

ITP-120: Java Programming I

Lecture #1

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Name: William Paul Liggett

Speaks: Java, Python, PHP, & HTML5/CSS3/JavaScript

Past: PHP/JavaScript Coder, IT Proj. Manager
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What is Java?

- * High-level computer language.
- * Super-powerful!
- * Cross-platform:
 - > Linux, Windows, macOS, others.
- * Syntax is derived from C and C++.
- * Java runs on a “virtual machine” (JVM):
 - > Source Code (.java) → Compiled Bytecode (.class)
[NOT: Machine Language for CPU]

Who uses Java?

- * TIOBE Index Ranking: #1
- * Android apps = Java
- * And a lot of other organizations world-wide.

Programming Basics

Data

vs.

Information

?

?

Programming Basics

Data

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Input

Output

Java's Starting Point

* **Overview:** Every Java program must start with:

```
public class HelloWorld {  
    public static void main(String[] args) {  
        // Your code here.  
    }  
}
```

Writing Output (aka Info)

- * **Output:** Something that comes *out* of the computer.
Simple: General print messages.

- Advanced: Report based on 5 GB of data (input).

- * **In Java:**

- `System.out.print("Hello, World!");`

- Outputs: **Hello, World!**

Variables

- * **Variable:** Basically a cup to hold data.

Allows your program to remember something.
Holds one piece of data, which can change or vary later. Such as: `x = 1` ... `x = 5`

- * **In Java:**

```
String cool_person = "William";
```

```
int coffees_drunk = 3;
```

Java Variable Types

* **Integer:** Whole numbers.

```
int a = 2;
```

* **Double:** Decimal number with *double-precision*.

```
double d = 1.5;
```

* **String:** A *string* of characters. Text.

```
String some_text = "ABCdef123 !@#$ Hi :-)";
```

* **Boolean:** *true* or *false*

```
boolean java_is_fun = true;
```

Three Main Control Structures

Sequence

Step #1

Step #2

Step #3

Selection

```
if(x > y) {
```

```
    Step #A1
```

```
    Step #A2
```

```
}
```

```
else {
```

```
    Step #B1
```

```
}
```

Repetition

```
while(x <= 10) {
```

```
    Step #1
```

```
    Step #2
```

```
    x = x + 1;
```

```
}
```

Object-Oriented Programming

- *** **PURPOSE:** Makes code represent real-world objects (people or cars) or abstract entities (e.g., checking accounts).
- * **Class:** The blueprint to create objects.
- * **Attributes:** Variables associated with an object.
- * **Methods:** Functions that modifies an object.
- * **Object:** An instance of a class. (student_1)
 - > An object contains both attributes (data) and methods (internal functions).