# Homework 5 - 25 points

### Problem 1 – Files and Streams – 5 points

### Answer the following questions with one line of code:

1. How can you open a text file for reading in Java?

new FileReader(“path/to/file.txt”)

1. How can you open a new text file for writing in Java?

new FileWriter("path/for/file.txt");

1. How can you open a binary file for reading in Java?

new FileInputStream(“path/to/file”);

1. How can you open a binary file for writing in Java?

new FileOutputStream(“path/for/file”);

1. How can you open a file for both reading and writing at the same time (using the same variable for both read and write operations) in Java?

new RandomeAccessFile(“path/for/file”, “rw”);

### Problem 2 – Files and Streams – 1 point

How do you open a file whose name contains a backslash, like C:\temp\output.dat?

new FileReader(“C:\\temp\\output.dat”)

### Problem 3 – Files and Streams – 4 points

Answer the following four questions:

1. What is the file pointer in a file?

The location of the “cursor”

1. How do you move it?

Using the seek(location) method

1. How do you tell the current position?

getFilePointer() method

1. Why is it a long integer?

Because files can be very long and the number representing the pointer position could very well go over the max value an Integer can handle.

### Problem 4– Files and Streams – 10 points

The Java String class defines the following method to split a Java String object into multiple fragments of substrings and store them in a returned String array:

String[] split( String regularExpression)

The regularExpression argument specifies a delimiter or separator pattern. More detailed information can be found in the Java Document API (http://java.sun.com/javase/6/docs/api/). The following example uses “-“ as a separator to split a String object:

String initialString = “1:one-2:two-3:three”;

String[] fragments = initialString.split(“-“);

The resulting fragments array contains three Strings of “1:one”, “2:two”, and “3:three”. One can further split these fragments if needed. For example,

String[] pair1 = fragments[0].split(“:”);

The pair1 array contains two String objects of “1” and “one”.

**Given the following line in a text file:**

A=Excellent B=Good C=Adequate D=Marginal E=Unacceptable

**Write a method that would read this text file and print out the following:**

Grade A is Excellent  
Grade B is Good

Grade C is Adequate

Grade D is Marginal

Grade E is Unacceptable

//problem 4 continued….

public static void main(String[] args) {  
 try {  
 FileReader fileReader = new FileReader(new File("/Users/Josiah/git/COMP-121/resources/homework/hw5/grades.txt"));  
 Scanner scanner = new Scanner(fileReader);  
  
 List<String> grades = new ArrayList<>();  
  
 while(scanner.hasNextLine()) {  
 String line = scanner.nextLine();  
 String[] gradeArray = line.split(" ");  
 for (String grade : gradeArray) {  
 String[] gradePieces = grade.split("=");  
 grades.add(String.*format*("Grade %s is %s", gradePieces[0], gradePieces[1]));  
 }  
 }  
  
 for (String grade : grades) {  
 System.*out*.println(grade);  
 }  
 } catch (FileNotFoundException e) {  
 e.printStackTrace();  
 }  
}

### Problem 5 – Weekly learning and reflection - 5 points

In two to three paragraphs of prose (i.e. sentences, not bullet lists) using APA style citations if needed, summarize and interact with the content that was covered in the introductory videos provided for this course. In your summary, you should highlight the major topics, theories, practices, and knowledge that were covered. Your summary should also interact with the material through personal observations, reflections, and applications to the field of study. In particular, highlight what surprised, enlightened, or otherwise engaged you. Make sure to include at least one thing that you’re still confused about. In other words, you should think and write critically not just about what was presented but also what you have learned through the session. Feel free to ask questions in this as well since it will be returned to you with answers.

Persistence is in just about every application. Learning this is pretty integral to application design. I didn’t know there was a way to both read and write to a file. The RandomAccessFile class was quite interesting.

Exceptions have always been an area that I have been a little fuzzy on. I have been programming for a while and never really knew the distinction between an Exception and a RuntimeException. This was quite enlightening. Exceptions get really crazy when working with Spring and trying to throw/catch exception in a Webservice.