Java Syntax and Output

A bare bones class!

```java
public class CompSci
{


}
```

All Java programs start with a class.

bare bones + a main!

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

OUTPUT
Comp Sci!

syntax rules

```
public class CompSci
{   //open brace
    public static void main(String[] args)
    {
        System.out.println("Comp Sci!");
    }
}   //close brace
```

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

syntax rules

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

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

{ and ; rule

Never put a ;
before an open { brace

;{ //illegal
}; //legal

indentation

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

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

Open
compsci.java

```java
//bare bones class example

public class CompSci
{
  public static void main(String args[])
       {
               System.out.print("Comp Sci!\n\n");
       }
}
```

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

Java Output

reference   **command / method**

System.out.print("compsci");

OUTPUT
compsci

Java Output

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

OUTPUT
compscicompsci

Java Output

System.out.println("compsci");

OUTPUT
compsci

Java Output

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

OUTPUT
compsci
compsci

Open one.java

```java
//print/println example

public class One
{
        public static void main(String args[])
        {
                System.out.print("compsci");
                System.out.println();

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

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

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

Java Output

Escape Sequences

\n	newline
\t	tab
\r	carriage return
\b	backspace

```java
System.out.println("c\tompsci");
```

OUTPUT

c   ompsci

Java Output

Escape Sequences

\n	newline
\t	tab
\r	carriage return
\b	backspace

```
System.out.println("com\tpsci");
```

OUTPUT
com   psci

Java Output

\n	newline
\t	tab
\r	carriage return
\b	backspace

System.out.println("comp\nsci");

OUTPUT
comp
sci

Open two.java

```java
//print/println example
//esacpe sequence example

public class Two
{
    public static void main(String args[])
    {
        System.out.println("c\tompsci");
        System.out.println("com\tpsci");
        System.out.println("comp\nsci");
    }
}
```

Java Output

Escape Sequences

\\	outs \
\"	outs "
\'	outs '

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

OUTPUT

\compsci"/

Java Output

\\	outs \
\"	outs "
\'	outs '

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

OUTPUT

\'comp'sci'/

Escape Sequences
frequently used combinations

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

Java Comments

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

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

Java Comments

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

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

Java Output

System.out.printf("%s","compsci\n");

OUTPUT
compsci

Open three.java

```java
//print/println example
//comment example

public class Three
{
        public static void main(String args[])
        {
                System.out.println("\\compsci\"/");
                System.out.println("\\'comp\'sci\'/");

                //single line comment
                //printf will be used more later
                System.out.printf("%s","compsci\n");

                /*
                 this  is
                 a  block or multi-line
                 comment
                */
        }
}
```

Errors

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

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

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

Errors

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

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

Open four.java

```java
//error examples

public class Four
{
        public static void main(String args[])
        {
                //Compile Errors

                //missing semicolon
                System.out.println("stuff")

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

                //Runtime Errors

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

1. **Complete Worksheets**
   a) **output_Basics**, **due today**
   b) **Syntax / Output**, **due today**

2. **Begin Labs, due next class period**
   a) **output_ASCII_BOX1_LastName**
   b) **output_ASCII_BOX2_LastName**
   c) **ouput_ASCII_ART_LastName**

Rules for Turning in Labs

1. Each Java class must be named as specified in the lab, with the addition of your Last Name at the end.
2. Each class must have the following heading at the top of the file:
   - Your Full Name
   - The date
   - The source of the assignment (Labs 0A)
   - I received help from:
3. If there are multiple files for the lab, they must be stapled in order, first on top.

FAQs

1. If I forget my header may I just write it at the top of the page? Nope. Add the header & re-print
2. If I forget to change the name of the .java file is it OK? Nope, fix it & re-print.
3. If I staple them in the wrong order, is it OK? Nope, remove staple & re-staple.
4. Can I turn it in late? Yes, **if** you also turn in
   1. The vocabulary words, defined, in your handwriting on your notebook paper
   2. A two-column notes summary of the lecture in your handwriting on your notebook paper. Note: you can find an example of correctly formatted two-column notes in my library on Edmodo.

Java Syntax / Output Vocabulary Words

1. brace
2. class
3. console
4. error
5. escape sequence
6. indentation
7. input
8. output
9. print
10. semi-colon
11. syntax
12. System
13. tab
14. white space