Assignment 1

Theory

1. What is Abstraction?

Ans: Data Abstraction is the property by virtue of which only the essential details are displayed to the user. The trivial or the non-essentials units are not displayed to the user. Ex: A car is viewed as a car rather than its individual components.

Data Abstraction may also be defined as the process of identifying only the required characteristics of an object ignoring the irrelevant details. The properties and behaviors of an object differentiate it from other objects of similar type and also help in classifying/grouping the objects.

Consider a real-life example of a man driving a car. The man only knows that pressing the accelerators will increase the speed of car or applying brakes will stop the car but he does not know about how on pressing the accelerator the speed is actually increasing, he does not know about the inner mechanism of the car or the implementation of accelerator, brakes etc., in the car. This is what abstraction is.

In java, abstraction is achieved by interfaces and abstract classes. We can achieve 100% abstraction using interfaces.

1. What is Encapsulation?

Ans: Encapsulation is defined as the wrapping up of data under a single unit. It is the mechanism that binds together code and the data it manipulates. Other way to think about encapsulation is, it is a protective shield that prevents the data from being accessed by the code outside this shield.

* Technically in encapsulation, the variables or data of a class is hidden from any other class and can be accessed only through any member function of own class in which they are declared.
* As in encapsulation, the data in a class is hidden from other classes using the data hiding concept which is achieved by making the members or methods of class as private and the class is exposed to the end user or the world without providing any details behind implementation using the abstraction concept, so it is also known as combination of data-hiding and abstraction.
* Encapsulation can be achieved by: Declaring all the variables in the class as private and writing public methods in the class to set and get the values of variables.

1. What is JDK?

Ans: The Java Development Kit (JDK) is a software development environment used for developing Java applications and applets. It includes the Java Runtime Environment (JRE), an interpreter/loader (Java), a compiler (javac), an archiver (jar), a documentation generator (Javadoc) and other tools needed in Java development.

1. What is JVM?

Ans: Java Virtual Machine (JVM) is a engine that provides runtime environment to drive the Java Code or applications. It converts Java bytecode into machines language. JVM is a part of Java Run Environment (JRE).

1. Define Inheritance?

Ans: Inheritance can be defined as the process where one class acquires the properties (methods and fields) of another. With the use of inheritance, the information is made manageable in a hierarchical order.

The class which inherits the properties of other is known as subclass (derived class, child class) and the class whose properties are inherited is known as superclass (base class, parent class).

1. How java achieved platform independence?

Ans: Java programming language provides platform independence, It means same Java program can be run on any platform or operating system e.g. Windows, Linux or Solaris without any change. class files, bytecode and Java virtual machine which together provides platform independence to Java.

* One of the simplest analogies I can associate with platform independence is the person taking red carpet with him and instead of walking on floor, he always walks on red carpet, no matter where he is walking. That red carpet is the JVM, your Java program runs on JVM rather on any particular platform or machine.

1. Write the syntax of main function?

Ans: Public static void main (String a []) {

//TODO

//line of code

}

1. What is conditional operator?

Ans: The conditional operator is a ternary operator (it has three operands) and is used to evaluate Boolean expressions, much like an if statement except instead of executing a block of code if the test is true, a conditional operator will assign a value to a variable.

1. How many data types in java?

Ans: Data type specifies the size and type of values that can be stored in an identifier. Data types in java are classified into types, they are:

1. Primitive – which include:

byte -> size of 1 byte

short -> size of 2 bytes

int -> size of 4 bytes

long -> size of 8 bytes

1. Non-primitive - which includes Classes, Interfaces, and Arrays.

1. What is Constant? How is it declared?

Ans: A Constant is a variable whose value cannot be change once it has been assigned. Java doesn’t have built-in support for constants. To define a variable as a constant, we just need to add keyword “final” in front of the variable declaration.