### Section 3: Advanced Window Functions Exercises

In the following advanced SQL exercises, we’ll use a Northwind database for an online shop with numerous foods. It contains six tables: customers, orders, products, categories, order\_items, and channels. Let's look at the data in this database.

The customers table has 15 columns:

* + customer\_id stores the ID of the customer.
  + email stores the customer’s email address.
  + full\_name stores the customer’s full name.
  + address stores the customer’s street and house number.
  + city stores the city where the customer lives.
  + region stores the customer’s region (not always applicable).
  + postal\_code stores the customer’s ZIP/post code.
  + country stores the customer’s country.
  + phone stores the customer’s phone number.
  + registration\_date stores the date on which the customer registered.
  + channel\_id stores the ID of the channel through which the customer found the shop.
  + first\_order\_id stores the ID of the first order made by the customer.
  + first\_order\_date stores the date of the customer’s first order.
  + last\_order\_id stores the ID of the customer’s last (i.e. most recent) order.
  + last\_order\_date stores the date of the customer’s last order.

The orders table has the following columns:

* + order\_id stores the ID of the order.
  + customer\_id stores the ID of the customer who placed the order.
  + order\_date stores the date when the order was placed.
  + total\_amount stores the total amount paid for the order.
  + ship\_name stores the name of the person to whom the order was sent.
  + ship\_address stores the address (house number and street) where the order was sent.
  + ship\_city stores the city where the order was sent.
  + ship\_region stores the region in which the city is located.
  + ship\_postalcode stores the destination post code.
  + ship\_country stores the destination country.
  + shipped\_date stores the date when the order was shipped.

The products table has the following columns:

* + product\_id stores the ID of the product.
  + product\_name stores the name of the product.
  + category\_id stores the category to which the product belongs.
  + unit\_price stores the price for one unit of the product (e.g. per bottle, pack, etc.).
  + discontinued indicates if the product is no longer sold.

The categories table has the following columns:

* + category\_id stores the ID of the category.
  + category\_name stores the name of the category.
  + description stores a short description of the category.

The order\_items table has the following columns:

* + order\_id stores the ID of the order in which the product was bought.
  + product\_id stores the ID of the product purchased in the order.
  + unit\_price stores the per-unit price of the product. (Note that this can be different from the price in the product’s category; the price can change over time and discounts can be applied.)
  + quantity stores the number of units bought in the order.
  + discount stores the discount applied to the given product.

The channels table has the following columns:

* + id stores the ID of the channel.
  + channel\_name stores the name of the channel through which the customer found the shop.