

Assignment 2

1. Why we need packages in java?

It is used to group related classes together. It is like the namespace in c++. We can use packages to avoid naming confliction, and structure the application, easier to maintain codes.

2. What is the default imported package?

The java.lang is internally imported by java compiler by default.

3. What is Class? What is Object?

Class are a blueprint to build a specific type of object. Object is an instance of a class.

4. Why we need constructor?

A constructor is a special method that is used to initialize objects. Since the object bind fields and method together we definitely need to initialize its state. The default values for primitives may not be what we looking for so it is a good ideal to initialize it. and sometimes it can be used to require dependencies.

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

There is no default value for local variables, so local variables should be declared and an initial value should be assigned before the first use.

Instance variables have default values. For numbers the default value is 0, for Booleans it is false, and for object references it is null.

6. What is garbage collection?

Java garbage collection is the process by which java programs perform automatic memory management. It determine what memory is no longer being used by application and to recycle this memory for other uses.

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

True,

8. What is immutable class?

Immutable class in java means that once an object is created, we cannot change its content. All the wrapper classes and String is immutable. And we can create our own immutable class.

- The class must be declared as final so that child classes cannot be created
- Data members in the class must be declared private so that direct access is not allowed
- Data members in the class must be declared as final so that we can't change the value of it after object creation.
- A parameterized constructor should initialize all the fields performing a deep copy so that data members can't be modified with an object reference.

- Deep copy of object should be performed in the getter methods to return a copy.
9. What's the difference between "==" and equals method?
== checks if both object point to the same memory location. By override the equals method we can use it to compare values in objects.
 10. What is wrapper class?
Wrapper class is class whose object wraps 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.
 11. What is autoboxing?
The automatic conversion of primitive data type into its corresponding wrapper class is known as auto boxing.
 12. StringBuilder is threadsafe but slower than StringBuffer, true or false?
False,
 13. Constructor can be inherited, true or false?
False,
 14. How to call a super class's constructor?
Use the super key word. To call a super class's default constructor: super ()
a super class's default constructor with parameter, super(args);
 15. Which class is the super class of all classes?
Object class is the super class of all classes.
 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.

See the Assignment2.java in folder program