

Main Track ¹: NorthWind Traders



NorthWind Traders is a wholesale company. The company that buys and sells specialty food items. They engage in the B2B market (Business to Business) meaning that their customers are primarily small retail stores and supermarkets. NorthWind Traders is a small company that employs only a handful of employees and most of them are sales representatives who earn money on commissions. Their customers are located all around the world. The Vice President of Sales is called Andrew Fuller.

Andrew Fuller has requested that you help him build a datawarehouse so that he is able to integrate multi-source data, model time-variant data and do basic descriptive analysis in a front-end visualization tool of his choosing (he will get back to you on that part later in the semester as he is still trying to figure out which front end tool is best for the business).

Since Andrew is working in Sales, he has kindly requested that you start out by modelling the sales process for NorthWind. Maybe next year, you can move onto Logistics and Marketing, so make sure you use conform dimensions for the business.

Sales in NorthWind are commissioned by a sales representative (SR) to a customer. In order to get a basic overview of the sales, Andrew would like you to include the sales amount as well as the number of products ordered by the customer by each sales representative.

Andrew is worried that too many orders are shipped later than the date the customer requested when placing the order. The reason for this is because he is getting more and more complaints from customers through e-mail. One customer was particularly angry with him because the milk arrived 3 days late. "If I don't have milk, I don't have customers", was the basic sentiment of the e-mail but written in a much less appealing tone. Andre wonders if the problem relates to NorthWinds own distribution channels to the customer or if it can be traced back to certain product categories or suppliers.

¹ Source: Mostly just teachers' imagination (sample database has been retired from Microsoft)

Andrew is also worried that some of his employees may be slacking because they are not clearing as many orders as the other employees. He would like to be able to see who is clearing the most orders and what the total value is for each employee. In addition, he is worried that one of his employees may be engaging in fraud (nepotism) by offering higher than usual discounts to one customer, who happens to be that employee's cousin.

Andrew is also looking to renegotiate shipping contracts and would like to have an overview of orders shipped in the different regions as a basis for negotiating shipping prices with his three shippers.

In a normal business, things of course change over time. Therefore, it's mandatory that Andrew can see how all of the mentioned things change over time.

Below is a screenshot of the legacy software that NorthWind uses to handle orders:

The screenshot displays the Northwind Traders software interface. The main window is titled "Order #84" and shows the following details:

- Status:** New
- Customer:** Company T
- Salesperson:** Andrew Cencini
- Order Date:** 6/11/2019

The "Order Details" tab is active, showing a table of products and their quantities, unit prices, discounts, total prices, and statuses.

Product	Qty	Unit Price	Discount	Total Price	Status
Northwind Traders Gnocchi	10	\$38.00	0.00%	\$380.00	Allocated
Northwind Traders Dried Apples	30	\$53.00	0.00%	\$1,590.00	On Order
Northwind Traders Pears	30	\$1.30	0.00%	\$39.00	On Order
Northwind Traders Peaches	12	\$1.50	0.00%	\$0.00	None
Total	70			\$2,009.00	

As you can see, some information is related to the order (Company T, Andrew Cencini) and some of the information pertains to the order details (this customer ordered 4 different products with different quantity and unit price amounts). No discount was given for any of the item lines.

Track A²:



AdventureWorks is a large multinational manufacturing company. The company produces and sells metal and composite bicycles to North American, European and Asian commercial markets. While its base operation is located in Bothell, Washington with 290 employees, several regional sales teams are located throughout their market base.

In 2000, Adventure Works Cycles bought a small manufacturing plant, Importadores Neptuno, located in Mexico. Importadores Neptuno manufactures several critical subcomponents for the Adventure Works Cycles product line. These subcomponents are shipped to the Bothell location for final product assembly. In 2001, Importadores Neptuno, became the sole manufacturer and distributor of the touring bicycle product group.

Coming off a successful fiscal year, Adventure Works Cycles is looking to broaden its market share by targeting their sales to their best customers, extending their product availability through an external Web site, and reducing their cost of sales through lower production costs.

As a bicycle manufacturing company, Adventure Works Cycles has two types of customers:

Individuals. These are consumers who buy products from the Adventure Works Cycles online store.

Stores. These are retail or wholesale stores that buy products for resale from Adventure Works Cycles sales representatives.

The Sales Manager of AdventureWorks is Elisabeth. She's been with the company for only a few years, but her drive and determination has led her to a top position within the company. Elisabeth believes that data is "the oil of business" – it's what enables the gears and grinds to perform better and ultimately allow the company to turn a profit. And that, exactly, is the first thing she needs to be able to see: How profitable is AdventureWorks throughout the year?

She's concerned that the business is not making enough money in the Winter months due to the seasonality of bicycle sales. Perhaps if she gets a better overview of profitability, she may be able to come up with some strategies to improve sales in the off-season months.

She further believes that analyzing AdventureWorks data will allow the company to be able to transform it's business model by moving more and more business towards the "direct to consumer" channel through they new website that AdventureWorks has invested in. In order to design the optimal distribution system

² Source: [https://docs.microsoft.com/en-us/previous-versions/sql/sql-server-2008/ms124825\(v=sql.100\)?redirectedfrom=MSDN](https://docs.microsoft.com/en-us/previous-versions/sql/sql-server-2008/ms124825(v=sql.100)?redirectedfrom=MSDN) and teachers imagination

for the warehouse that is going to serve the B2C segment, she needs to know if there is a difference with respect to the number of items a wholesale customer orders compared to a private consumer (what the business analysts in AdventureWorks refer to as an "IN" for individual customer). If they vary greatly, she won't be able to use the current distribution channel for wholesale customers due to the pay scheme set up with the shippers. It would also be nice to see the sales to individuals vs to stores in total amounts because she has to report this to the CEO.

Further, he is interested to compare AdventureWorks different geographical locations in terms of total sales in order to track which markets are performing and which are not. She needs to be able to analyze both individual sales and store sales.

For the store sales, Elisabeth will also have to be able to look at the sales performance of different sales personnel with respect to both total amount and number of items sold across product categories.

Track B³: WorldWideImporters



Wide World Importers (WWI) is a wholesale novelty goods importer and distributor operating from the San Francisco bay area.

As a wholesaler, WWI's customers are mostly companies who resell to individuals. WWI sells to retail customers across the United States including specialty stores, supermarkets, computing stores, tourist attraction shops, and some individuals. WWI also sells to other wholesalers via a network of agents who promote the products on WWI's behalf. While all of WWI's customers are currently based in the United States, the company is intending to push for expansion into other countries.

WWI buys goods from suppliers including novelty and toy manufacturers, and other novelty wholesalers. They stock the goods in their WWI warehouse and reorder from suppliers as needed to fulfil customer orders. They also purchase large volumes of packaging materials, and sell these in smaller quantities as a convenience for the customers.

Recently WWI started to sell a variety of edible novelties such as chili chocolates. The company previously did not have to handle chilled items. Now, to meet food handling requirements, they must monitor the temperature in their chiller room and any of their trucks that have chiller sections.

Johannes, the Sales Executive, of Wide World Importers has requested that you help him design a datawarehouse that will help him address some of the business needs currently facing the company.

To begin with, he needs to be able to see the amount (number of items as well as total sales amount) across chilled vs dry (non-chilled) goods. It would also be nice if the report allowed him to filter based on the type of product (e.g. brand and size).

Johannes is worried that the delivery time (time from date items was ordered to time items were delivered) may be off on some of the chilled items. It is critical that they arrive fast. Therefore he would like to know the average delivery time on chilled items.

Wide World Importers has decided that to increase motivation from sales personnel, they will offer a "Sales Person of the Quarter" prize of 100USD to the best performing sales person (based on amount of sales) – so he will need to be able to see that information as well.

³ Source: <https://docs.microsoft.com/en-us/sql/samples/wide-world-importers-what-is?view=sql-server-ver15> and teachers imagination