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Assignment 03
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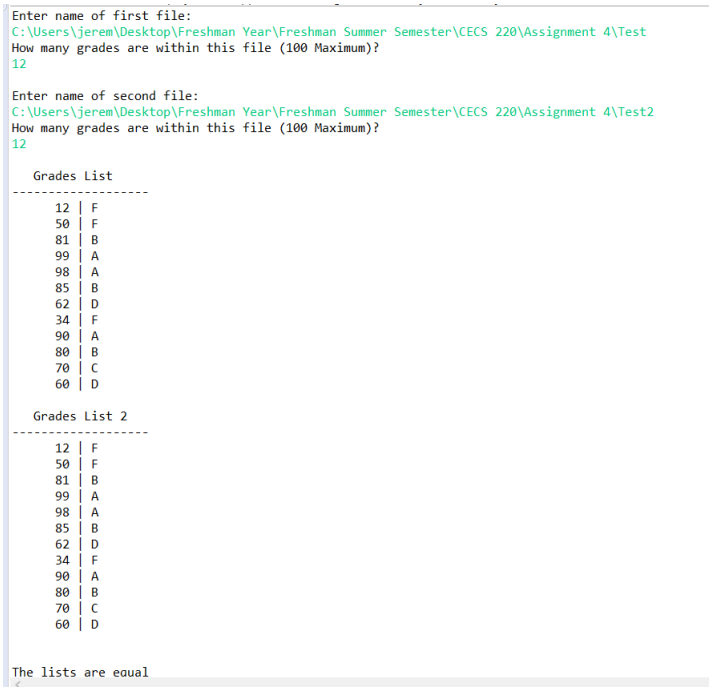
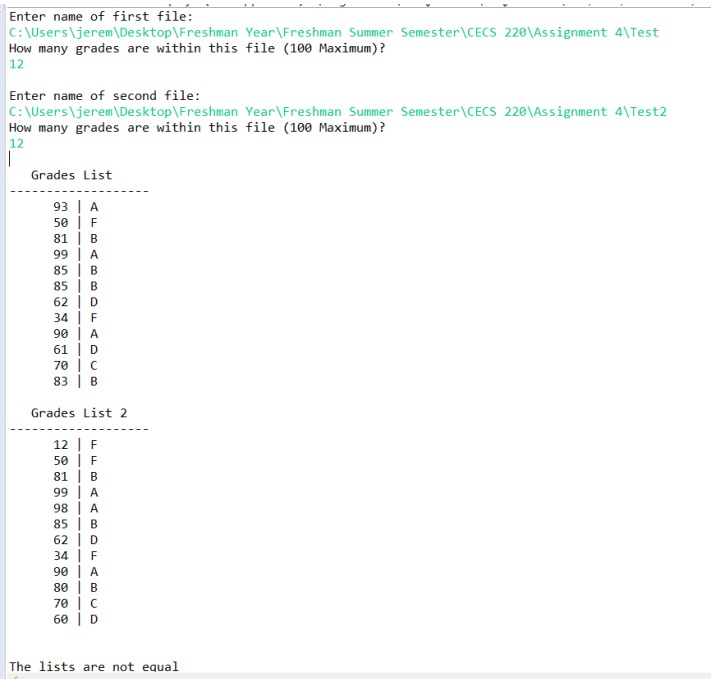
Problem 1

This problem presented a few challenges when it came to the files but other than that it wasn't too difficult. To start off I created the *LetterGradeConverter()* class and imported the File, FileNotFoundException, and Scanner classes. Next, I created the necessary instance variables and arrays, *intGrades, LetterGradeList, actualLength,* and my own instance variable of type File called *textFile.* After this I created the constructor that would take in a string as the name of the text file and the size of the list being provided. Next, I created a protected method called *readInFile* that uses the keyword *try* to catch exceptions that might be thrown as the program executes. Within it I created a scanner object that would read in the text file and using an iterator within a while loop the integer variables would be read in and put inside an array. Next, I created a private method called *LetterGradeConverter()* that would use the array full of integers and test each value, then assign the corresponding value to a letter grade based on what range it falls in. Then all those letter grades will be inserted into a separate array. After this I created a *toString()* method that would output a table that contains the integer values and their equivalent letter grades. Next, I created a protected boolean method called *equals()* that used a for loop to compare all the letter grades within two arrays and for every value that was equal a counter variable would be incremented. So, at the end if the counter variable was equal to the length of the letter grade array the two arrays must be equal and the method would return true. And lastly, I created getters and setters for the rest of my instance variables. Next I created my *LetterGradeDispayer()* class and imported the scanner class. I created a series of local variables that would be used to retrieve user information. Then I used a series of output and input statements to ask the user for the file names and their length. I then created variables of type *LetterGradeConverter* and inserted the necessary variables in them. Next I printed out the tables containing the integer grades and their letter grades. And lastly I used the *equals* method to test if the tables were equal or not.





Problem 2

This problem was pretty simple and didn't present that many difficulties, I started off by creating the abstract class *Vehicle* along with two private variables for the owner name and number of wheels. I then created the constructor for the class that would include a string for the owner's name and an int for the number of wheels. And I included getter methods for both of my instance variables. Next, I created the subclass *Motorized* along with two private instance variables for the brand name and the engine volume. Then I created a constructor which included the variables from my vehicle class along with another string for the brand name and a double for the engine volume. Within the constructor I invoked the keyword super so I would have access to the constructor of my superclass. Next I created a protected method that would multiply the engine volume by the number of wheels in order to calculate horsepower for the vehicle. Then I created a *toString* method to display the information gathered about the vehicle in a nice format. And lastly, I created my getter methods for my instance variables. After this I created the subclass *Bicycle* and created the private instance variable brand. Next I created a constructor for the class which included the variables from my vehicle class along with another string for the brand name. Within the constructor I invoked the keyword super so I would have access to the constructor of my superclass. Then I created a *toString* method that would display the information gathered in a neat format and I also created a getter method for my instance variable. Lastly, I created a client class called *VehicleTester* within it I created a couple of instances for both of the subclasses and displayed them using the *toString* method in each class.