Java is a 2 step compilation programming language, first the source code is passed through a OS independent compiler which turns the source code into Bytecode, which is a form of machine independent encoding. During this process the compiler will convert all classes found within the source code into separate files under the “.class” file not only this, the compiler converts the source according to the following steps: **Parse** where the source code is read and proceeded to be mapped with the corresponding token sequence and made into an AST(Abstract Syntax Tree), **Enter** adds symbols as definitions to a symbols table, **Process annotation** is an optional step in which it processes annotation in a specified compilation unit, **Flow** is the process in which the compiler does a dataflow analysis done in the previous steps, **Desugar** is when the compiler rewrites the AST and **Generate** is the process when of generate “.Class” files.

Once the compilation process is finished the class files are now independent of the machine or the corresponding OS, this allows the code to run on any system and only requires a JVM to run the code, the following 3 stages are done before the code could be executed: **Class Loader** in this process the main.Class file of the source code will be loaded into JVM which allows every referenced “.Class” file within the main.Class to be loaded in as well, **Bytecode verifier** is the stage where the bytecode is being inspected to ensure that the code does not lead to damaging processes, **Just-In-Time Compiler** the final step in which the bytecode is being converted to the corresponding native machine code.