Java Concepts Used

The following Java language concepts were used in this project.

- constructors: default, argumented, super
- setter and getter methods
- interfaces
- various loops: for loop, do..while,
- assigning final static variables in static initialization block
- functional interface definitions for sorting
- Java System properties for environment-specific user home directory and file system separator
- User defined checked exception
- Overriding Object class methods: toString and equals
- Comparable interface implementation
- list sort method
- searching: linear and binary
- algorithm to determine if a list is sorted or not
- Java stream methods: sort, forEach, et.

Algorithms Used

Data structure to store the files in the user home directory

Conscious decision was made to choose List(in java util package) over array with the understanding that the file size is meant to grow and shrink and array copy is expensive

Searching algorirthms

The files search using name is performed either:

- Linear search when the files in the list are checked to have been unordered
- Binary search when the files in the list are checked and verified to have been sorted

Sorting algorithms

Since the data structure used is list to store the files in the user home directory, comparator functional interfaces were implemented to perform ascending and descending sorts. Here is an implementation for descending sort for use with the Java List sort method

```
package com.lockedme.filesys;
import java.util.Comparator;

public class FileComparerAscending implements Comparator<FileWrap> {
	@Override
	public int compare(FileWrap o1, FileWrap o2) {
		return o1.compareTo(o2);
	}
}
```