

Challenge name: Cargo Identification System

Description

There are many different types of oil: crude oil, gasoline and palm oil to mention a few. For regulatory and technical reasons, ships cannot immediately switch between different types of cargo. For example, if a ship was previously carrying crude oil, it cannot instantly switch to carrying refined oil (also called oil products) due to contamination stemming from chemical differences. Because of this, not all ships are eligible for a given cargo, even if they otherwise appear to be similar. Often the tanks of a ship must go through an elaborate and expensive clean up phase when switching between cargoes of sufficiently different nature (especially in the case of a switch between gasoline types to vegetable oil for human consumption).

For Maersk Tankers, knowing exactly which ships are competing for the same cargo is important, and thus knowing the type of a ship's previous cargo is one key to determining this.

Desired benefits

For Maersk Tankers, it is relevant to know exactly what ships are competing for the same cargo, and thus knowing the type of a ship's previous cargo is relevant.

Solution details

It is important to keep in mind that the point of this challenge is to identify the contents of the cargo type of *any* oil tanker. If the solution can give suggestions for several cargo types with corresponding probabilities that would be ideal. Determining the volume of oil carried is useful, but not necessary.

Solution criteria

- Live coverage on a per-journey basis
- The solution should be applicable to an arbitrary oil tanker - i.e. we are not interested in the cargoes of Maersk ships (we already know the cargoes of our own ships)
- Includes performance metric

Suggested data sets

See the document describing the data sets for more detail

- AIS data
- Port list
- Ship list
- Maersk Tankers ship voyages - this details the cargo type of Maersk ships in an anonymised format. This information is not available for ships not operated by Maersk.

Clues to get started

- Scope: Choose a type of ship to look at first
- Identify load and discharge operations and link them to ports
- Identify relevance of the laden state of a tanker (a tanker is said to be laden if its carrying cargo and said to be ballasting if its empty)

- Define what constitutes a tanker voyage - e.g. load to discharge