The following task requires you to write application code, without a user interface and without database – all storage happens in memory. However, the programmer must properly check the code to be comfortably sure of its correct operation (Unit tests are nice to have).

Implement basic functionalities enabling ship fleet management. We assume that each ship has its own global unique number consisting of three letters IMO and 7 digits, IMO number - Wikipedia, e.g. IMO 9074729. Additionally, the ship has a name such as "Black Pearl", length, width, and current position (coordinates - longitude and latitude).

The functionality of the program should allow for adding ships to the fleet. Registering a new ship must also involve data validation - the coordinates must be correct, the length cannot be negative, and the IMO number should be checked for checksums - check the documentation in the Wikipedia - link provided. Additionally, we assume that the shipowner must be able to add two types of ships to the fleet:

- Container Ship - allows you to load a maximum specified number of containers onto a ship (ships may vary in terms of maximum capacity), each container has information about the sender, addressee, cargo description and weight. A ship cannot be loaded with more than the ship's maximum load

- Tanker Ship – allows you to refuel various types of fuel into tanks permanently installed on the ship. The configuration of these tanks may be different on each ship, each tank has its own capacity in liters. Each tank can be filled with one type of fuel to its maximum capacity - we assume two types of fuel, Diesel and Heavy Fuel. Each of these fuels has its own density. A tanker ship also cannot be overloaded beyond the ship's maximum permitted load

The functionality of the program should allow for:

- adding ships of each type to the shipowner's ship list

- position update, maintaining the history of its position at a given moment (the history should include the time of the position update)

- loading containers onto a ship of the appropriate type and unloading them

- refueling a given tank of the tanker

- emptying a given tank