# Final Projects

This is a sizable project, but taken a bite at a time is quite doable. The goal is to write a program that will list the "N" largest files in a directory tree. You will use interfaces, classes, Files, recursion, user interfaces. Follow the steps and make sure things are working before going to the nextstep.

Part A

1. Write a class called FileComparator that implements the Comparator interface. The FileComparator must have a method int compares(Object o1, Object o2). The returns -1, 0 or 1 depending upon the result of comparing o1 to o2. Make that comparison one that compares the size (in bytes) of two files.

2. Write a class called "TopN". The purpose of TopN is to help you keep track of the biggest "N" objects that you give to it. (Presumably, you will give it many more than N. When you construct one of these TopN objects, tell it how many objects to keep track of (N) and give it a comparator object (from step 1). Test your method to see if you can simply give it (one at a time) 3 or 4 file objects and ask it to keep track of the top 1 or 2.

3. Write a simple program that takes all of the plain (non-directory or non-folder) files in a specific directory and which will output the top 4 or so according to size.

4. Now the payoff. Write a class with a method with a signature:

```
public void scan(File f, TopN t);
```

What this method does is to look at the file f. If it is not a directory is simply tries to add it to t and return. If it is a directory, it gets a list of the files in the directory and for each of those files calls scan(s,t) where s is the file in the directory. When the initial call to scan returns, output the top N files by size in the directory tree.

5. Finally, put a nice GUI around this. Let the user select the top level directory (JFileChooser) and pick the value of N (either a text field or a combo box) and which fills a list of files and sizes.

Part B

Here is a challenge to those of you enjoying the sketching program. Add the ability to save a sketch (a list of doodles) and the ability to load a sketch. You should do it in the quickest manner possible - I'd suggest a FileInputStream/ObjectInputStream for loading a sketch and a a FileOutputStream for saving.

There won't be a final exam, but we will be working on a class project - a chat room together. I hope you put some effort into all 3 of these.