

Assignment 4

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

Final is a non-access specifier that is used to restrict a class, variable, and method.

Finally is the block in exception handling to execute the important code whether the exception occurs or not.

Finalize is the method in java which is define in object class used to perform clean up processing just before object is garbage collected. Finalized of each object can only be call once.

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

Throw keyword is used inside a function. It is used to throw an exception.

The throws keyword is used in function signature. It is used state that can lead to exceptions.

3. What are the two types of exceptions?

Checked and unchecked exceptions.

4. What is error in java?

an error is a subclass of throwable that indicates serious problems that a reasonable application should not try to catch. Most such errors are abnormal conditions.

5. Exception is object, true or false?

True

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

Yes

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

```
static String readFirstLineFromFile(String path) throws IOException {  
    try (FileReader fr = new FileReader(path); BufferedReader br = new  
        BufferedReader(fr)) {  
        return br.readLine();  
    }  
}
```

The try-with-resources statement ensures that each resource is closed at the end of the statement. Any Object that implements java.lang.AutoCloseable, which includes all objects which implement java.io.Closeable, can be used as a resource.

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.

10. What's the difference between ArrayList, LinkedList and Vector?

ArrayList use dynamic array to store elements

LinkedList use Doubly LinkedList to store elements

Vector use dynamic array but methods are synchronized.

ArrayList: fast in look up, slow in remove and delete

LinkedList is faster in delete last or first element. Slow in accessing element by index

Vector is similar to ArrayList but slower

ArrayList implements List

LinkedList implements List as well as Queue

Vector implements a dynamic array.

11. What's the difference between hashTable and hashMap?

HashMap is not synchronized but HashTable is synchronized

HashTable is thread-safe but HashMap is not

Threads are not required to wait in HashMap so it has high performance

Threads are required to wait in HashTable, so its performance is low.

HashMap allowed null key and values

HashTable doesn't allowed null key nor value.

12. What is static import?

Static import is a feature 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.

13. What is static block?

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.

14. Explain the keywords: Default(java 1.8), break, continue, synchronized, strictfp, transient, volatile, instanceof

default: 1. Used in switch when there is no case was match 2. Used in interface to define default method. Default methods are methods that can have a body.

break: it is used to terminate loops and switch statements

continue: it is used to end the current iteration in a loop, and continue to the next iteration.

synchronized: a piece of logic marked with synchronized becomes a synchronized block, allowing only one thread to execute a t any given them.

strictfp: it is used for restricting floating-point calculation and ensuring same result on every platform while performing operations in the floating-point variable

transient: it marks a member variable not to be serialized during serialization

volatile: it tells the compiler that the value of a variable must never be cached as its value may change outside of the scope of the program itself.

instanceOf: it checks whether an object is an instance of a specific type(class or subclass or interface)

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.

See Assignment4.java in program folder