

Sierra Nevada Corporation Programming Assessment

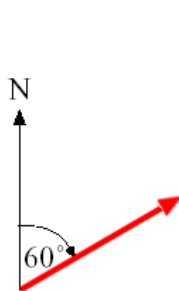
Please provide source for a program that fulfills the following requirements to the best of your ability. You may use the language of your choice. That being said, SNC works primarily in Windows 10 with Visual Studio 2022 and C#/Java/C++.

If you choose a different environment, please provide a way to compile and run in a x86/x64 Windows environment, as well as a compiled x86/x64 deliverable.

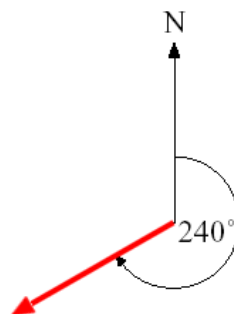
There is no need for an installer or GUI interface – command line arguments or configuration files are acceptable.

Create a program to generate emulated travel log outputs. These travel logs must comply with the provided interface description, and these constraints:

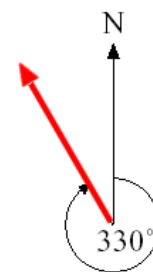
- The output file complies with the interface control description provided in the document “JYN ICD v1.0” which was included in the provided assessment materials.
- Your program must be capable of generating a JNY file specifying a car along with its path.
- Your program must be capable of generating a JNY file specifying a boat along with its path.
- For properties of the vehicle where values have not been specified in the interface description, values (weight, width, height, etc) can be random and do not need to be realistic, so long as names and descriptions are human-readable.
- Semi-realistic waypoints for the vehicle must be generated, with the following constraints:
 - There should be between 10 and 30 waypoints, inclusive.
 - They should be generated using some sort of semi-randomized ground speed and bearing. If you are unfamiliar with the concept of heading, see [https://en.wikipedia.org/wiki/Bearing_\(navigation\)](https://en.wikipedia.org/wiki/Bearing_(navigation)) and the diagram below for more information.



Heading 060 °



Heading 240 °



Heading 330 °

- All cars travel between 25 and 60 miles per hour.

Non-Sensitive

- Motor boats travel between 25 and 60 miles per hour.
- Sail boats travel between 15 and 30 miles per hour.
- Unpowered boats travel between 1 and 10 miles per hour.
- The vehicles must turn at least 3 times on their route.
- Cars cannot turn more than 90 degrees between waypoints.
- Boats cannot turn more than 30 degrees between waypoints.

C# and C++ code to compute ground distance and move lat/lon points by linear feet has been included to help with this.

- Boats can't be on the land! Your boats must remain within one of the following zones at all times, picked randomly per boat. (Our cars are amphibious, don't worry.)
 - Zone 1: Latitude: 15.6 to 56.2, Longitude: -49.8 to -23.1
 - Zone 2: Latitude: -48.8 to -6.9, Longitude: -28.6 to 8.2
 - Zone 3: Latitude: -43.4 to 8.1, Longitude: -161.4 to -98.4
 - Zone 4: Latitude: -41.1 to -1.4, Longitude: 62.2 to 94.5
- Although not an official deliverable, please be ready to explain your design and implementation decisions to a technically literate audience.