Assignment 4

1. What's the different between final, finally? What is finalize()?

final is a modifier keyword to define variable/method/class
final variable: once declared it cannot be modified
final method: can not override the method
final class(class scope): can not extend(inherit) the class

finally is used in try catch block to put in the last catch latter

finalize() for GC clean up
Finalizers get invoked when JVM figures out that this particular instance should be garbage collected.

2. What's the different between throw and throws?

- throw is a keyword to be used to throw some new exceptions
- throws is a keyword to be used in function's signature, throw the exception to the caller function

3. What are the two types of exceptions?

a. Unchecked Exceptions (as known as Runtime Exceptions)
including ArrayStoreException, NullPointException, ArrayIndexOutOfBoundException...
Unchecked Exceptions we don't have to handle it.

b. Checked Exception(compile time)
we need to handle them
try catch (block)
throws (keyword)
throws the exception to the caller function (the caller function will handle the exception)

4. 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.

5. Exception is object, true or false?

True.

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

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

```
try (
// connection area
Connection con = DataDriver.getConnect();
Statement stm = con.createStatement();
PreparedStatement ps = con.createPrepareStatement();
) {
// some logics
// some logics
// some logics
// some logics
} catch (ex ) {

}
```

8. What will happen to the Exception object after exception handling?
The Exception object will be garbage collected in the next garbage collection.

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

10. What's the different between ArrayList, LinkedList and vector?
ArrayList and Vector all implement List, and LinkedList implement Queue and List.
Vector is thread safe and lower performance than ArrayList.

11. What's the different between hashTable and hashMap?
HashTable doesn't allow null key, HashMap allows one
HashTable is thread safe.
how hashTable keep thread safe?
get, put, contains method etc are synchronized, which only one thread can access them.

12. What's static import?
static import feature allows to access the static members of a class without the class qualification.

13. What is static block?
a set of instructions that is run only once when a class is loaded into memory.

14.
default:
- an access modifier, If didn't assign any access modifier to
variables/methods/constructors/classes by default, it is considered as default access modifier.
- accessible within the package only.

break: used to terminate loops and switch statements

continue: used to skip the current iteration of a loop

synchronized: - The process of allowing only a single thread to access the shared data or resource at a particular point of time
- No other thread can enter into that synchronized block until the thread inside that block completes its execution and exits the block.

strictfp: used in java for restricting floating-point calculations and ensuring the same result on every platform while performing operations in the floating-point variable.

transient: - used to avoid serialization
- f any object of a data structure is defined as a transient , then it will not be serialized. Serialization is the process of converting an object into a byte stream.

volatile:
- used to modify the value of a variable by different threads.
- used to make classes thread safe.
- multiple threads can use a method and instance of the classes at the same time without any problem.

instance:
- a binary operator used to test if an object (instance) is a subtype of a given Type.
- It returns either true or false.