**CS 1150 Design Notebook Required Sections**

**Assignment 1**

**Step 1: Problem Statement**

Create an array with the giving values and perform various actions towards it. Write array to a file and read the file to create 2 different arrays with one only being even and only being odd values. The even and odd array will not have any duplicates and I will remove will make another even and odd arrays with the correct size to have no zeros.

**Step 2: Understandings**

* What I Know:
  + Displaying values to console
* Creating Arrays
* Loops and If Statements
* What I Don’t Know:
  + File Reading, only did it once
  + Not 100% sure what I need to do to split the array into even and odds
* Usually as I code, I can see how I can do it

**Step 3: Pseudocode**

* Create giving array with set values
* Display array
* Use the built-in sort method to sort the array
* ArrayName.sort();
* Creating a file named assignment1.txt using Java’s File object
* Open the file to allow editing
* Write the array values to the file while at the same time count how many even and odd values there are
  + Using if statements to find even and odd numbers, increase counter by 1
* Print even and odd and total amount and total numbers to console
* Create a Scanner to read file
  + Scanner scanner = new Scanner(fileName);
* Create 2 new array for the even and odd values using the counters from before as the size
* Read file and find even and odd values and place them into correct array
* Also reject duplicate values
* Display even and odd arrays
* Move the even and odd array to an array with the correct size

**Step 4: Lesson Learned**

I’m not 100% sure this was the issue but not putting readFile.nextInt() into a variable gave me an error that there was no int to be read and I think it’s because every time I wrong readFile.nextInt() instead of currentNumber it would move to the next number making it error before it could finish the while loop.

// I Included this last year just in case the zip file did not work

**Step 5: Code**

package cs1450;

import java.io.File;

import java.io.IOException;

import java.io.PrintWriter;

import java.util.Arrays;

import java.util.Scanner;

/\*

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Assignment 1

This assignment will use a given array to make two more arrays that are even and odd.

I will have to manipulate the arrays to get the desired output.

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public class HofferIsaiahAssignment1 {

public static void main(String[] args) throws IOException {

//Create Main Array

int[] intArray = {1, 18, 10, 2, 16, 8, 15, 9, 9, 17, 14, 18, 1, 19, 18, 2, 1};

//Displaying intArray

for(int i = 0; i < intArray.length; i++) {

System.out.printf("intArray[%d] = %d\n", i, intArray[i]);

}//For

//Sorting intArray

Arrays.sort(intArray);

//Creating a File to write intArray to

File fileName = new File("Assignment1.txt");

//Allowing File to be Written On

PrintWriter outputFile = new PrintWriter(fileName);

//Counters

int evenAmount = 0;

int oddAmount = 0;

//Writing Array to File and Couting Even and Odd Values

for(int i = 0; i < intArray.length; i++) {

if (intArray[i] % 2 == 0) {

evenAmount++;

}

else if (intArray[i] % 2 == 1) {

oddAmount++;

}

outputFile.println(intArray[i]);

outputFile.flush();

}//For

//Displaing Counter Results

System.out.printf("\nTotal Values Written: %d \n"

+ "Total Even Values: %d \n"

+ "Total Odd Values: %d \n"

+ "\nFile Can Be Found In: %s",

evenAmount + oddAmount, evenAmount, oddAmount, fileName.getAbsolutePath());

//Allow Code to Read File

Scanner readFile = new Scanner(fileName);

//Initalizing Even And Odd Arrays

int[] evenIntArray = new int[evenAmount];

int[] oddIntArray = new int[oddAmount];

//Variables For Indexing and Used Later To Create Better Arrays

int evenArrayIndexAndSize = 0;

int oddArrayIndexAndSize = 0;

//Boolean To Reject Duplicates

boolean duplicateValue = false;

//Reading File To Get Even and Odds Values

//Only Runs When File Has Another Number

while(readFile.hasNextInt()) {

duplicateValue = false;

int currentNumber = readFile.nextInt();

//Checking If Number is Even

if(currentNumber % 2 == 0) {

//Checking If Number is A Duplicate

for(int j = 0; j < evenArrayIndexAndSize; j++) {

if( currentNumber == evenIntArray[j]) {

duplicateValue = true;

}//If

}//For

if (!duplicateValue) {

evenIntArray[evenArrayIndexAndSize] = currentNumber;

evenArrayIndexAndSize++;

}//If

}//If

//Checking If Number Is Odd

else if(currentNumber % 2 == 1) {

//Checking If Number is A Duplicate

for(int j = 0; j < oddArrayIndexAndSize; j++) {

if( currentNumber == oddIntArray[j]) {

duplicateValue = true;

}//If

}//For

if (!duplicateValue) {

oddIntArray[oddArrayIndexAndSize] = currentNumber;

oddArrayIndexAndSize++;

}//If

}//Else If

}//While

//Closing Scanner And PrintWriter

readFile.close();

outputFile.close();

//Displaying Even And Odd Arrays With Zeros

for(int i = 0; i < evenIntArray.length; i++) { //Even

if (i == 0) {

System.out.println("\n\nEven Array With Zeros:\n"

+ "-----------------------");

}//If

System.out.printf("\nevenIntArray[%d] = %d", i, evenIntArray[i]);

}//For

for(int i = 0; i < oddIntArray.length; i++) { //Odd

if (i == 0) {

System.out.println("\n\nOdd Array With Zeros:\n"

+ "----------------------");

}//If

System.out.printf("\noddIntArray[%d] = %d", i, oddIntArray[i]);

}//For

//Creating Perfectly Sized Even And Odd Arrays With Coutners Used in Fitering Even and Odds

int[] noZerosEvenArray = new int[evenArrayIndexAndSize];

int[] noZerosOddArray = new int[oddArrayIndexAndSize];

//Filling And Displaing New Even And Odd Arrays

for(int i = 0; i < noZerosEvenArray.length; i++) { //Even

noZerosEvenArray[i] = evenIntArray[i];

if (i == 0) {

System.out.println("\n\nEven Array: \n"

+ "-----------------");

}//If

System.out.printf("\nevenArray[%d] = %d", i, noZerosEvenArray[i]);

}//For

for(int i = 0; i < noZerosOddArray.length; i++) { //Odd

noZerosOddArray[i] = oddIntArray[i];

if (i == 0) {

System.out.println("\n\nOdd Array: \n"

+ "-----------------");

}//If

System.out.printf("\noddArray[%d] = %d", i, noZerosOddArray[i]);

}//For

}//Main

}//Class