A+ Computer Science Basic Java



Basics



Why Java?

Java will run on many different devices and platforms.

Java is the #1 language.

There are 45 billion Java virtual machines running across the planet.



Why Program?

There are numerous jobs for those that can write code and build things.

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.

Programming is fundamental in all fields these days.



Why Program?

Why not?

Writing code is fun as you get to breathe life into your ideas each and every day.



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 (;).



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



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



system.out.print("aplus compsci");
OUTPUT
aplus compsci
"String literal"



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

OUTPUT

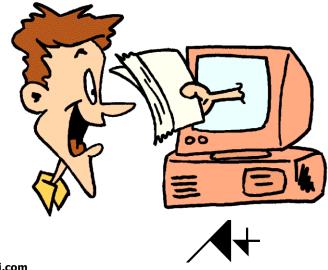
aplus compsciaplus compsci



System.out.println("aplus compsci"); System.out.println("aplus compsci");

OUTPUT

aplus compsci aplus compsci



basicijava



Basic Escape Sequences frequently used combinations

Name	Use
\n	moves to front of next line
11	nets one backslash \
\"	nets one double quote "





```
\n newline
\" double quote
\\ single \
```

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

output aplusc ompsci





```
\n newline
\" double quote
\\ single \
```

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

```
OUTPUT
aplus"compsci"
```





```
\n newline
\" double quote
\\ single \
```

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

```
OUTPUT
aplus\compsci
```



Advanced Escape Sequences frequently used combinations

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



Intermediate Java Output



```
\' single quote \t tab \r carriage return \b backspace
```

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

OUTPUT aplusc ompsci



Intermediate Java Output



```
\t single quote
\t tab
\r carriage return
\b backspace
```

System.out.println("apluscom\tpsci");

```
OUTPUT
apluscom psci
```



Intermediate Java Output



\'	single quote
\t	tab
\r	carriage return
\b	backspace

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

```
OUTPUT
aplus\'comp'sci'
```



escape1.java escape2.java

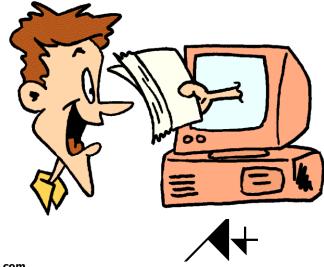


Advanced Java Output

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

OUTPUT

24

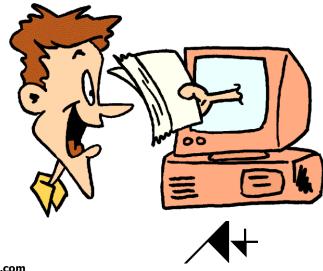


Advanced Java Output

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

OUTPUT

7 89

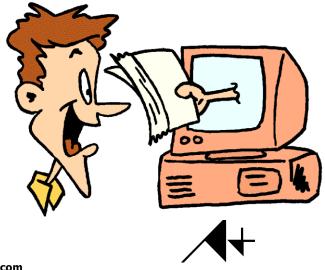


Advanced Java Output

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

OUTPUT

15 9



stringout.java



Errors Comments



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("aplus cs");
```



Programming Errors

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

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

//case problem – should be System system.out.println("aplus 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) );
```



comments.java errors.java



Work on Programs!

Crank
Some Code!



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