Lab4. Retail Sales Analytics Part-I

Objectives

In this lab, you will be performing analytics on retail sales of a particular enterprise. The sales of several of their stores are represented using three Excel files.

The Problem

One challenge of modelling retail data is the need to make decisions based on limited history. Holidays and select major events come once a year, and so does the chance to see how strategic decisions impacted the bottom line. In addition, markdowns are known to affect sales – the challenge is to predict which departments will be affected and to what extent.

Data Description

You are provided with historical sales data for 45 stores located in different regions - each store contains a number of departments. The company also runs several promotional markdown events throughout the year. These markdowns precede prominent holidays, the four largest of which are the Super Bowl, Labor Day, Thanksgiving, and Christmas. The weeks including these holidays are weighted five times higher in the evaluation than non-holiday weeks.

Attributes of Stores, Features and Sales Tables

1. Stores

Anonymized information about the 45 stores, indicating the type and size of store

2. Features

Contains additional data related to the store, department, and regional activity for the given dates.

- Store - the store number
- Date - the week
- Temperature - average temperature in the region
- Fuel_Price - cost of fuel in the region
- MarkDown1-5 - anonymized data related to promotional markdowns. MarkDown data is only available after Nov 2011, and is not available for all stores all the time. Any missing value is marked with an NA
- CPI - the consumer price index
- Unemployment - the unemployment rate
- IsHoliday - whether the week is a special holiday week

3. Sales

Historical sales data, which covers to 2010-02-05 to 2012-11-01. Within this tab you will find the following fields:

- Store - the store number
- Dept - the department number
- Date - the week
- Weekly_Sales - sales for the given department in the given store
- IsHoliday - whether the week is a special holiday week

Some Sample Tasks

1. Predict the department-wide sales for each store for the following year
2. Model the effects of markdowns on holiday weeks
3. Provide recommended actions based on the insights drawn, with prioritization placed on largest business impact

Tasks To be Completed:

Question1: Describe the data, making note of the interesting attributes and relationships in the data. Include 3-5 rows of sample data from each file. Very important: explain what insights you hope to gain from analyzing the data.

Question2: Create tables from Excel files. Relate the tables via primary key and foreign key wherever required.

Question3: Write atleast 2 queries to explore each table by using WHERE and ORDERBY

Question:2

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SQL> alter table sales add primary key (sales_id);
Table altered.

SQL> alter table store add foreign key (store_id) references
sales (sales_id);
Table altered.
```

Question 3:

SQL> Select Store_size from Store where type = 'A' order by Store_Size asc;

SQL> Select Store_id from Store where type = 'B' order by Store_Size ;

SQL> Select dept, Sales_date from Sales where dept = 21 and isholiday = 'TRUE' order by weekly_Sales;

SQL> Select Storeid, dept, weekly_Sales from Sales where Sales_Id between 20 & 30 order by weekly_Sales desc;

SQL> Select Store, unemployement, temperature from feature where Store = 2 and unemployement < 7 order by temperature;