
Reading files

COMP 102

Victoria University of Wellington

Text with Files

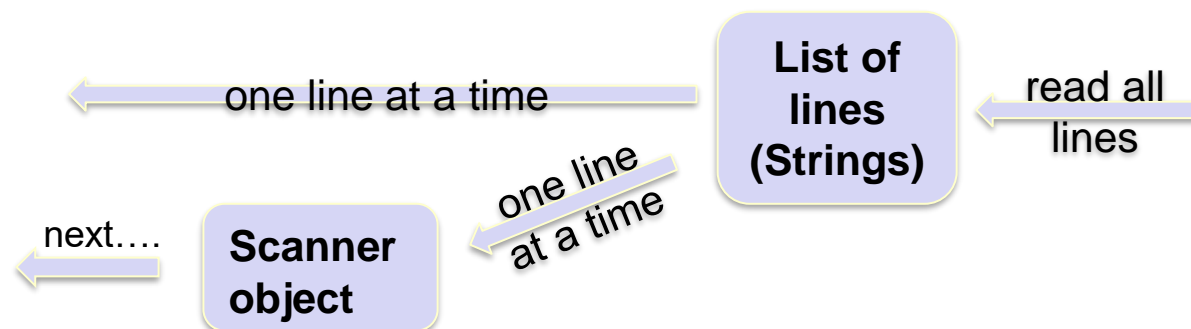
Reading data from a file:

- Read the file into a list of lines (Strings).
- Either
 - Use the lines directly, or
 - Use a Scanner object to get the values out of the lines

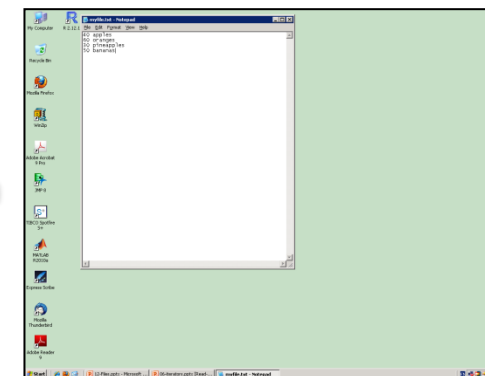
```

My Program
:
int r =scan.nextInt();
int g =scan.nextInt();
int b =scan.nextInt();
UI.setColor(new Color(r,g,b));
:
outFile.println("all done");

```



A real file: "mydata.txt"



Reading lines from a file:

```

/** Read lines from a file and print them to UI text pane. */
public void displayFile(String fileName){
    try {
        List<String> allLines = Files.readAllLines(Path.of(fileName));
        for (String line : allLines){
            UI.println(line);
        }
    } catch (IOException e) { UI.println("File failure: " + e); }
}

```

- Files.readAllLines(Path.of(...)) reads every line of the file into a List of Strings.
- Almost right, but compiler complains!!!
- Dealing with files may “raise exceptions”
- Need a **try** { } **catch** (...){ ... }

Copying a file

```
/** Read lines from one file and print them to another file. */
```

```
public void copyFile(){  
    String fromFile = UIFileChooser.open("File to copy");  
    String toFile = UIFileChooser.save("Filename to save to");  
    try {  
        List<String> lines = Files.readAllLines(Path.of(fromFile));  
        PrintStream outfile = new PrintStream(toFile);  
        for (String line : lines) {  
            outfile.println(line);  
        }  
        outfile.close();  
    } catch (IOException e) { UI.println("File failure: " + e); }  
}
```

Doing more with data in a file:

```
/** Find all lines in a file containing a search word. */
```

```
public void findWordInFile(){  
    String fileName = UIFileChooser.open("Choose file to search");  
    String word = UI.askString("Word to search for");  
    try {  
        List<String> allLines = Files.readAllLines(Path.of(fileName));  
        int lineNumber = 1;  
        for (String line : allLines){  
            if (line.contains(word)){  
                UI.printf("Found %s on line %d: %s\n", word, lineNumber, line);  
            }  
            lineNumber++;  
        }  
    } catch (IOException e) { UI.println("File failure: " + e); }  
}
```

Doing more with data in a file:

What if the file has numbers? How do we get numbers out of the Strings?

- If a String consists of one number only:
- can use `Double.parseDouble(line)` or `Integer.parseInt(line)`

```
/** Returns total of numbers in a file (one number per line). */
```

```
public double totalFile(String fname){  
    try {  
        double total = 0;  
        for (String line : Files.readAllLines(Path.of(fname))){  
            total += Double.parseDouble(line);    // fails if not a number!!!  
        }  
    } catch (Exception e) { UI.println("File failure: " + e); }  
    return total;  
}
```