

1. Both encapsulation and abstraction are used with access specifiers. Encapsulation groups together fields and methods making them accessible through one container. Abstraction is the process of showing important information (functionality) while hiding unimportant ones (internal implementation). Access specifiers allow programmers to hide information. In order to hide information with access specifiers, they must be encapsulated.
2. Read Object Code.
3. Java 12:
 - a. `Collectors.teeing()` in Stream API
 - b. String API Changes
 - c. `Files.mismatch(Path, Path)`
 - d. Compact Number Formatting
 - e. Support for Unicode 11
 - f. Switch Expressions (Preview)

Java 8:

- a. Lambda expression support in APIs
- b. Stream API
- c. Functional interface and default methods
- d. Optionals
- e. Nashorn – JavaScript runtime which allows developers to embed JavaScript code within applications
- f. Annotation on Java Types
- g. Unsigned Integer Arithmetic
- h. Repeating annotations
- i. New Date and Time API
- j. Statically-linked JNI libraries
- k. Launch JavaFX applications from jar files
- l. Remove the permanent generation from GC

Java 7:

- a. JVM support for dynamic languages
- b. Compressed 64-bit pointers
- c. Strings in switch
- d. Automatic resource management in try-statement
- e. The diamond operator
- f. Simplified varargs method declaration
- g. Binary integer literals
- h. Underscores in numeric literals
- i. Improved exception handling
- j. ForkJoin Framework
- k. NIO 2.0 having support for multiple file systems, file metadata and symbolic links
- l. WatchService
- m. Timsort is used to sort collections and arrays of objects instead of merge sort
- n. APIs for the graphics features
- o. Support for new network protocols, including SCTP and Sockets Direct Protocol

Java 6:

- a. Scripting Language Support
- b. Performance improvements
- c. JAX-WS
- d. JDBC 4.0
- e. Java Compiler API
- f. JAXB 2.0 and StAX parser
- g. Pluggable annotations
- h. New GC algorithms

Java 5:

- a. Generics
- b. Annotations
- c. Autoboxing/unboxing
- d. Enumerations
- e. Varargs
- f. Enhanced for each loop
- g. Static imports
- h. New concurrency utilities in `java.util.concurrent`
- i. Scanner class for parsing data from various input streams and buffers

- 4. Read about : `System`, `out` , `println`
- 5. `public static void main(String[] args)`. PSVM is the first method that the compiler looks for and is the entry point of java programs. `Public` is the access specifier that means it is accessible anywhere in the program. `Static` means that the method can be invoked without creating an instantiation of its class. `Void` is the return type and means it does not return a value. `Main` is the method name. `(String[] args)` is the parameters that is accepted by the method. In this case `String[]` is the type and is an array of strings. `Args` is the parameter name, so `Main` method takes in an array of strings called `args`.
- 6. Start on Strings
- 7. JVM is the Java Virtual Machine. It converts byte code to machine language.
JRE is the Java Run Time Environment. It contains the JVM and common libraries.
JDK is the Java Development Kit. It contains the JRE, compiler, application launcher, etc.
- 8. `Path` is an environment variable that the OS uses to find executables. In Java, it is used to find the `jdk bin` folder. `Classpath` is the environment variable used by the Java compiler or JVM to find the location of classes and packages.
- 9. Java supports pass by value; not pass by reference.
- 10. Java doesn't use pointers for security. It prevents applications from accessing memory locations directly.
- 11. `Char` is 2 bytes because Unicode was originally designed as 16 bit encoding.