

A+ Computer Science

Basic Java



Why Java?

Why not? Java is widely used in Software development. It is also a strongly typed language.

Java is like bowling; fun for the whole family.



Why Java?

Java is a very popular language used all over the planet. Java runs on lots of devices and there are numerous jobs in the software world if you can write Java code. Per indeed.com, there were over 65,000 Java job postings in 2019.



Why Program?

Why not? Learning to program is very important as everything we use has some code running on it somewhere.



Why Program?

Why not? Learning to code will help us understand how to get our devices to do what we need them to do. Programming is fundamental in all fields.



A Simple Class

```
public class AplusCompSci  
{  
  
  
  
  
  
  
}
```

All Java programs start with a class.



A Simple Class + main

```
public class AplusCompSci  
{  
    public static void main(String[] args)  
    {  
        System.out.println("Aplus Comp Sci!");  
    }  
}
```

OUTPUT

Aplus Comp Sci!



Syntax Rules

```
public class AplusCompSci
```

```
{ //open brace
```

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

```
{
```

```
    System.out.println("Aplus Comp Sci!");
```

```
}
```

```
} //close brace
```

Braces – You gotta have 'em! Every class and every method must have a { and a } .



Syntax Rules

```
public class AplusCompSci
{
    public static void main(String[] args)
    {
        System.out.println("Aplus Comp Sci!");
    }
}
```

You must put a semi-colon at the end of all Java program statements (;).

Syntax Rules

Never put a ;
before an open { brace

:{ //illegal
}; //legal



Indentation

```
public class AplusCompSci
{
    public static void main(String[] args)
    {
        System.out.println("Aplus Comp Sci!");
    }
}
```



Indent all code 3 spaces to make it easier to read.

apluscompsci.java

Basic Java Output



System.out

frequently used methods

Name	Use
print(x)	print x and stay on the current line
println(x)	print x and move to next line down
printf(s,x)	print x according to s specifications

Basic Java Output

reference

command / method

System.out.print("applus compsci");

OUTPUT

applus compsci

"String literal"



Basic Java Output

```
System.out.print("aplus compsci");  
System.out.print("aplus compsci");
```

OUTPUT

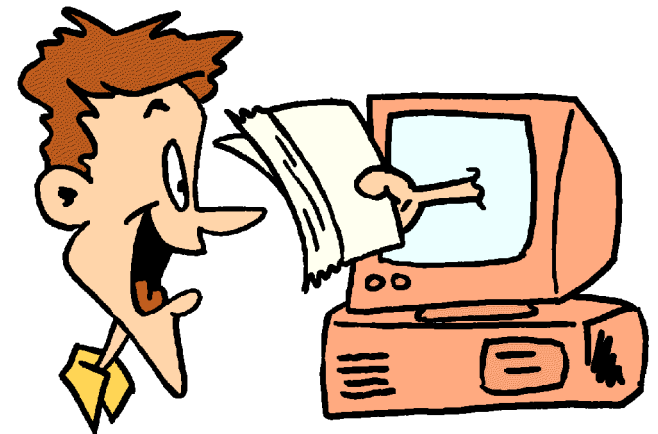
aplus compsciaplus compsci

Basic Java Output

```
System.out.println("applus compsci");
```

OUTPUT

applus compsci





Basic Java Output

```
System.out.println("applus compsci");  
System.out.println("applus compsci");
```

OUTPUT

```
applus compsci  
applus compsci
```

basic.java



Basic Escape Sequences

frequently used combinations

Name	Use
<code>\n</code>	moves to front of next line
<code>\\</code>	nets one backslash \
<code>\"</code>	nets one double quote "



Basic Java Output

**Escape
Sequences**

<code>\n</code>	newline
<code>\"</code>	double quote
<code>\\</code>	single \

```
System.out.println("aplusc\nompsci");
```

OUTPUT

```
aplusc  
ompsci
```



Basic Java Output

**Escape
Sequences**

<code>\n</code>	newline
<code>\"</code>	double quote
<code>\\</code>	single \

```
System.out.println("aplus\\compsci/");
```

OUTPUT

aplus\\compsci/



Basic Java Output

**Escape
Sequences**

<code>\n</code>	newline
<code>\"</code>	double quote
<code>\\</code>	single \

```
System.out.println("apluscompsci\");
```

OUTPUT

apluscompsci"

escape1.java



Advanced Escape Sequences

frequently used combinations

Name	Use
<code>\t</code>	tabs over five spaces
<code>\b</code>	deletes previous character
<code>\r</code>	moves to front of current line
<code>\'</code>	nets one single quote '



Intermediate Java Output

**Escape
Sequences**

<code>\'</code>	single quote
<code>\t</code>	tab
<code>\r</code>	carriage return
<code>\b</code>	backspace

```
System.out.println("aplusc\tompsci");
```

OUTPUT

aplusc ompsci



Intermediate Java Output

**Escape
Sequences**

<code>\'</code>	single quote
<code>\t</code>	tab
<code>\r</code>	carriage return
<code>\b</code>	backspace

```
System.out.println("appluscom\tppsci");
```

OUTPUT

appluscom

ppsci



Intermediate Java Output

**Escape
Sequences**

<code>\'</code>	single quote
<code>\t</code>	tab
<code>\r</code>	carriage return
<code>\b</code>	backspace

```
System.out.println("aplus\\\'comp\'sci\'/');
```

OUTPUT

aplus\'comp\'sci\'/

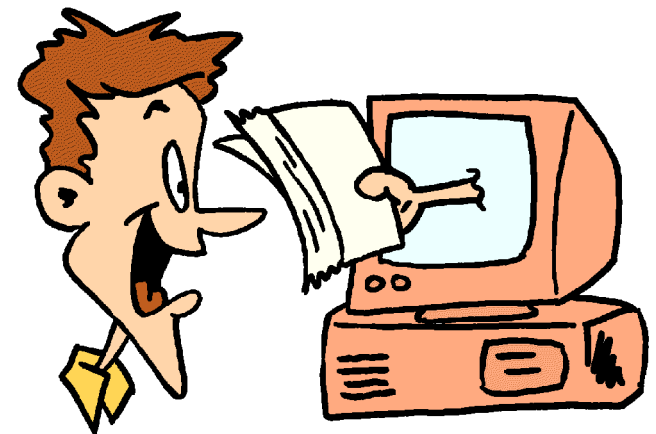
escape2.java

Advanced Java Output

```
System.out.println( 7 + 8 + 9 );
```

OUTPUT

24

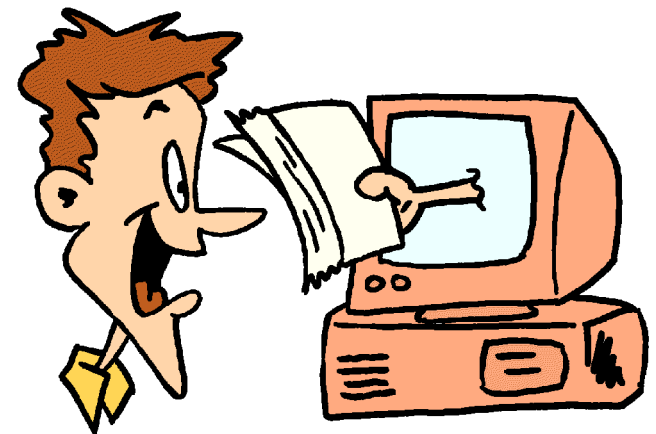


Advanced Java Output

```
System.out.println( 7 + " " + 8 + 9 );
```

OUTPUT

7 89

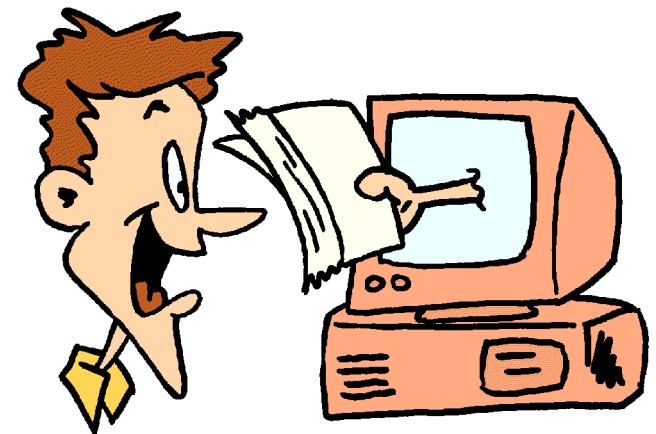


Advanced Java Output

```
System.out.println( 7 + 8 + " " + 9 );
```

OUTPUT

15 9



stringout.java



Basic Java Comments

//	single-line comments
/* */	block comments

//this line prints stuff on the screen
System.out.println("aplus cs");



Basic Java Comments

//	single-line comments
/* */	block comments

/*

this line prints stuff on the screen

*/

System.out.println("applus cs");

comments.java

Programming Errors

Syntax errors occur when you type something in wrong, causing the code to not compile.

//missing semicolon - ; expected
System.out.println("applus cs")

//case problem – should be System
system.out.println("applus cs")

Programming Errors

Runtime errors occur when something goes wrong while the program is running.

```
//an out of bounds exception is thrown  
String s = "runtime_error";  
System.out.println( s.charAt(15) );
```

errors.java

**Work on
Programs!**

**Crank
Some Code!**

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