**Assignment 2**

1. Why we need packages in java?

Packages in Java groups related classes for easier scope management, making the code more maintainable.

1. What is the default imported package?

Java.lang package. The packages provide the fundamental classes that are necessary to design basic Java programs.

1. What is Class? What is Object?

A class is a logical template from which Java objects are created.

An object is an entity that contains states (data) and behaviors (functionality) created from class.

1. Why we need constructor?

Constructor is used to initialize a new instance (object) from a class.

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

There is no default value on local variables if it is not assigned. The compiler will throw errors.

Default value of instance variable depends on the variable types. Numerical variable takes 0 as default, boolean takes false, String takes “”, Objects takes null.

1. What is garbage collection?

Garbage collection is the process of determining what memory is no longer being used by a Java application and freeing up memory spaces.

1. The protected data can be accessed by subclasses or same package. True or false? T
2. What is immutable class?

Immutable class is a class that once an object created from the class, the content of the object cannot be changed.

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

== checks if both objects point to the same memory locations.

Equals evaluates to the comparison of values in the objects, which can be overridden and customized.

1. What is wrapper class?

Wrapper class is used to wrap up primitive types into an 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? F
2. Constructor can be inherited, true or false? F.
3. How to call a super class’s constructor? Super()
4. Which class is the super class of all classes? Object class
5. 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.