CPS209 Computer Science II

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Content by Week

1 Introduction To Java

Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. It is a general-purpose programming language intended to let programmers write once, run anywhere

1.1 JVM (Java Virtual Machine)

The JVM is the virtual environment in which all Java code can be executed, to run a Java file using the JVM it must first be compiled. The compiler (javac) generates byte code in a *.class* file which can run on any JVM, allowing cross platform accessibility. The JVM efficiently interprets byte code in the *.class* file into native binary and executes it, leading to faster processing times than languages like python.

1.2 "Hello World!" in Java

Begin by creating a file called *HelloWorld.java* and write the following code:

```
public class HelloWorld{
  public static void main(String[] args){
    System.out.println("Hello World!");
  }
}
```

Notice the increased verbosity compared to Python, this is a defining trait of Java. The code is then compiled using the command:

```
>javac HelloWorld.java
```

This will create a HelloWorld.class file, which we can finally run by invoking the command:

```
>java HelloWorld
Hello World!
```

1.3 Syntactic differences with Python

- Instead of blocks seperated using indents, Java relies on {*code*} to seperate blocks and levels of code.
- You must add a ; to the end of a line of code, otherwise Java will continue reading all the code afterwards as one line.

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