Assignment 4

1. What's the difference between final, finally? What is finalize()?
   final is a keyword used to restraint class, method, and variable. It is a non-access modifier.
   finally is used in a try...catch statement. The block after finally is always executed whether exception is caught or not.
   finalize() is a method ran before an object being garbage collected.

2. What's the difference between throw and throws?
   throw explicitly throw an exception from a method or any block of code.
   throws is a keyword used in a method signature to indicate that this method might throw one of the listed exceptions.

3. What are the two types of exceptions?
   Checked exceptions and unchecked exceptions.

4. What is error in java?
   An error is a subclass of throwable that tells that something serious is happening and a reasonable Java application should not try to catch the error.

5. Exception is object, true or false? T

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

7. From java 1.7, give an example of the try-resource feature.
   Autoclosable interface.

8. What will happen to the Exception object after exception handling?
   It will be garbage collected

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

10. What's the difference between ArrayList, LinkedList and vector?
    ArrayList internally uses an array. It is good for random access.
    LinkedList internally uses a doubly-linked-list. It is good for adding, removing elements
    vector is thread-safe but slow.

11. What's the difference between hashTable and hashMap?
    HashMap is not threadsafe but allow null keys.
    HashTable is threadsafe, but dont allow null keys.

12. What is static import?
    Static import allows users to access the static member of a class directly without class name or any object.

13. What is static block?
    A static block is a block of code that is executed only once when a class is loaded into memory.

14. Explain the keywords:
    default(java 1.8), break, continue, synchronized, strictfp, transient, volatile, instanceOf
    default: used to allow an interface to provide an implementation of a method.
    break: used within while loop or for loop. Force exits the loop.
    continue: used within while loop or for loop. Force executes the next iteration of loop.
    synchronized: used for thread-safety. Only allow only thread to execute the block at any given time.
    strictfp: used to restrict floating-point calculations and ensure the same result on every platform.
    transient: used to mark that a field is not part of the default serialized form of an object.
    volatile: used in field declarations to guarantee visibility of changes to variables across threads.
    instanceof: binary operator to test if an object is a subtype of a give type.

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.