**Assignment 4**

1. What’s the difference between final, finally? What is finalize()?

The final keyword can be used with class method and variable. A final class cannot be inherited, a final method cannot be overridden and a final variable cannot be reassigned.

The finally keyword is used to create a block of code that follows a try block. A finally block of code always executes, whether or not an exception has occurred. Using a finally block allows you to run any cleanup-type statements that you just wish to execute, despite what happens within the protected code.

The finalize() method is used just before object is destroyed and can be called just prior to object creation.

1. What’s the difference between throw and throws?

The throw keyword is used to throw an exception explicitly. It can throw only one exception at a time. The throws keyword can be used to declare multiple exceptions, separated by a comma. Whichever exception occurs, if matched with the declared ones, is thrown automatically then.

1. What are the two types of exceptions?

There are mainly two types of exceptions: checked and unchecked. An error is considered as the unchecked exception.

1. What is error in java?

In Java, an error is a subclass of Throwable that tells that something serious problem is existing and a reasonable Java application should not try to catch that error. Generally, it has been noticed that most of the occurring errors are abnormal conditions and cannot be resolved by normal conditions.

1. Exception is object, true or false?

True.

1. Can a finally block exist with a try block but without a catch?

Yes, It is possible to have a try block without a catch block by using a final block. As we know, a final block will always execute even there is an exception occurred in a try block, except System.

1. From java 1.7, give an example of the try-resource feature.

try(declare resources here) {

// use resources

}

catch(FileNotFoundException e) {

// exception handling

}

1. What will happen to the Exception object after exception handling?

The Exception object will be garbage collected in the next garbage collection.

1. Can we use String as a condition in switch(str){} clause?

It is recommended to use String values in a switch statement if the data you are dealing with is also Strings. The expression in the switch cases must not be null else, a NullPointerException is thrown (Run-time). Comparison of Strings in switch statement is case sensitive.

1. What’s the difference between ArrayList, LinkedList and vector?

The fundamental difference of the three data structures above is the way they store their data which causes different performance for different operations. In Java (and also used in Kotlin), ArrayList and Vector uses an Array to store its elements, while LinkedList stores its elements in a doubly-linked-list.

1. What’s the difference between hashTable and hashMap?

It is thread-safe and can be shared with many threads. HashMap allows one null key and multiple null values whereas Hashtable doesn't allow any null key or value. HashMap is generally preferred over HashTable if thread synchronization is not needed.

1. What is static import?

Static import is a feature introduced in the Java programming language that allows members (fields and methods) which have been scoped within their container class as public static , to be used in Java code without specifying the class in which the field has been defined.

1. What is static block?

A static block is a set of instructions that is run only once when a class is loaded into memory. A static block is also called a static initialization block. This is because it is an option for initializing or setting up the class at run-time. The keyword 'static' indicates that it spans all instances of the class. It is like a mini-global set of instructions.

14. Explain the keywords:

default(java 1.8), break, continue, synchronized, strictfp, transient, volatile, instanceOf

Day3 have def of these key words.

15. Create a program including two threads – thread read and thread write.

Input file ->Thread read -> Calculate -> buffered area

Buffered area -> Thread write -> output file

Detailed description is in assignment4.txt file.

Sample input.txt file.

Attached files are input.txt and a more detailed description file.