

## Assignment 2

Why we need packages in java?

Packages are used in Java in order to prevent naming conflicts, to control access, to make searching/locating and usage of classes, interfaces, enumerations and annotations easier, etc.

What is the default imported package?

A collection of java classes whose source files do not contain any package declarations. e.g. Java compiler imports java.lang package internally by default.

What is Class? What is Object?

A Class is like an object constructor, or a "blueprint" for creating objects.

A Java object is a member (also called an instance) of a Java class.

Why we need constructor?

We use constructors to initialize the object with the default or initial state.

Another reason to use constructor is that it informs about dependencies.

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

An instance variable is a variable declared in a class, but outside a method. These variables represent the object state throughout the class.

A local variable is a variable that is declared inside a method or a constructor. Local variables are created when entering the method or a constructor.

The default value of the local variable is NULL in JAVA.

Instance variable: for numbers, the default value is 0, for Booleans it is false, and for object references it is null.

What is garbage collection?

Garbage collection is the process in which programs try to free up memory space that is no longer used by objects.

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

True.

What is immutable class?


At a fundamental level: immutable classes define objects which, once created, never change their value.

What's the difference between "==" and equals method?

"==" compares reference, and equals() compares the value of variables.

What is wrapper class?

Wrapper classes provide a way to use primitive data types (int, boolean, etc..) as objects.

<u>Aa</u> Primitive Data Type	 Wrapper Class
<u>byte</u>	Byte
<u>short</u>	Short
<u>int</u>	Integer
<u>long</u>	Long
<u>float</u>	Float
<u>double</u>	Double
<u>boolean</u>	Boolean
<u>char</u>	Character

What is autoboxing?

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

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

False, StringBuilder is single-thread and has higher performance than StringBuffer who is threadsafe.

Constructor can be inherited, true or false?

False, Constructors are not members of classes and only members are inherited.

How to call a super class's constructor?

use super()

Which class is the super class of all classes?

Object.

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.