CECS 277 – Lecture 5 – File Input/Output

File I/O – Information can be read and written to files using the Scanner class. To do this, two main classes need to be imported.

```
import java.io.*;
import java.util.Scanner;
```

Reading from a file – the file to be read should be inside of the project folder unless an exact path to the location of the file is given. Note: if you are specifying an exact pathname with a \ in it, you will have to include the escape character for it, which is \\.

Declare the Scanner, File Reader, and Input File – Java requires that a FileNotFoundException be handled, so a try/catch block is needed.

```
try{
      Scanner read=new Scanner(new File("input.txt"));
```

Read from the File – the scanner works just as it normally does, you can use nextLine(), next(), nextInt(), or nextDouble() to retrieve data from the file.

```
do{
      String line = read.nextLine();

      // do stuff with the string
```

Checking for the End of a File:

```
}while(read.hasNext());
```

Close the File:

```
read.close();

}catch(FileNotFoundException fnf){

      System.out.println("File was not found");
}
```

Deliminating the Input – as the scanner reads from the file, you can decide how to break up the contents. Here it is breaking up the input into single characters.

```
read.useDelimeter("");

char c = read.next().charAt(0);
```

Breaking up a String – with any string and a set of delimiters, you can break up a string into an array of individual strings by using the string split method.

```
String line = "Mary,Smith,123 Fake St.,Phoenix,AZ";

String [] tokens = line.split("[,]");
```

The split method breaks up the string line into the four smaller strings that are separated by commas.

The delimiter string allows you to specify several different delimiters, and to treat consecutive delimiters as a single one or as multiple delimiters.

```
String line = "Mary  Smith 123 Fake St. Phoenix AZ";

String [] tokens = line.split("[ ]+";);
```

This split uses spaces to break up the string into 7 separate strings. Notice the two spaces between Mary and Smith, using the + in the delimiter allows for consecutive delimiters to count as a single delimiter.

To remove any possible remaining spaces that might be left in your string, you can use the trim() method to remove them.

```
line = line.trim();
```


Writing to a file –

Declare the Writer:

```
try{
    PrintWriter writer = new PrintWriter("output.txt");
```

Write to the File:

```
    writer.println("This is some text"); //or use print()
```

Close the file:

```
    writer.close();
}catch(FileNotFoundException fnf){
    System.out.println("File was not found");
}
```