**1. Reading Assignment: A Short History of Java**

* **Task**: Read about the history and development of Java.
* **Link**: <http://sunsite.uakom.sk/sunworldonline/swol-07-1995/swol-07-java.html>

🡪Java, created by James Gosling and his team at Sun Microsystems in the early 1990s, was initially designed for consumer electronics under the "Green" project. Originally named Oak, it aimed to create a platform-independent, reliable, and secure environment for networked devices. Despite early attempts to market Java technology for set-top boxes and other consumer applications, it found its true potential on the burgeoning World Wide Web. By 1994, Java had evolved into a language that enabled dynamic, interactive content on websites, with its first major showcase in Sun’s WebRunner browser, later known as HotJava. Java's ability to run on any platform made it revolutionary, setting the stage for widespread use in web development and beyond.

**2. Reading Assignment: Java Language Features**

* **Task**: Learn about the main features of Java.
* **Link**: <https://javaalmanac.io/features/>

🡪Java 8, released in 2014, introduced several key features that transformed the language and improved developer productivity. Among its most notable enhancements were Lambda Expressions (JSR 335), which brought functional programming capabilities, and the Streams API (java.util.stream) for processing collections in a declarative way. Java 8 also introduced Default Methods in interfaces, allowing developers to add methods to interfaces without breaking existing implementations. Other significant additions included the new Date and Time API (java.time), Type Use Annotations, and enhancements to Java’s core libraries, making Java 8 a pivotal release that modernized the language and its ecosystem.

**3. Reading Assignment: Which Version of JDK Should I Use?**

* **Task**: Find out which JDK version is right for you.
* **Link**: <https://whichjdk.com/>

🡪Oracle Java SE Development Kit (JDK) is a commercial version of the OpenJDK, based on the same source code but with regular updates and security patches provided by Oracle. However, its licensing has changed frequently, making it unpredictable for future use. Versions 11 to 16 require a fee-based license for production, while version 17 is under a more permissive license but still comes with vague terms.

**4. Reading Assignment: JDK Installation Directory Structure**

* **Task**: Understand the folder structure and files in the JDK installation.
* **Link**: <https://docs.oracle.com/javase/8/docs/technotes/tools/windows/jdkfiles.html>

🡪The JDK (Java Development Kit) file structure includes essential directories and files needed for Java application development. The root directory contains the source code archive (src.zip), license files, and documentation. The /bin directory holds executables for development tools like java, javac, and javadoc. The /lib folder includes libraries such as tools.jar and dt.jar, which support JDK tools. The embedded JRE (/jre) mirrors the JDK’s structure, providing runtime libraries and executables for running Java applications. Additional directories include /include for C-language header files and /lib/security for security management files.

**5. Reading Assignment: About Java Technology**

* **Task**: Read about the basics of Java technology and its components.
* **Link**: <https://docs.oracle.com/javase/tutorial/getStarted/intro/definition.html>

🡪Java technology is both a programming language and a platform that enables applications to run across various operating systems like Windows, Linux, and Mac OS. The Java language is known for its simplicity, object-oriented nature, portability, and security. Java code is written in .java files, compiled into platform-independent bytecode (.class files), and executed by the Java Virtual Machine (JVM). The Java platform, consisting of the JVM and the Java API, provides a software-only environment that runs on top of different hardware platforms, offering a consistent and versatile environment for application development.

**7. Reading Assignment: The JVM Architecture Explained**

* **Task**: Learn about how the Java Virtual Machine (JVM) works.
* **Link**: <https://dzone.com/articles/jvm-architecture-explained>

🡪The Java Virtual Machine (JVM) is divided into three main subsystems: the ClassLoader Subsystem, the Runtime Data Area, and the Execution Engine. The ClassLoader dynamically loads classes at runtime using a hierarchy of class loaders and performs linking and initialization tasks. The Runtime Data Area consists of components like the Method Area, Heap, Stack, PC Registers, and Native Method Stacks, each managing different aspects of memory and execution for threads. The Execution Engine interprets and compiles bytecode into native code using components like the Interpreter, Just-In-Time (JIT) Compiler, and Garbage Collector, optimizing performance and managing system resources during execution.

**8. Reading Assignment: The Java Language Environment: Contents**

* **Task**: Explore the content and features of the Java language environment.
* **Link**: https://www.oracle.com/java/technologies/language-environment.html