

Review Assignment

Read this entire assignment before getting started.

Overview

Write a program that reads GPS coordinates and place names from a file and prints them in reverse in a specified format.

Requirements

You have been given a file called `gps-and-place.txt` with GPS coordinates and place names. The first few lines of the file are shown below:

```
Downtown Bloomington 40.48419 -88.993353
Washington and Clinton 40.479735 -88.984475
Heritage Manor 40.486935 -88.984875
Vernon and Fell 40.5048029 -88.9870295
```

Your program should read the file and write it to the console in reverse order and in the format shown below:

```
Vernon and Fell is at          40.504, -88.987
Heritage Manor is at          40.486, -88.984
Washington and Clinton is at   40.479, -88.984
Downtown Bloomington is at    40.484, -88.993
```

Although this could be done in a single main method, it is best to build this in a modular and extendable way. Do the following:

1. Create a class called `GPSLocation`, an object of which keep track of the `name`, `latitude`, and `longitude` of a single location. It should have a constructor that takes all three items as parameters and getter methods for each item. Finally, it should have a `toString()` method that returns a `String` in the format shown in a single line of the output above.
2. Create a second class called `GPSFileReverser` with a static method called `reverse`. This method should accept a `Scanner` object as a parameter and return a `String`. This method should read the file described above from the `Scanner` and return the output described above as a `String`. The method will need to read each line into a `GPSLocation` object and put it into an array that can hold `GPSLocation` objects. You can then append `String` representations of each `GPSLocation` in reverse order to large `String` object, which you will return from the method. The array will have to have a size, so it should be able to handle up to 100 `GPSLocation` objects.
3. Create a class called `GPSFileReverserTester` with main method. This main method should create a `Scanner` from the `gps-and-place.txt` file, pass it as an argument to the `reverse` method of the `GPSFileReverser` class, and print the returned `String` to the console.

This design will allow for the reuse of `GPSLocation` and the separation of the reversing of the list from the use of a file or the console (i.e., it could be used with information retrieved from the Internet or display the resulting `String` in a graphical interface).

Submission

To complete this assignment, you will need to submit the following in a zip file attached to the assignment on ReggieNet:

1. All of the .java files you created (no .class files!)
2. The `gps-and-place.txt` file (we already have it, but if you put it with your .java files, the grading will go faster)
3. The output of your program in a file called `output.txt`