

## Assignment 2

1. Why we need packages in java?  
Package is a name space that organizes a set of related classes and interfaces. It could be used to organize similar classes and to avoid name conflicts.
2. What is the default imported package?  
Java.lang package is imported by default by Java compiler.
3. What is Class? What is Object?  
A class is a basic building block of a java program, it is a collection of variables and methods altogether which provide functionality to a single conceptual entity. A class is also a blueprint from where an Object is created. An Object is created from a class and is a single instance of that class which we call type.
4. Why we need constructor?  
We use constructor so that we can initialize the instance variable and other state of a class.
5. What is the default value of local variable? What is the default value of instance variable?  
Local Variable does not have a default value and must be initialized before first use; Instance variables have default values, for numbers, the default value is 0, and for Boolean it is false, and for object reference, it is null.
6. What is garbage collection?  
Garbage Collection is the process by which JVM perform automatic memory management. Garbage collector will find unused and dead object to erase and free up memory.
7. The protected data can be accessed by subclasses or same package. True or false?  
True
8. What is immutable class?  
Immutable class essentially means that once the object of that class has been created, we cannot change the context of that object.
9. What's the difference between "==" and equals method?  
== is a operator and equals is a method, ==checks for the direct value of the variable whether it's a primitive or reference value, equals method check for the content of two object and see if it equals.
10. What is wrapper class?  
A wrapper class is a corresponding class for primitive data types in java, so we can juse primitive data type as object.

11. What is autoboxing?

Autoboxing is the automatic conversion that java compiler makes between the primitive data types and their corresponding wrapper class.

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

False, StringBuilder is not synchronized and faster than String Buffer.

13. Constructor can be inherited, true or false?

False

14. How to call a super class's constructor?

Super()

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

The Object Class

16. 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.