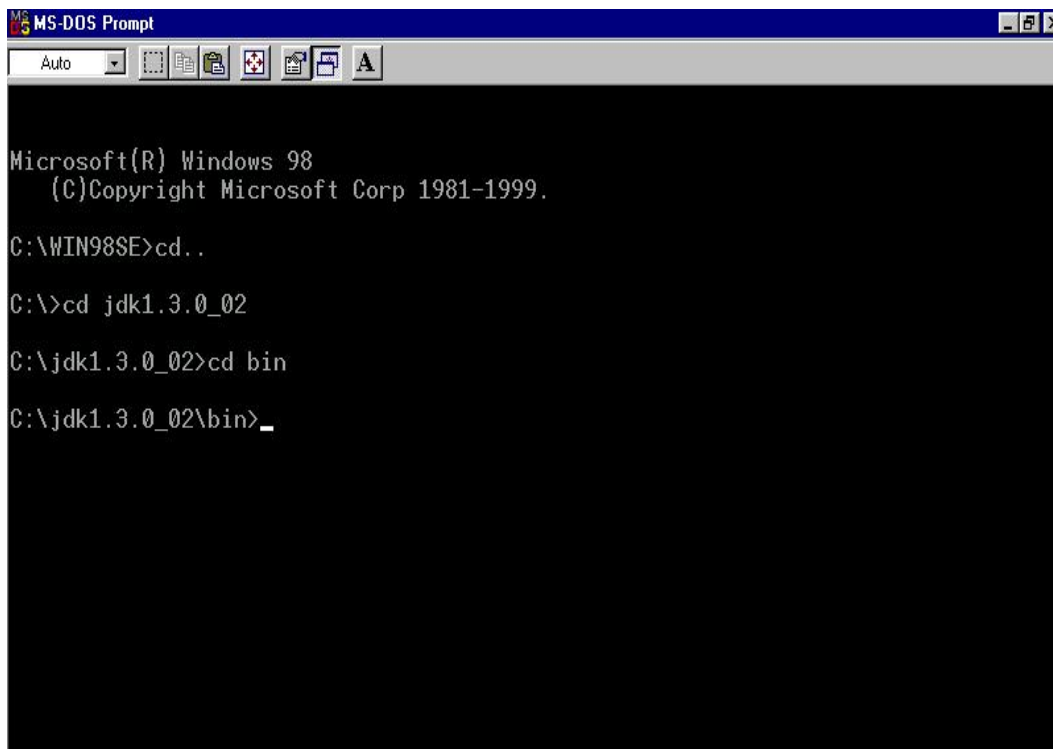
ok cmd -3

c:\jdk1.3.0\_02\bin

cd.. -1

cd jdk1.3.0\_02 -2

cd bin -3



```
javac filename.java
        filename.class

java filename
        class
        :
        Hello

notepad
class Hello
{
    public static void main(String []arg)
    {
        System.out.println("Hello");
    }
}
```

```
jdk1.3.0_02 bin
c:
Hello.java
```

```
MS-DOS Prompt
Auto
C:\>cd jdk1.3.0_02
C:\jdk1.3.0_02>cd bin
C:\jdk1.3.0_02\bin>javac Hello.java
C:\jdk1.3.0_02\bin>java Hello
Hello
C:\jdk1.3.0_02\bin>
```

```

class Hello
{
}

package
java.lang
System.out.println
method

class
System .
out method capital
method package class println
class method

.
:

System class class java.lang
. out System
println out
;

```

:



+

```
s=100 ,      i=10000 ,      L=10000000000      ,      d=105.55      , c='G'  
state=false
```

:

```
s=100 ,      i=10000 ,      L=10000000000      ,      d=105.55      , c='G'  
state=false
```

```
class DataType  
{  
    public static void main(String []arg)  
    {  
  
        short s=100 ;  
        int i=10000 ;  
        long L=10000000000;  
        float d=105.55f ;  
        char c='G';  
        boolean state=false;  
  
        System.out.println("s =" +s+"      "+"i=" +i);  
        System.out.println("L =" +L+"      "+"d=" +d);  
        System.out.println("c =" +c+"      "+"state=" +state);  
  
    }  
}
```



```

class DataType
{
    public static void main(String []arg)
    {

        short s=100 ;
        int i=10000 ;
        long L=1000000000;
        float d=105.55f ;
        char c='G';
        boolean state=false;

        System.out.println("s="+s+"\t"+"i="+i+"\n"+"L="+L+"\t"+"d="+d+"\n"+"c="
c+"\t"+"state="+state);

    }
}

```

The screenshot shows an MS-DOS Prompt window with the following commands and output:

```

C:\jdk1.3.0_02\bin>javac DataType.java

C:\jdk1.3.0_02\bin>java DataType
s =100  i=10000
L =1000000000  d=105.55
c =G  state=false

C:\jdk1.3.0_02\bin>_

```

The window also shows a taskbar at the bottom with various icons and a status bar indicating 'Page 24', 'Sec 1', '24/24', 'At 5.4cm', 'Ln 7', 'Col 43', and 'Arabic (Sau)'.

f                    float                    double

:

b=4 , a=15                    a,b

```
class ArithOper
{
    public static void main(String []arg)
    {
        int a=15;
        int b=4;
        int x,y,z,v,u;
        float f,c=4.0f;
        x=a+b;
        y=a-b;
        z=a*b;
        v=a/b;
        f=a/c;
        u=a%b;
        System.out.println("a+b="+x);
        System.out.println("a-b="+y);
        System.out.println("a*b="+z);
        System.out.println("a/b="+v+"\t"+"a/b="+f);
        System.out.println("a%b="+u);
    }
}
```

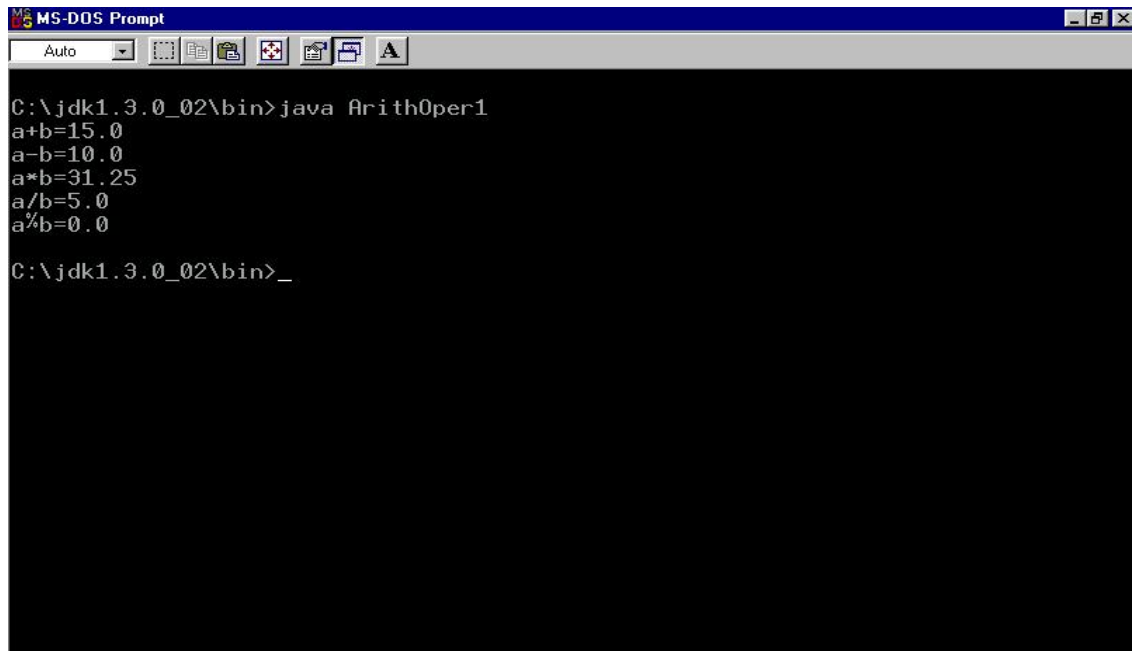
```
MS-DOS Prompt
Auto
C:\jdk1.3.0_02\bin>java ArithOper
a+b=19
a-b=11
a*b=60
a/b=3.75
a/b=3
a%b=3
C:\jdk1.3.0_02\bin>
```

Build Output Debug Find in Files 1 Find in Files 2  
For Help, press F1 , a=12.5 a,b Ln 1, Col 7, Char 16 DOS NUM b=2.5

```
class ArithOper1
{
    public static void main(String []arg)
    {

        float a=12.5f , b=2.5f;
        float x,y,z,v,u;
        x=a+b;
        y=a-b;
        z=a*b;
        v=a/b;
        u=a%b;
        System.out.println("a+b="+x+"\n"+"a-
b="+y+"\n"+"a*b="+z+"\n"+"a/b="+v+"\n"+"a%b="+u);
```

```
}  
}
```



The image shows a screenshot of an MS-DOS Prompt window. The title bar reads "MS-DOS Prompt". The command prompt shows the execution of a Java program named "Arith0per1". The output of the program is displayed as follows:

```
C:\jdk1.3.0_02\bin>java Arith0per1  
a+b=15.0  
a-b=10.0  
a*b=31.25  
a/b=5.0  
a%b=0.0  
C:\jdk1.3.0_02\bin>_
```

5

i,j

```
class UnaryOper  
{  
    public static void main(String []arg)  
    {  
  
        int a,b,i,j;  
        i=j=5;  
        a=i++ * 3;  
        b=++j *3;  
        System.out.println("a = "+a+"\n"+"b = "+b);  
  
    }  
}
```



:

i=7,f=5.5,c='w' i,f,c

:

```
(i>=6)&&(c==119)
(i>6)||(c=='w')
(f<11)&&(i>100)
(c!='p')||((i+f)<=10)
```

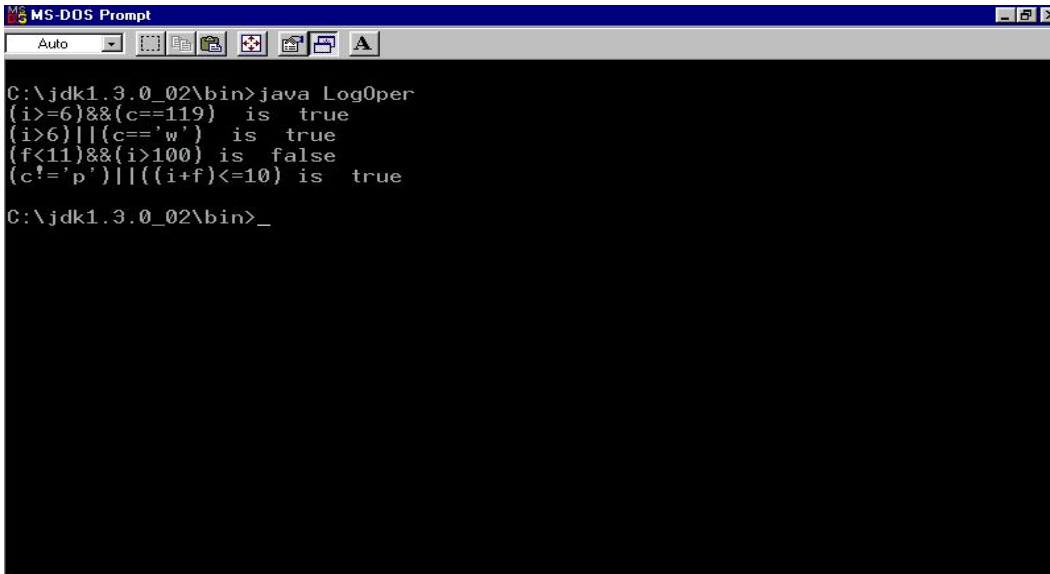
```
class LogOper
{
    public static void main(String []arg)
    {
```

```
        boolean b1,b2,b3,b4;
        int i=7;
        float f=5.5f;
        char c='w';
        b1=(i>=6)&&(c==119);
        b2= (i>6)||(c=='w');
        b3=(f<11)&&(i>100);
        b4=(c!='p')||((i+f)<=10);
```

```
        System.out.println("(i>=6)&&(c==119) is "+b1);
        System.out.println("(i>6)||(c=='w') is "+b2);
```

```
System.out.println("(f<11)&&(i>100) is "+b3);
System.out.println("(c!='p')||((i+f)<=10) is "+b4);
```

```
}
}
```



.or  
and false

true

i=6,j=8,f=6.6,k=-4.25

i,j,f,k

```
i=i+6
f=f-k
j=j*(i-4)
f=f/4
i=i%(j-2)
```

```
class AssOper
```

```

{
    public static void main(String []arg)
    {

        int i=6,j=8;
        float f=6.5f,k=-4.25f;
        System.out.println("i=i+6    ->  i="+i+=6));
        System.out.println("f=f-k    ->  f= "+(f-=k));
        System.out.println("j=j*(i-4) ->  j="+j*(i-4));
        System.out.println("f=f/4    ->  f="+f/=4));
        System.out.println("i=i%(j-2) ->  i="+i%(j-2));
    }
}

```

```

MS-DOS Prompt
Auto
C:\jdk1.3.0_02\bin>java Ass0per
i=i+6    ->  i=12
f=f-k    ->  f= 10.75
j=j*(i-4) ->  j=64
f=f/4    ->  f=2.6875
i=i%(j-2) ->  i=12
C:\jdk1.3.0_02\bin>_

```

:  
 while statement

while ( )

while ( )



```

{
}

true          { }          true
              flae
              . }

7 0

```

```

class WhileSt
{
    public static void main(String []arg)
    {
        int i=0;
        while (i<=7)
        {
            System.out.println(i);
            ++i;
        }
    }
}

```

```

i          :
7          i          while
i          i          :
          { }          1
          :

```



```
class WhileSt1
{
    public static void main(String []arg)
    {
        int i=0;
        while (i<=7)
            System.out.println(i++);
    }
}
```

while

while

!

```
class WhileSt2
{
    public static void main(String []arg)
    {
```

```
        int i=0;
```

```

        while (++i<=7);
            System.out.println(i);
    }
}

1    i                                while
:                                8    i

```

```

MS-DOS Prompt
Auto
Microsoft(R) Windows 98
(C)Copyright Microsoft Corp 1981-1999.
C:\WIN98SE>cd .
C:\>cd jdk13\1.0_0
C:\jdk1.3.0_02>cd bin
C:\jdk1.3.0_02\bin>java WhileSt2
8
C:\jdk1.3.0_02\bin>_

```

```

class WhileSt3
{
    public static void main(String []arg)
    {
        int b,a=0;
        while (a<=10)
        {
            b=1;
            while(b<=a)
            {
                System.out.print ("*");
                ++b;
            }
            System.out.print ("\n");
            ++a;
        }
    }
}

```



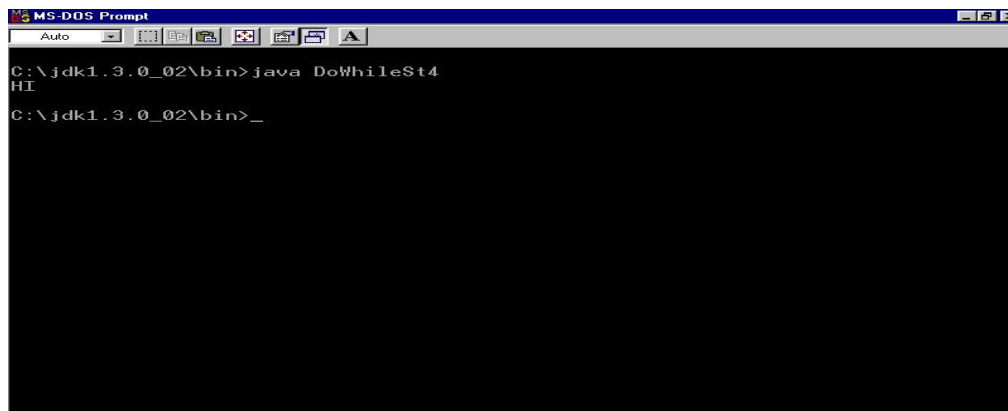


```
Do
{
}
while(      );

while
```

```
class DoWhileSt4
{
    public static void main(String []arg)
    {
        int i=0;
        do
        {
            System.out.println("HI");
            ++i;
        }
        while(i>7);
    }
}
```

while



```
MS-DOS Prompt
Auto
C:\jdk1.3.0_02\bin>java DoWhileSt4
HI
C:\jdk1.3.0_02\bin>_
```

:

## for statement

```
for(ex1;ex2;ex3)
{
}
```

ex1

ex2

ex3

```
while
while(ex2)
{
ex3;
}
```

while

while

for

10,100,1000

for

```
class ForSt
{
    public static void main(String []arg)
    {
        int i;
        for(i=0;i<=10;++i)
        {
            System.out.println(i+"\t"+(i*10)+"\t"+(i*100)+"\t"+(i*1000));
        }
    }
}
```

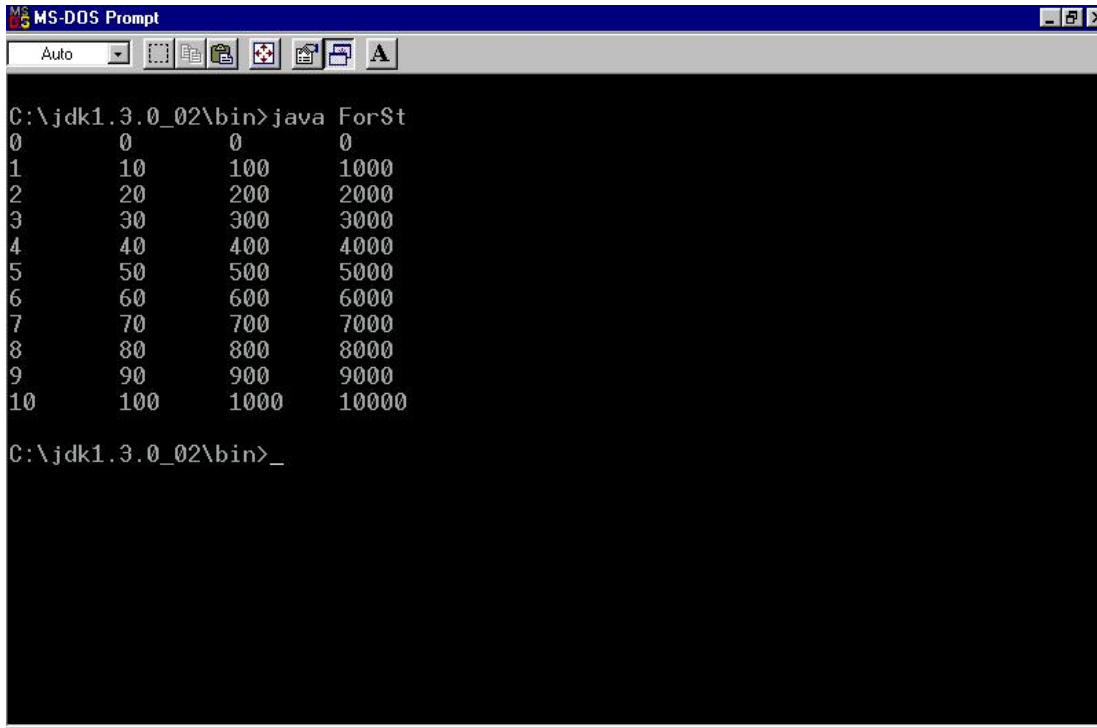
i for i<=10

i

for i

10

1000 100 10 i



```
MS-DOS Prompt
Auto
C:\jdk1.3.0_02\bin>java ForSt
0      0      0      0
1      10     100    1000
2      20     200    2000
3      30     300    3000
4      40     400    4000
5      50     500    5000
6      60     600    6000
7      70     700    7000
8      80     800    8000
9      90     900    9000
10     100    1000   10000
C:\jdk1.3.0_02\bin>_
```