**Assignment 2**

1. Why we need packages in java?

A package in Java is used to **group related classes** and prevent naming conflicts.

1. What is the default imported package?

Java compiler imports **java.** **lang package** internally by default.

1. What is Class? What is Object?

A class is a user defined blueprint or prototype from which objects are created. An object is an instance of a class.

1. Why we need constructor?

The purpose of a Java constructor is **to initializes the newly created object before it is used**.

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

**There is no default value for local variables**.

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

1. What is garbage collection?

Garbage collection is used to recycle the memory of variables which are not used and referenced.

serial GC:

cmd in JVM:-XX:+UseSerialGC

parallel GC(default):

-XX:UseParallelGC

G1 GC(parallel):

divide heap into equal sized chunks and it prioritize different chunks according to which chunk has the most number of garbage.

-XX:++G1GC

GC process:

Diagram

Description automatically generated

Gc has three generation:

1. Young generation:
2. Old generation:
3. Permanent generation:
4. The protected data can be accessed by subclasses or same package. True or false?

True

Table

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1. What is immutable class?

Immutable class in java means that **once an object is created, we cannot change its content**.

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

**== checks if both objects point to the same memory location** whereas . equals() evaluates to the comparison of values in the objects.

1. What is wrapper class?

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

Table

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1. What is autoboxing?

The automatic conversion of primitive data types into its equivalent Wrapper type

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application, email

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

F

StringBuffer is **synchronized i.e. thread safe.**

1. Constructor can be inherited, true or false?

F

**You cannot inherit a constructor.**

1. How to call a super class’s constructor?

we use **super()** to a super class’s constructor.

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

**Object** is a super class of any class by default.

1. 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.
* public class Main {  
   public static void main(String[] args) {  
   //String dirName = "C:\\Users\\Administrator\\Desktop\\ojdbc8-full\\OJDBC8-Full";  
   // String dirName = "faefef213";  
   Scanner sc = new Scanner(System.*in*);  
   String dirName = sc.nextLine();  
    
   Criteria ct = new Criteria(dirName);  
   *count*(ct);  
   }  
   public static void count(Criteria criteria){  
   File file = new File(criteria.getFolderPath());  
   HashSet<String> set = new HashSet<>();  
   int countDirctory = 0;  
   int countFile = 0;  
   StringBuilder sb = new StringBuilder();  
   if(file.isDirectory()){  
   File []files = file.listFiles();  
   for(File fileIndex:files){  
   if(fileIndex.isDirectory()){  
   countDirctory++;  
   }else {  
   countFile++;  
   set.add(Files.*getFileExtension*(fileIndex.getName()));  
   }  
    
   }  
    
   }  
   for ( String str : set)  
   {  
   sb.append(str).append(" ");  
   }  
    
   System.*out*.println("Folder num："+countDirctory);  
   System.*out*.println("File Num："+countFile);  
   System.*out*.println("Extension includes："+sb);  
   criteria.setFileNum(countFile);  
   criteria.setSubFolderNum(countDirctory);  
   criteria.setExtensionName(sb.toString());  
    
   }  
    
    
  }

OutPut:

Text

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