Databases Assignment 1

https://github.com/zimcke/gegevensbanken

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0.1 Assumptions

The tax per port is not multivalued, there is only one tax-rate per port (independent from the ship type or other characteristics).

We assume that a ship can't have more than one route simultaneously.

Each customer or shipbroker can only validate (exactly) one address.

To uniquely identify SHIPMENT(s) (a weak entity type) with the same shipbroker and customer, we inserted a custom ID that functions as a partial key. The attributes Weight and Volume are not sufficient, since there could exist multiple shipments with the same weight and volume.

There is no partial key for the weak entity ROUTE, since two routes with the same ports are considered as one and the same.

0.2 ER-diagram

Our ER-model is visualized on the following page.

Entity-Relationship Diagram

PORT entity with attributes: Daylight Savings Time Zone, Name (underlined), Longitude, Latitude, ID, Location, Country, Tax, Time zone

SHIPBROKER entity with attributes: Name (underlined), Address (Street, Number, Postal_code, Box Number), City (derived)

CUSTOMER entity with attributes: Lname, Fname, Id (underlined), Mobilephone, Address (Street, Bus, Number, Postal_code), City (derived)

ROUTE_FROM (1:n) — (1:1), ROUTE_TO (1:n) — (1:1), **ROUTE**

SAILS (0:n) — (0:1)

SHIP entity with attributes: Type, Name (underlined), ID (underlined)

SHIPPING_LINE entity with attributes: ID (underlined), Name (underlined), Country

OWNS (1:1) — (0:n)

owns (0:n) — (1:1)

Pays (0:n) — (0:n) — (1:1)

loads (1:n) — (1:1)

SHIPMENT entity with attributes: ID (underlined), Weight, price (derived), Volume

CONTAINER entity with attributes: Size, Weight, ID (underlined)

SHIPS (0:n) — (0:n)

contains (0:n) — (0:n)