**Mark Reed  
Tuesday, August 6, 2019**

**Java Full Stack**

Assignments:

* -  1. Which principle is used in access specifiers ?
  + Encapsulation: Fields are being “quarantined” to a specific class instead of being open to all
* -  2. Read the API for the Object class ? For ref: http://hg.openjdk.java.net/jdk7/jdk7/jdk/

file/tip/src/share/classes/java/lang/Object.java

I found this helpful: <https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html>

Of note is the ambiguous requirements for .clone() which is why it never works for anything, and I gave up implementing it most of the time.

* -  3. Prepare a list of features which are unique to each versions - focus on Java 12, Java 8 , Java 7 , Java 6 And Java 5.
  + Java 5: 2004. Generics: type safety for collections. Metadata, varargs, enums, autoboxing
  + Java 6: Improvements to web services, scripting, scalability, databases. Synchronization and garbage collection improved.
  + Java 7: JVM support for dynamic languages (scripting languages). Strings in switch statements (watch out for NPE). Diamond operator <T> for generics. Timsort collections (non-primitive)
  + Java 8: Lambda expressions. Embedded JavaScript. Date and time API (NOTE: This was a biggie)
  + Java 11: Dynamic class file constants
  + Java 12: Alternate garbage collection method. JVM Constants API. Abortable Mixed Collections for G1—for experimental low pause time garbage collector
* -  4. Read about : System, out , println
  + System: Collection of static methods for input, output, file reading
  + out: stand output … PrintStream
  + println(): print something (or nothing) then a newline
* -  5. Explain : public static void main(String[] args) : the psvm
  + The main runnable program.
* -  6. Remind me to start Strings
  + OK.
* -  7. What is the difference b/w JDK,JRE and JVM?
  + JDK: The development software
  + JRE: The runtime environment (everything needed to run)
  + JVM: The actual virtual machine, for a specific platform
* -  8. What is difference between path and classpath?
  + PATH is environment variable to JDK binaries, CLASSPATH is to .class files
* -  9. Java support pass by value or pass by reference?
  + Pass by value only (but objects ARE references)
* -  10. Why java don’t use pointers?
  + Pointers are huge cause of bugs, vulnerabilities, system crashes. Very difficult to work with, and unnecessary in practice (although Java has to do a lot of work to make them unnecessary for performance)
* -  11. Why char is of 2 bytes in java?
  + We only need 128 characters for English, but for Unicode we want over 32,000. 1 byte only gets us 256 values.