Assignment2

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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. A package can be defined as a grouping of related types providing access protection and namespace management. Since the package creates a new namespace there won't be any name conflicts with name in other packages. Using packages, it is easier to provide access control and it is also easier to locate the related classes.

What is the default imported package?

- java.lang package are imported by default.

What is Class? What is Object?

- A class is user defined blueprint or prototype from which objects are created. It represents the set of properties or methods that are common to all objects of one type.

- A Object is a basic unit of Object-Oriented Programming and represents the real life entities. A typical Java program creates many objects as an instance.

Why we need constructor?

- A constructor is a special method of a class that initializes new objects or instances of the class.

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

- For the local variable, the default value is **NULL**

- For instance variable, the default value is

  - numbers: **0**

  - booleans: **false**

  - object reference: **NULL**

What is garbage collection?

- Garbage collection is the process by which Java programs perform automatic memory management. Java programs compile to bytecode that can be run on a Java Virtual Machine, or JVM for short. When Java programs run on the JVM, objects are created on the heap, which is a portion of memory dedicated to the program. Eventually, some objects will no longer be needed. The garbage collector finds these unused objects and deletes them to free up memory.

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

- true

What is immutable class?

- An immutable class means that once an object is created, we cannot change its content. An immutable class has following request:

  - An immutable class in Java is declared as final

  - All variables in the class is final and private

  - The constructor should use deep copy to initialize all the fields

  - In getter method, deep copy should be performed to return value rather than reference

  - It does not have setting method.

What is the difference between "==" and equals method?

- "==" check if the two reference are the same memory location

- equals() check if the two object are the same object. If it is a String, it will check if the two strings are the same.

What is wrapper class?

- A wrapper class is a class whose object wraps or contains a primitive data type. The reason why we use wrapper class is because it can give us some useful method which can used on the primitive data type it wraps.

What is autoboxing?

- *Autoboxing* is the automatic conversion that the Java compiler makes between the primitive types and their corresponding object wrapper classes. For example, converting an int to an Integer, a double to a Double, and so on. If the conversion goes the other way, this is called *unboxing*.

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

- false

  - StringBuilder is not threadsafe but StringBuffer is.

  - StringBuilder is faster than StringBuffer

Constructor can be inherited, true or false?

- false

How to call a super class's constructor?

- We can use super() to call super class's no parameter constructor or we can give the parameter of the constructor to specify which constructor we are going to call.

Which class is the super class of all classes?

- class Object