

Exploring the Impact of Weather on Short-time Demand Forecast for Fashion Retailers

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1. List 3 questions that you intend to answer (1 point)

- Are the sales influenced by changes in the weather?
- If there is a relationship, what is the time frame for reliable weather-based sales prediction?
- What are the features/predictors that influence the sales to the maximum extent?

2. List all the datasets you intend to use (1 point)

- 3-4 years of anonymized sales transaction time-series data of a Canadian fashion retailer by FIND.
- Historical weather data accessed using API - [OpenWeatherMap API - Free Weather Data \(for Developers\)](#)

3. Give us a rough idea on how you plan to use the datasets to answer these questions. (2 points)

- Data Collection:
 - Weather data is accessed using API provided by Open Weather Map for fixed periods based on the time series data of sales transactions.
 - Anonymized sales transaction data provided by FIND.
- Data Cleaning:
 - Weather API would give a JSON/XML format data, which needs to be converted into a structured format based on the sales data.
 - The sales data provided by FIND is expected to be semi-structured that may require cleaning and standardization.
- Data Integration:
 - Integration of two forms of data - Weather data obtained in the XML/JSON format and the sales transaction data are to be integrated into a common format and stored in a structured database to find correlations.
- Data Exploration:
 - Analysis of how sales are influenced over time, location, weather, and other factors.

- Feature Engineering based on the results of Exploratory Data Analysis.
- Data Analysis:
 - Finding the correlation between weather and trends in item sales in each city.
 - Aggregating sales over a time period, and predicting sales over a specific period (short-term) based on the selected features.
- Data Product:
 - An interactive Tableau/Plotly Dashboard which will allow users to see trends based on cities, forecasts for sales based on future weather.
 - The user can also see trends and how the weather affected the sales of a particular item.
 - Retailers will be able to adjust orders based on predicted sales using the model's short-term sale predictions.

4. Think about that once your project is complete, what impacts it can make. Pick up the greatest one and write it down. (1 point)

With the knowledge on the impact of weather on fashion retail, the retailers can better manage their inventory and bottom-line according to demand and sales based on predicted sales in the upcoming days.