Assignment 2 - Understanding promotions

Digital Marketing Analytics

Spring 2021

Due date: March 27th 12.00pm

Attributing promotion to sales

Goals

To analyze the attached dataset

Work with Salesforce to understand the influence of various variables on sales

- To be able to analyze marketing data using Salesforce Einstein analytics studio
- Derive insights from the datasets
- Crisply communicate and document your findings

Review the textbook for information about the adstock model

Case

Marketa analytics is impressed with your second assignment and now want work with you to optimize their promotions campaign. They have weekly historical data and have built a model that shows sales a function of temperature, tv ad spending, radio spending and adstock effects.

See below for fields in the attached test.csv file

base_sales	Sales without ad spending
tv_Sales_1	Sales with TV spending + adstock model 1
temp	Temperature (normalized)
tv_spend	Spending on TV ads
week	Week number
adstock_TV_1	Adstock contribution for model 1
tv_Sales_2	Sales with TV spending + adstock model 2
tv_Radio_Sales_1	Sales with TV spending + Radio spending + adstock model 1
tv_Radio_Sales_2	Sales with TV spending + Radio spending + adstock model 2
radioSpend	Spending on Radio ads
tv_Sales_2_Adstock	Adstock contribution for model 2
tv_Radio_Sales_1_Adstock	Adstock contribution for model 3
tv_Radio_Sales_2_Adstock	Adstock contribution for model 4

Now they want you to bring this data into Salesforce and analyze the data well. They also want you to analyze data using dashboards and answer the following questions.

1. How is sales related to week numbers?

2. How does TV spending affect sales? Can you quantify it?

3. Are there any adstock effects for TV ad spending?

4. How does Radio spending affect sales? Can you quantify it?

5. Are there any adstock effects for radio ad spending?

Deliverables

- Analytics Dashboard using Salesforce Einstein Analytics

- A Google Codelabs document summarizing the insights
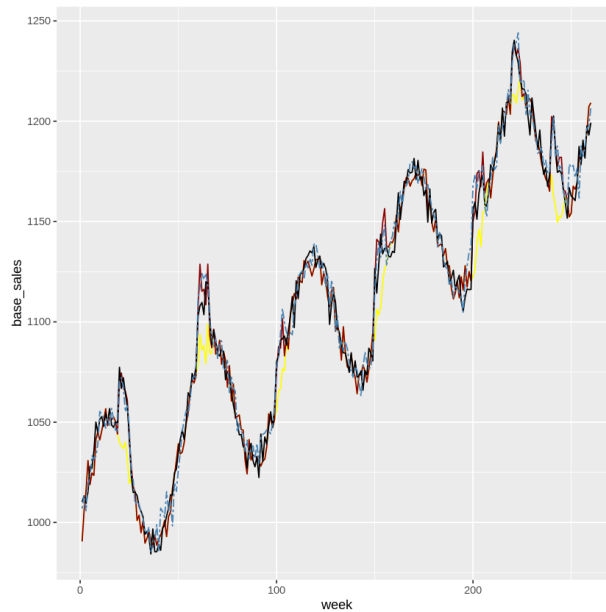
Part 2:

In this part, we will incorporate Attribution modeling and Budget Optimization.

Marketa Analytics came across this blog and is intrigued on using the LTA and Logistic regression approach to determine the weights that can be attributed to campaigns.

https://blog.griddynamics.com/cross-channel-marketing-spend-optimization-deep-learning/

They are also interested in trying out how the LTA and Logistic regression models compare with other models used in the industry

1) Time-decay attribution: gives more credit to the touchpoints that are closer in time to the conversion.

2) Linear attribution: gives equal credit to all touchpoints in the journey.

3) U-shaped attribution: gives most of the credit to the first and last touchpoints, and some credit to intermediate touchpoints.

4) First-touch attribution: gives all credit to the first touchpoint in the journey.

They intend to choose the best model amongst the 6 models based on ROI generated (See Budget optimization section in the article). They are asking your team to help implement this.

1. Start here:
   https://github.com/ikatsov/tensor-house/blob/master/promotions/channel-attribution-lstm.ipynb
2. Ignore the LSTM parts of the code and work on the LTA and Logistic regression algorithms.
3. Research on how to implement the four models in Python
4. Cite your sources and implement four functions to try out the four models.
5. Simulate ROI for each of the 4 models and show which model you would recommend.

Visualization and dashboards

Your team is expected to present your findings to the board. The board is interested in using dashboards to visualize the graphs and the options.

They are evaluating:

1. Panel (Team 1)
2. Viola (Team 2)
3. Bokeh Server (3)
4. Dash (4)
5. Streamlit (5)
6. Google data studio (6)
7. R-Shiny(7)

Use the allocated platform to plot your dashboards.