Data Type: A datatype is essentially a keyword that tells the compiler about the nature of the values a particular variable will hold. This allows the compiler to properly allocate memory for the variable as well as handle legal operations on the variable. Java offers both basic and derived data types.

TypeCasting: TypeCasting means the conversion of a variable or object’s reference type to another.

Compilation: Compilation is the process of converting high-level code into low-level code that a machine can understand and execute. In the case of Java, the low level code is the byte-code which is readable by the Java Virtual Machine.

Java Virtual Machine: The Java virtual machine is a program that emulates an execution platform for Java bytecode allowing execution of Java programs irrespective of underlying OS and Hardware. This allows the fulfillment of Java’s objective of write once, run anywhere.

Subclass / Superclass: A superclass is the parent class which is extended through inheritance with extra methods and properties to form the subclass whereas a Subclass is the child class which inherits methods and properties from the superclass.

Extra Credit

(1) Answers vary.

(2) Three conditions:

1. Number is less than interval with smallest lower bound. (-10.0f)
2. Number is between two intervals.
3. Number is greater than interval with largest upper bound. (25.0f)

The key point here is that #2 occurs because the data is floating point, and the boolean condition used for bin sorting (x >= LB && x <= UB) was designed for integers. A full credit answer should identify the 3 conditions, and also explain that a proper bin sorting test condition for floating point data should not test for membership in a closed interval - otherwise there will always be space between the intervals. (Technically, a closed interval CAN work due to finite precision, but this is beyond the scope of this course and is not required as part of your solution.)