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Exercise10

Introduction to Computer Science 101

Define the following concepts in your own words:

**Java Virtual Machine**

The Java Virtual Machine (JVM) is an engine that can read and compile Java code into bytecode to be run on any machine. It allows Java to become a more universal language – any computer running JVM can run java code, independent of operating system.

**Compilation Process**

The compilation process is the process in which the source code of one language is converted into another (generally lower level) language. The assembler is an example of a compiler that converts assembly code into binary, or machine code.

**Briefly define a CPU**

A CPU, or computer processing unit, acts as the brain of the computer. The CPU receives instructions in the form of machine code and performs the required actions necessary to carry them out.

**What is a variable in Java? Provide two examples of two variable declaration and initialization**

A variable in Java is a device used to store data. It might help to visualize a variable as a bucket that you can fill up with anything you’d like. Declaring a variable and initializing it are two difference actions. Declaring a variable is like creating the bucket. Initializing a variable is like filling up the bucket.

An example of variable declaration is:

String name;

Following up on the previous example, variable initialization could occur as follows:

name = “george”;

Variables can be declared and initialized in the same step, as follows:

String name = “George”;

This third step is essentially combining the first two examples into one, more succinct line.

**What is a String in Java? Provide an example**

A String in Java is a data type that can consist of 0 or more characters. Strings are denoted with quotation marks on either side.

An example of a string is “George” or “1234”. It is important to note that the string “1234” is different from the integer 1234.

**What is Scanner?**

Scanner is a built in java class that can parse primitive types and strings. Scanner uses tokens that split on certain delimiter patterns, the default of which matches all whitespace characters.

**What is a Java Library? Provide and example**

A java library is a class of prewritten source code containing various Java features (e.g. methods) that can be imported and called upon inside any Java program. Utilizing Java libraries can greatly reduce clutter and complexity of source code, making the source code cleaner and more manageable. An example of a built in Java Library is the java.util library which contains the Scanner class that, after importing, allows you to instantiate Scanner objects.