TODO in Lab Sessions

(1) Components of JVM (Java Virtual Machine)

→ (1) Class loader
(2) Bytecode verifier
(3) execution engine
(4) Runtime data area
(5) Native method interface
(6) memory management
(7) security management
(8) Garbage collector

(2) Java Buzzwords:

→ (1) Platform independance
(2) Object-oriented
(3) simple
(4) secure
(5) Robust
(6) Multithreaded
(7) Dynamic
(8) Distributed
(9) High performance
(10) extensible

(3) Java modifiers:

→

Access modifiers	non-access	method	class & interface
Public	Static	native	enum
Private	final	Strictfp	interface
Protected	abstract		
	synchronized		Variable
	volatile		Const
	transient		(final)

(4) Java virtual machine threads:

→ (1) Thread creation
(2) Scheduling
(3) States
(4) Priorities
(5) Synchronization
(6) Communication
(7) thread Groups
(8) Daemon
(9) Stack size
(10) management

(11) Wrapper Class Hierarchy:
→ Object (java.lang.Object)
Number (
Byte (
Short (
Integer (
Long (
Float (
Double (
Character (
Boolean (Java.lang.Boolean)

(12) Overview of String
→ A sequence of characters (letters, numbers, symbols, etc.)
Immutable (cannot be changed once created)
Objects of a String class.
Key features:
Case sensitive
Unicode support
Can be concatenated
Can be converted to/from other data types

(13) Type casting:
→ (1) Widening Casting (Implicit Casting):
Converting a smaller data type to a larger data type.
(2) Narrowing: (Explicit Casting)
Converting a larger data types to a smaller data types.

(13) Memory representation of string.
→ String object
Header
Character array
Hash code

(15) Narrowing converting:
→ • Converting a larger data type to a smaller data type.
• May result in loss of data or precision.
• Requires explicit casting.
• Examples: - double to float
- long to int
- float to int

(16) Widening converting:
• Converting a smaller data type to a larger data type.
• Does not result in loss of data or precision.
• Implicit casting, no explicit casting needed.
ex. - int to long, float to double, byte to int.

(17) Boxing converting:
Converting a primitive type to its corresponding object wrapper class.
ex., int to integer
float to float
Boolean to boolean

(18) Unboxing converting:
Converting an object wrapped class to its corresponding primitive type.
ex., integer to int
float to float
boolean to boolean.

(19) Parameters V/S arguments:

→ Parameters:

- Declared in a method's signature (header)
- Recieve values passed to the method
- A local variable within the method
- Can be thought of a "placeholders" for the values that will be passed.

Arguments:

- Actual values passed to a method when it's called.
- Are assigned to the assigned to the corresponding parameters.
- Can be literals, variables, expressions.
- Are used to provide specific data for the the method to work with.

(20) Command line arguments:

→ Command line arguments are values passed to a Java Program when it's executed from the command line.

Syntax:

java MyClass arg1 arg2 arg3...

Accessing command line arguments:

- In the main method, use the String[] args parameter to access the arguments.
- args is an array of Strings, where each element it an argument.

Ex.,

java MyClass Hello World 123