**Assignment 2**

1. Why we need packages in java?

A package in Java is used to group related classes. It is like a folder in a file directory. We use packages to avoid name conflicts, and to write a better maintainable code.

1. What is the default imported package?

Java compiler imports java. lang package internally by default.

1. What is Class? What is Object?

Java Class is an entity that determines how Java Objects will behave and what objects will contain. A Java object is a self-contained component which consists of methods and properties to make certain type of data useful.

1. Why we need constructor?

A constructor in Java is a special method that is used to initialize objects. The constructor is called when an object of a class is instantiated.

1. What is the default value of local variable? What is the default value of instance variable?

The local variables do not have any default values in Java. instance variables have default values. For numbers, the default value is 0, for Booleans it is false, and for object references it is null.

1. What is garbage collection?

When an object is no longer used, The garbage collector finds these unused objects and deletes them to free up memory. It’s the process by which Java programs perform automatic memory management.

1. The protected data can be accessed by subclasses or same package. True or false?

True

1. What is immutable class?

Immutable class means that once an object is created, we cannot change its content. In Java, all the wrapper classes (like Integer, Boolean, Byte, Short) and String class is immutable.

1. What’s the difference between “==” and equals method?

We can use == operators for reference comparison (address comparison) and equals() method for content comparison. “==” checks if both objects point to the same memory location whereas “equals()” evaluates to the comparison of values in the objects.

1. What is wrapper class?

Wrapper class is a class whose object wraps or contains primitive data types. When we create an object to a wrapper class, it contains a field where we can store primitive data types.

1. What is autoboxing?

Autoboxing is the automatic conversion that the Java compiler makes between the primitive types and their corresponding object wrapper classes.

1. StringBuilder is threadsafe but slower than StringBuffer, true or false?

False. StringBuilder is not threadsafe and is faster than StringBuffer.

1. Constructor can be inherited, true or false?

False. Encapsulation is one of the spirits in Java to wrapping up data under a single unit. If the a constructor can be inherited then it will be impossible to achieve encapsulation because we can access/initialize private members of the upper class.

1. How to call a super class’s constructor?

Superclass constructor can be called from the first line of a subclass constructor by using the keyword super method and passing appropriate parameters.

1. Which class is the super class of all classes?

Object class is the super base class of all Java classes. Every other Java classes descends from Object.

1. Create a program to count how many files/folders are there inside one folder.

* the count method should take a parameter called Criteria like this: count(Criteria criteria){}
* For Criteria class, multiple conditions should be included such as: folder path, includeSubFolder or not, the extension of the file be counted and so on.
* Optional: Take the input from keyboard.
* Take care of the invalid inputs. Exception handling.
* Get proper result displayed.  
  ”There are XXX file(s) and XXX folder(s) inside folder XXX with extension XXX.” or something user friendly.