**Assignment 2**

1. Why we need packages in java?

A package in Java is used to group related classes. Think of it as 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. It provides the fundamental classes that are necessary to design a basic Java program.

1. What is Class? What is Object?

A class — in the context of Java — is **a template used to create objects and to define object data types and methods**. Classes are categories, and objects are items within each category.

1. Why we need constructor?

The purpose of a Java constructor is **to initializes the newly created object before it is used**.

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**.

An instance variable is a variable that is declared in a class but outside a method while the local variable is a variable declared within a method or a constructor. Thus, this is the main difference between instance variable and local variable.

1. What is garbage collection?

In **Java, garbage collection** is the process of managing memory, automatically. It finds the unused objects (that are no longer used by the program) and delete or remove them to free up the memory.

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

True

What is immutable class?

* final class
* private final fields
* no setter
* return deep copy of the collections for getter

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

**== 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?

A 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 and in this field, we can store primitive data types. In other words, we can wrap a primitive value into a wrapper class object.

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

1. Constructor can be inherited, true or false?

False

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

Super()

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

The Object Class

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.