



WALMART RECRUITING - STORE SALES ANALYSIS & FORECASTING



- HAOTIAN YU
- FINAL PROJECT
- EMES 6992
- GWU



Walmart

Supercentre



The image shows the exterior of a Walmart Supercentre. The main entrance is a large set of glass doors framed in white, set into a blue facade. Above the doors, the word "Walmart" is written in large white letters, and "Supercentre" is written in smaller yellow letters below it. To the right of the text is the Walmart sunburst logo, also in yellow. The building's roofline is a simple gable shape. On either side of the blue facade, the building transitions to a tan-colored wall. Two Canadian flags are flying on tall poles, one on the left and one on the right. In the foreground, there is a paved parking lot with yellow diagonal stripes. Several people are walking towards the entrance. To the left of the entrance, there are some outdoor plants and a small sign. To the right, there is a blue and white structure, possibly a recycling bin or a small kiosk.

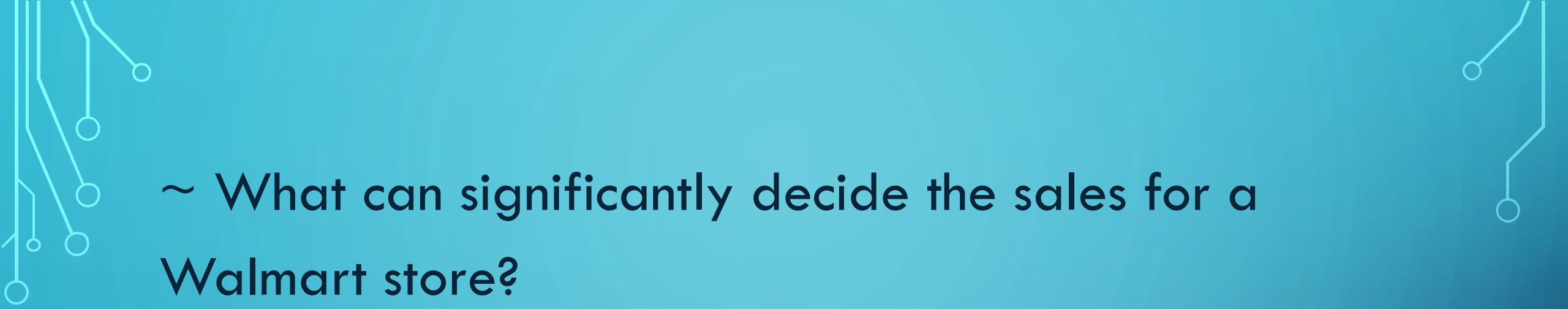
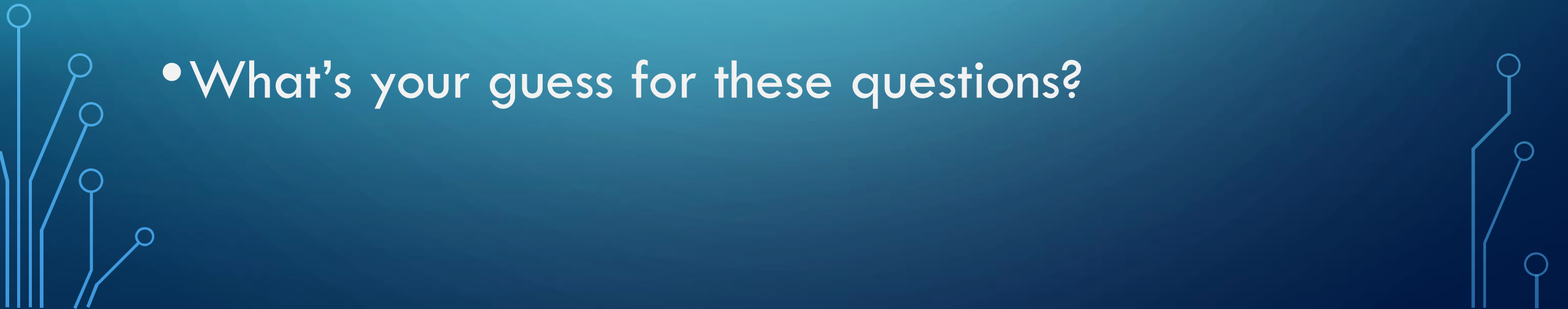
BACKGROUND

Data Analysis and Prediction is very important in the Selling industry

Walmart is a very good data resource for the analysis. It's useful for the application in business.

INTRODUCTION

- Analyze what factors can decide the sale of a Walmart store.
- prediction and forecasting of sales in 45 Walmart stores
- The data analysis is done based on the sale data for different departments in different weeks for each location in the past time

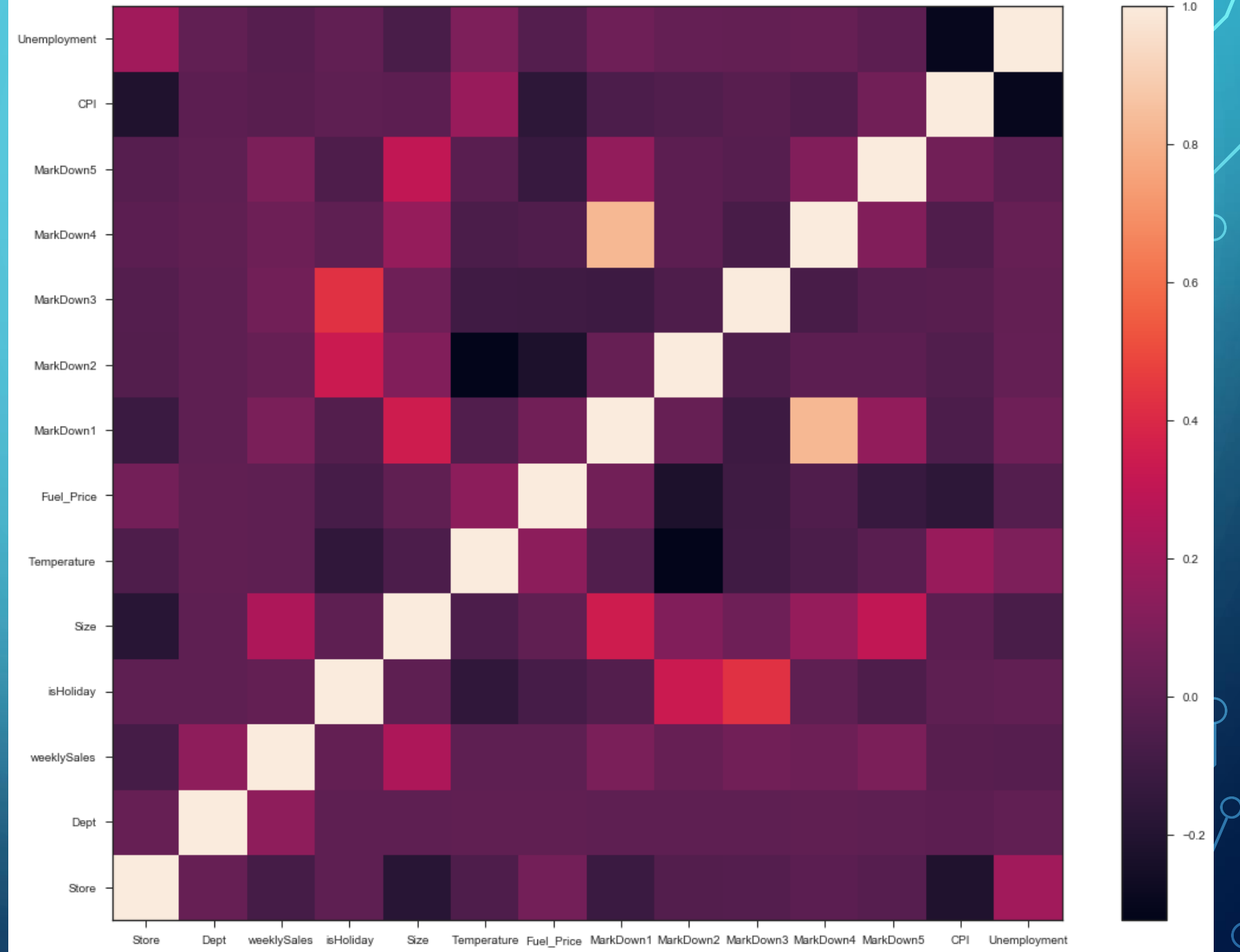
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- ~ What can significantly decide the sales for a Walmart store?
 - ~ How will be sale in holidays?
 - ~ What will the sale for each store be like in future?
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- What's your guess for these questions?
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DATA VARIABLES

- historical sales data for 45 Walmart stores in different areas.
- Store - the store number
- Date - the week
- Temperature - average temperature in the region
- Fuel_Price - cost of fuel in the region
- CPI - the consumer price index
- Unemployment - the unemployment rate
- IsHoliday - whether the week is a special holiday week

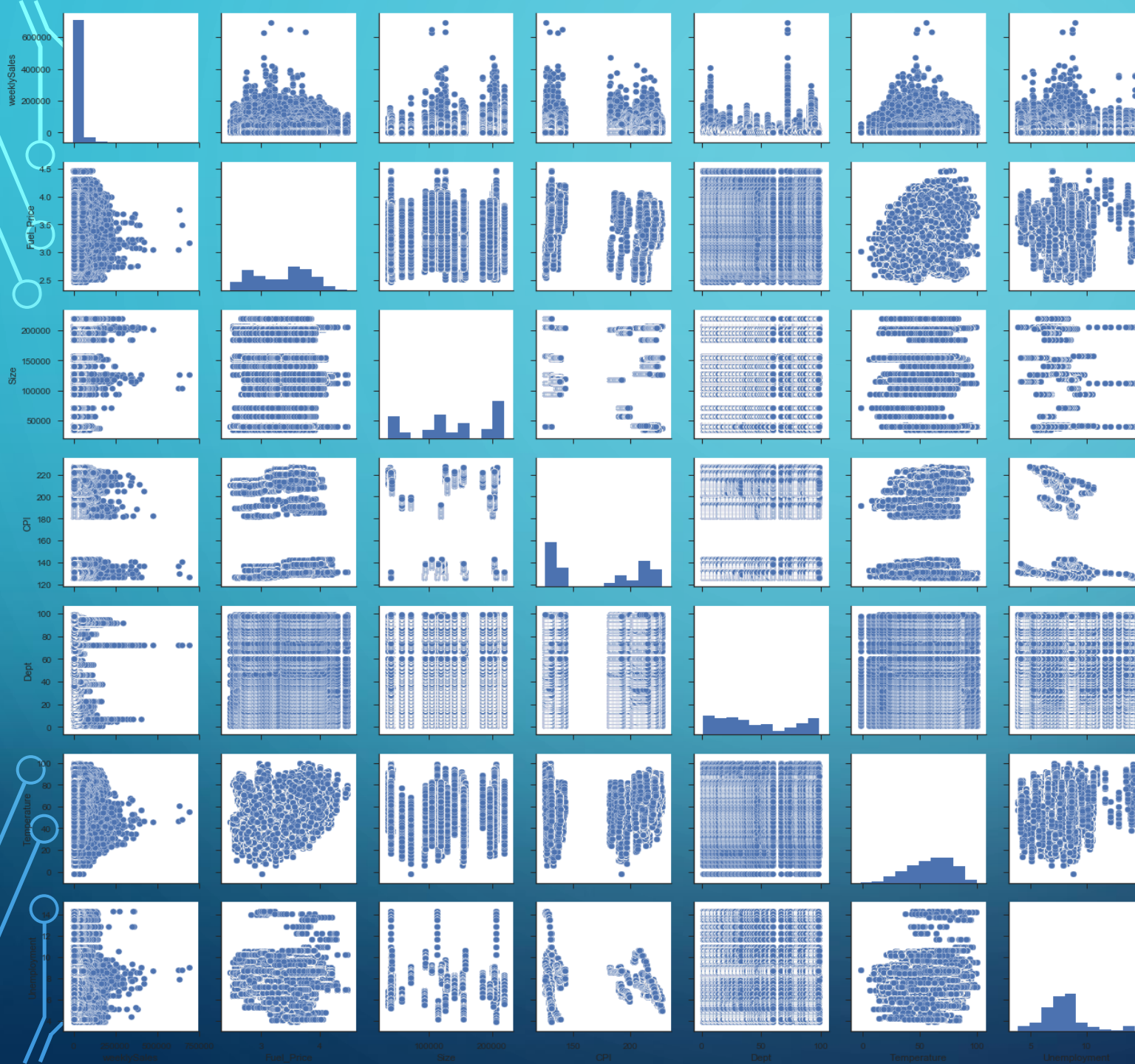
DATA STRUCTURE

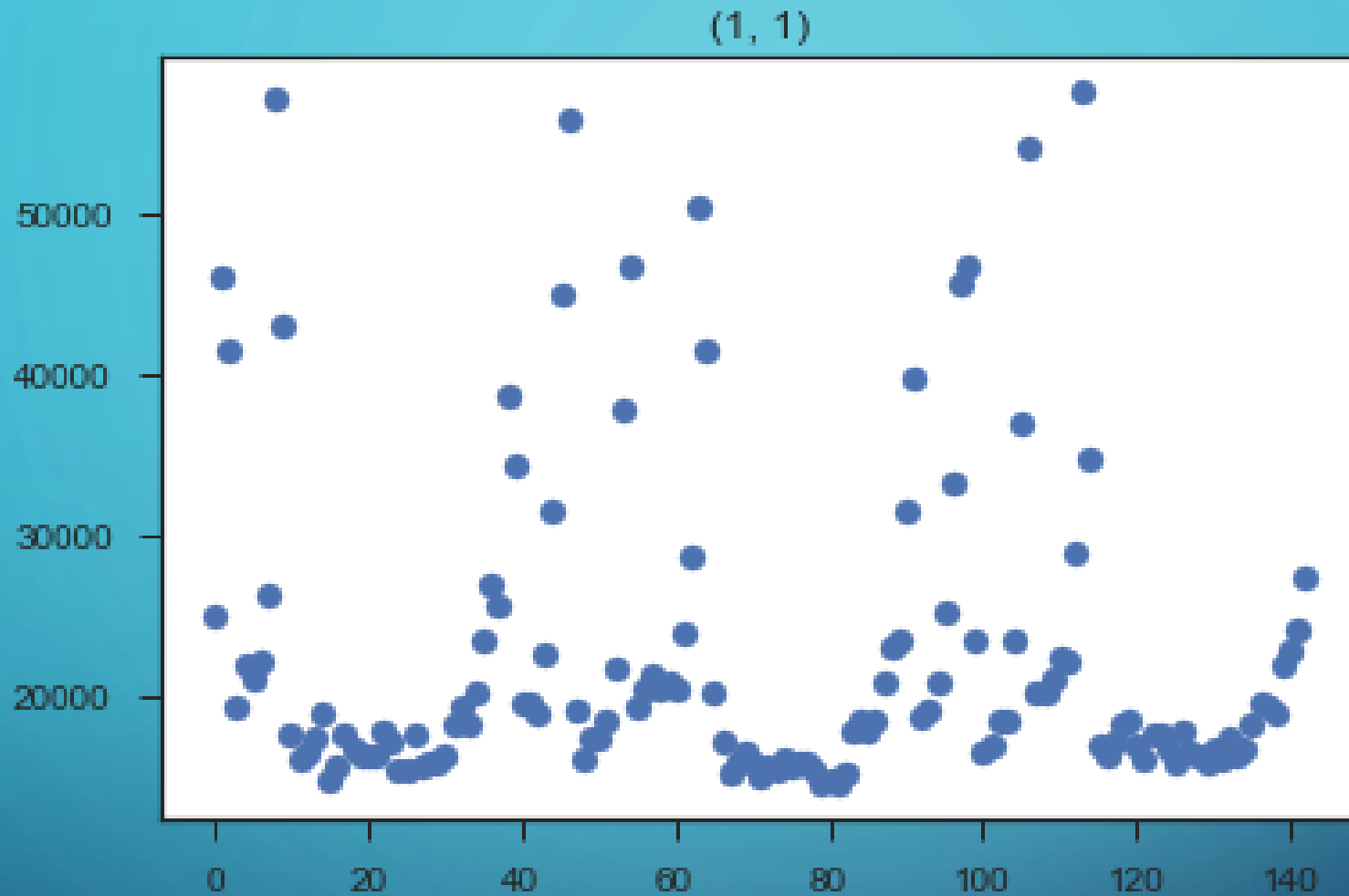
	Store	Dept	Date	Weekly Sales	isHoliday	Type	Size	Temperature	Fuel_Price	CPI	Unemployment
0	1	1	2010-02-05	24924.50	False	A	151315	42.31	2.572	211.096358	8.106
1	1	1	2010-02-12	46039.49	True	A	151315	38.51	2.548	211.242170	8.106
2	1	1	2010-02-19	41595.55	False	A	151315	39.93	2.514	211.289143	8.106
3	1	1	2010-02-26	19403.54	False	A	151315	46.63	2.561	211.319643	8.106
4	1	1	2010-03-05	21827.90	False	A	151315	46.50	2.625	211.350143	8.106

[illegible]

PAIR SCATTER PLOTS

- Weekly sale
- Fuel Price
- Size
- CPI
- Department
- Temperature
- Unemployment

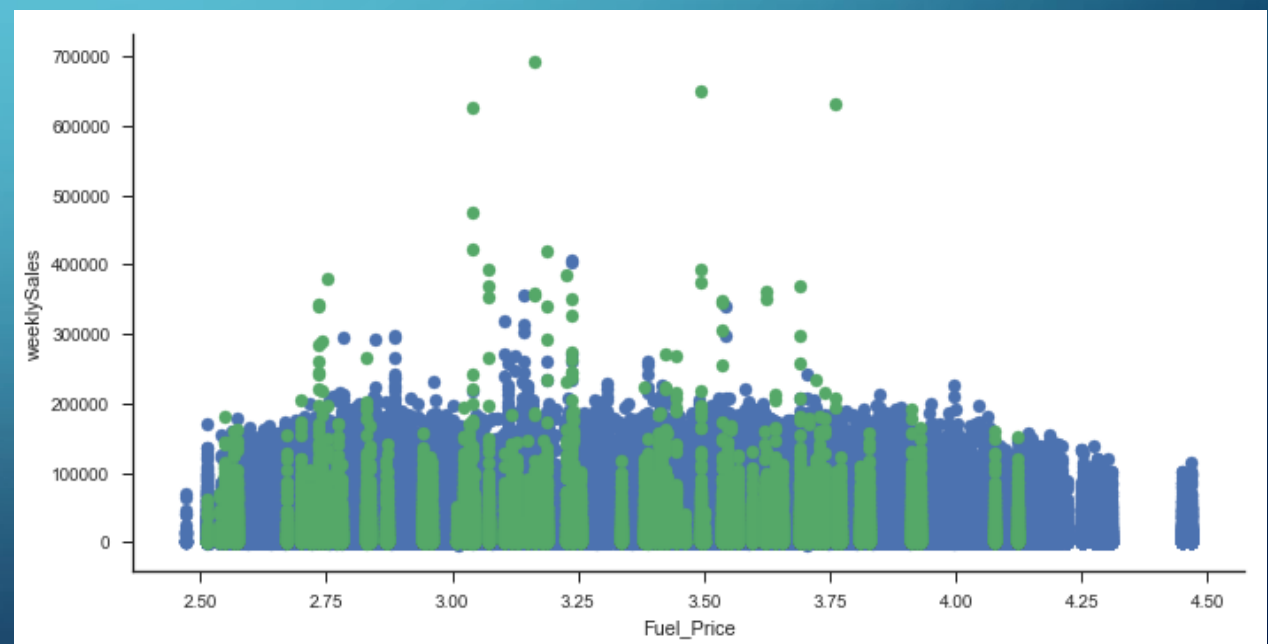
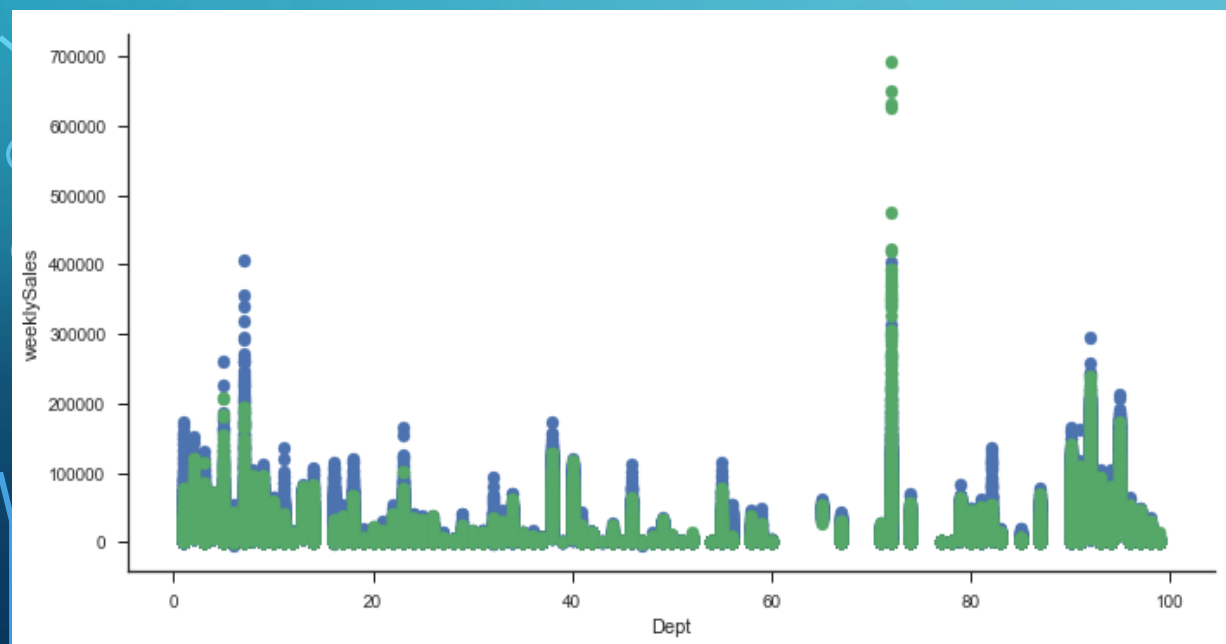
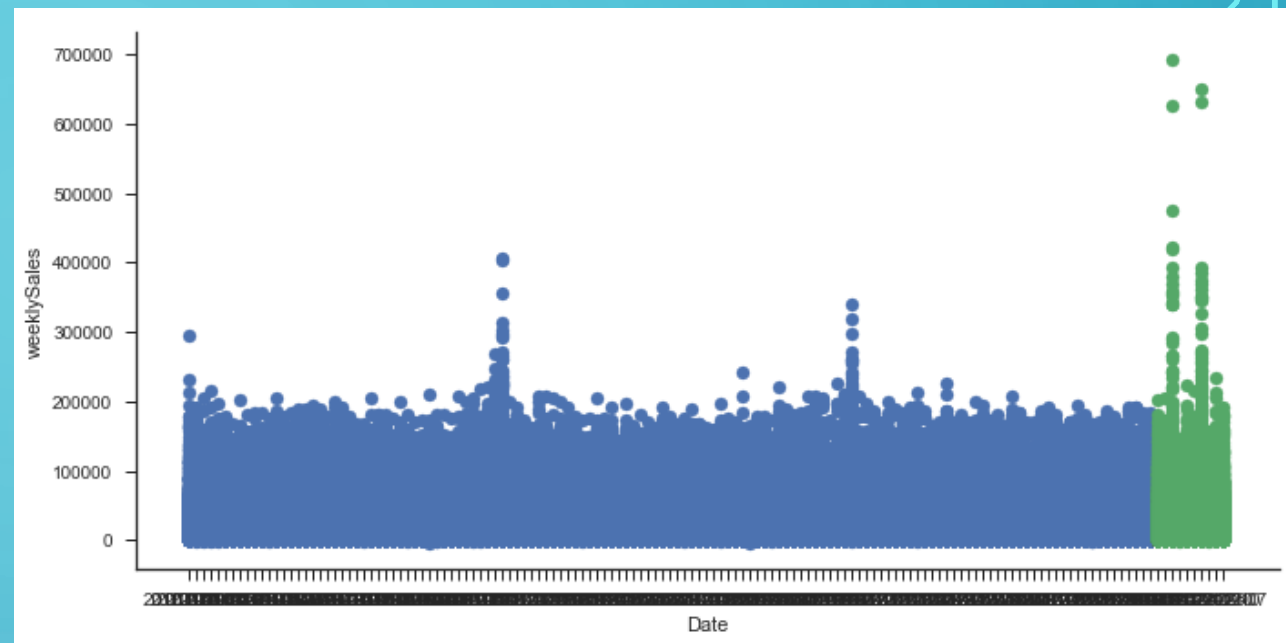
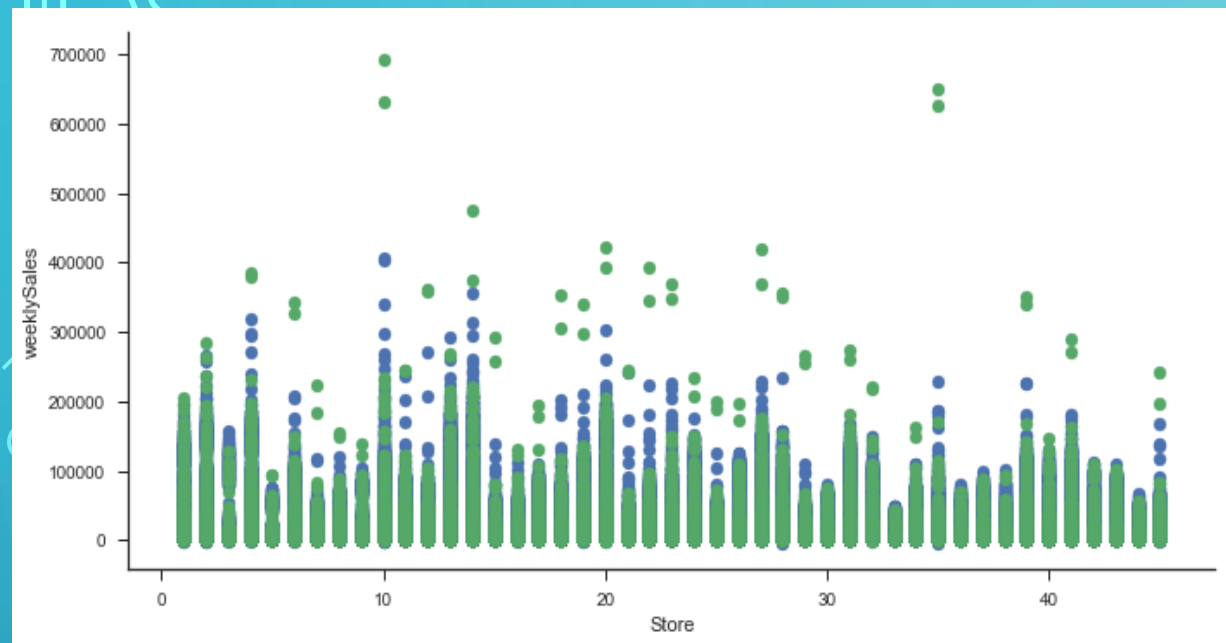


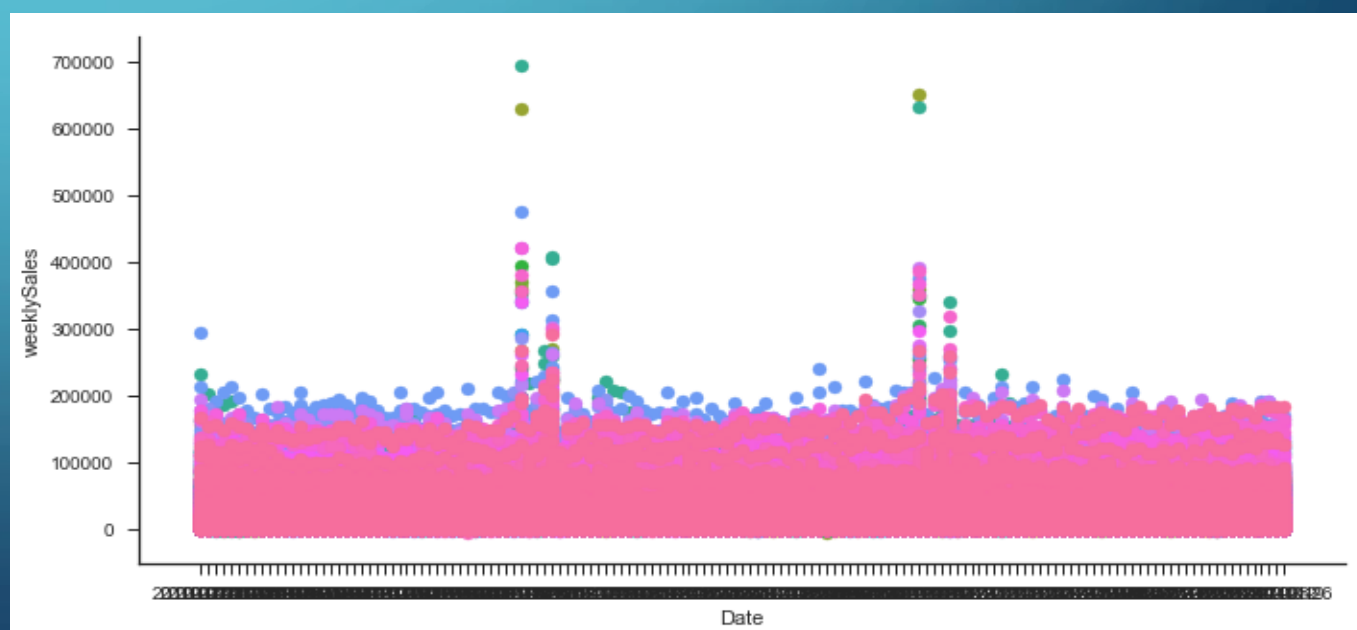
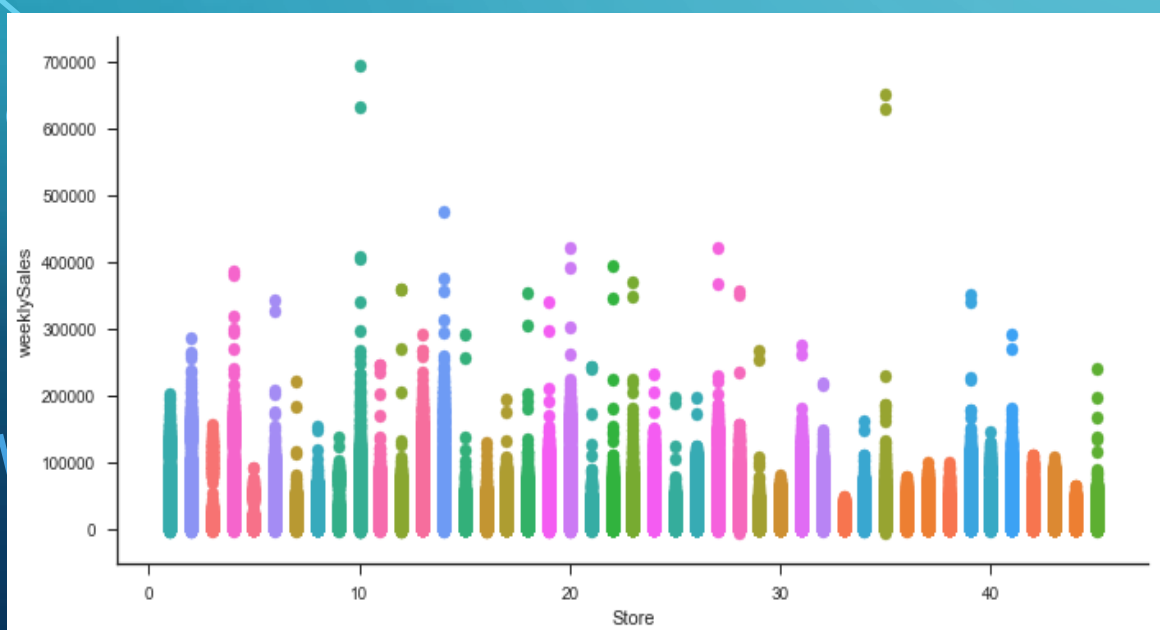
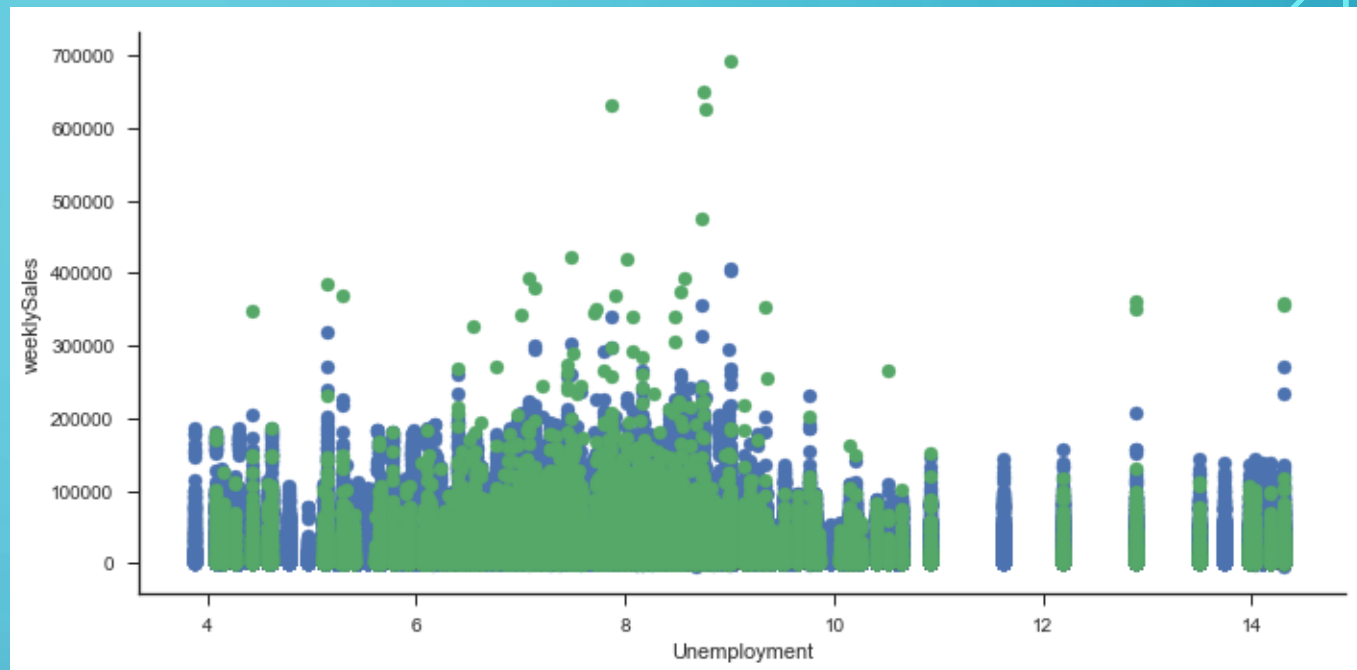
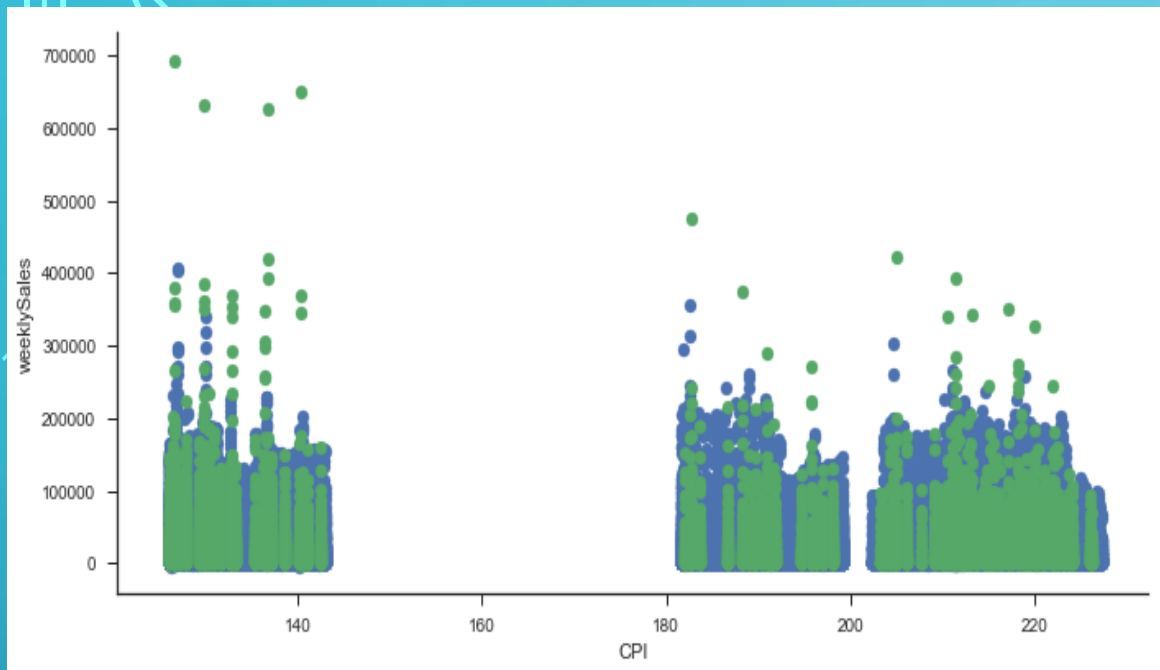


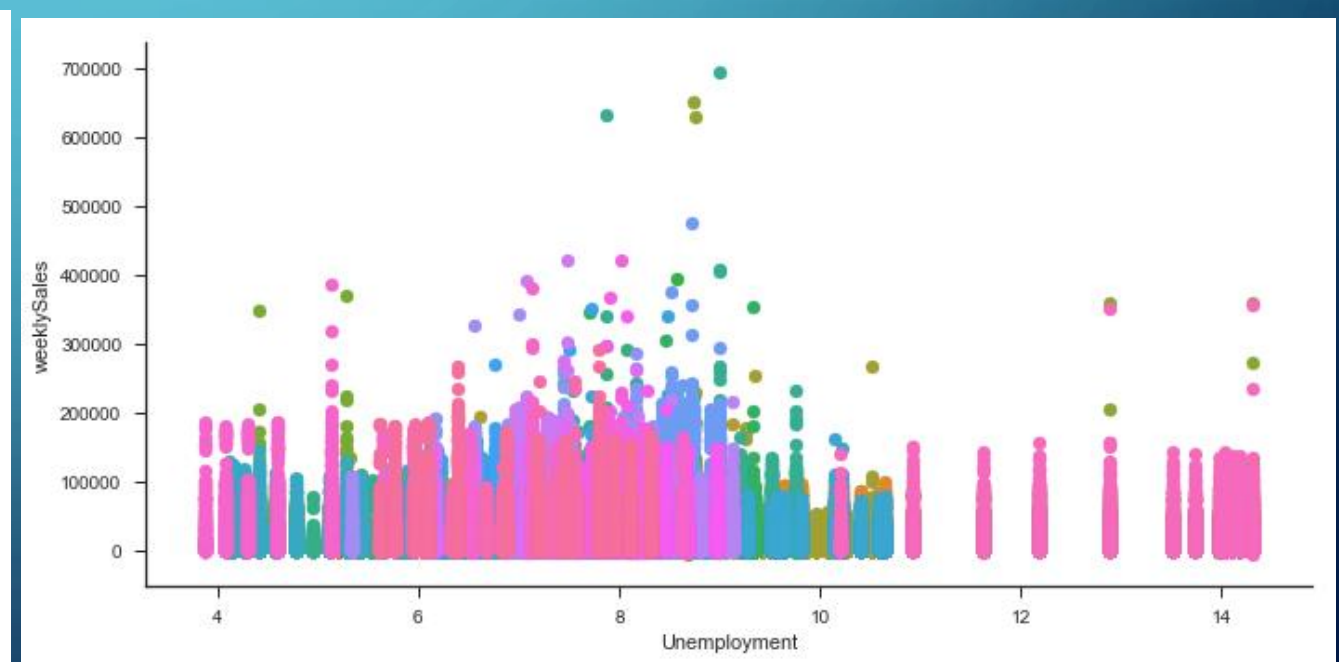
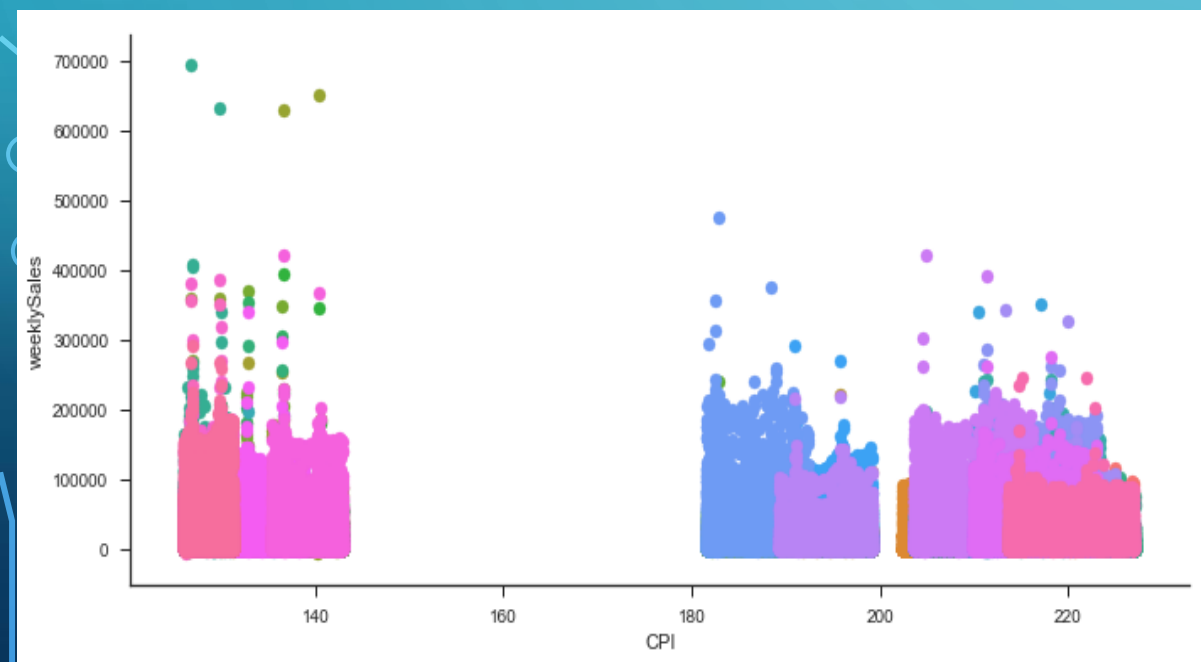
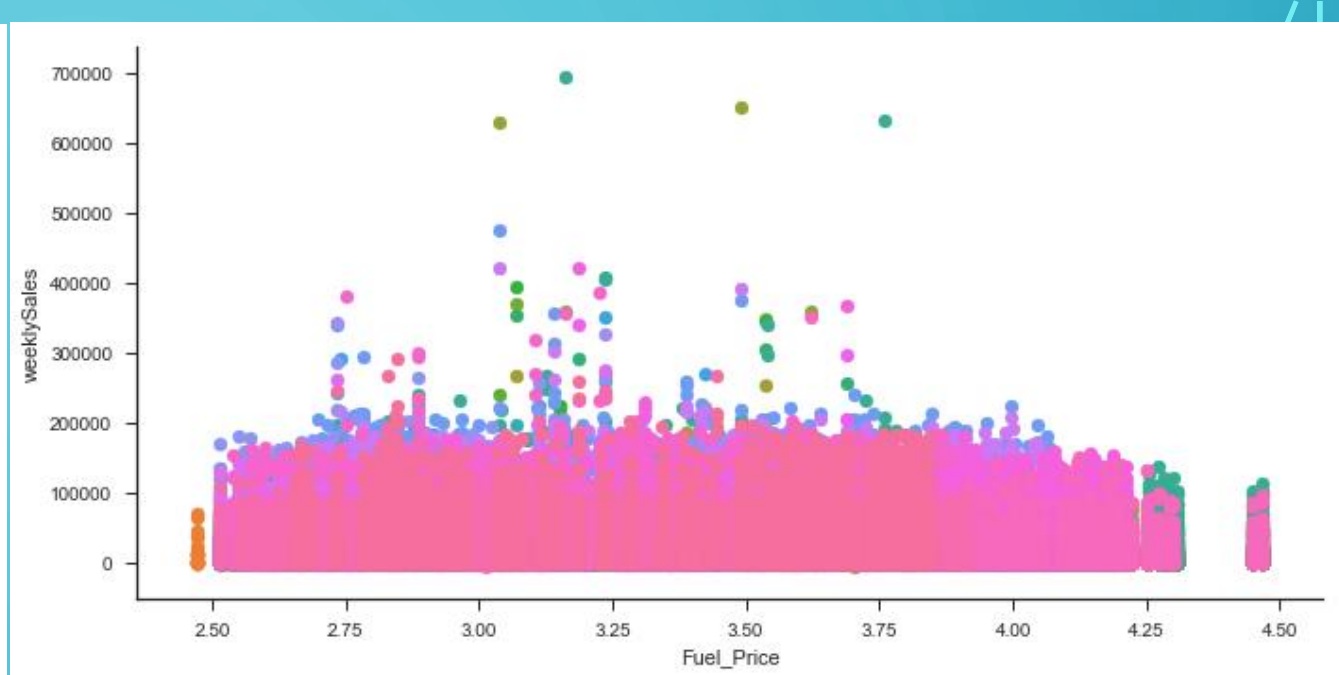
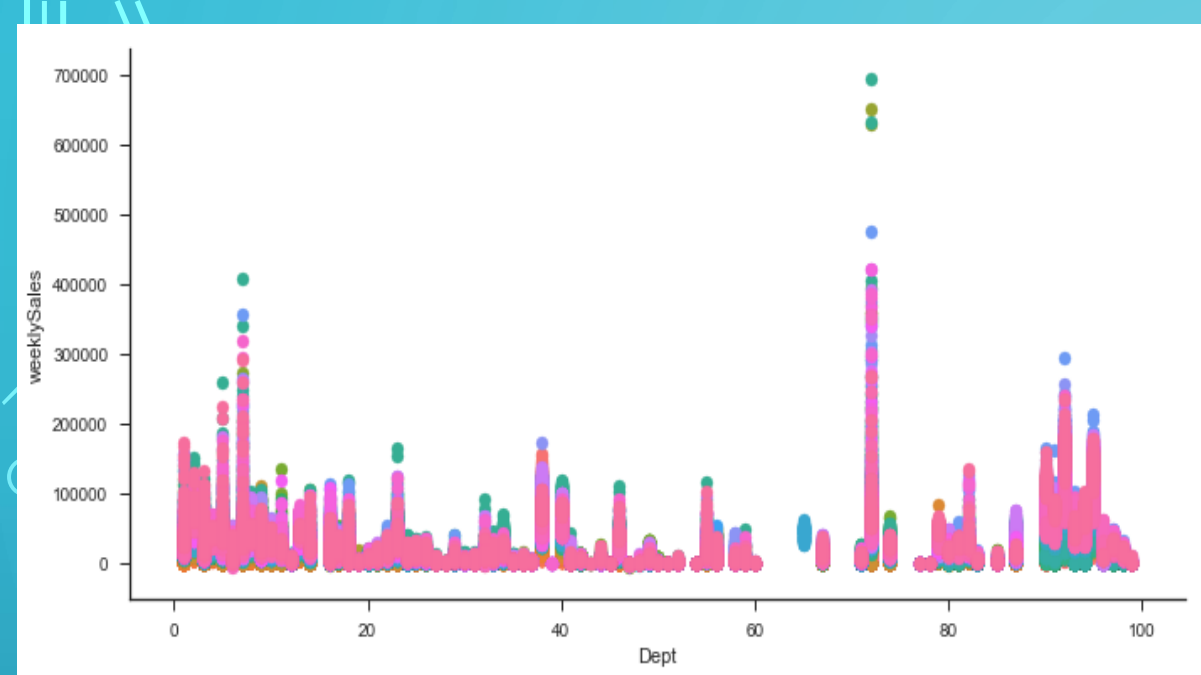
WEEKLY SALE IN DEPARTMENTS OF STORES
GROUP BY STORE AND DEPT

DATA ANALYSIS

- Relationship between Weekly sale and 'Store', 'Date', 'Dept', 'Fuel_Price', 'CPI', 'Unemployment' in two different isHoliday Group(True or False).
- Relationship between Weekly sale and 'Store', 'Date', 'Dept', 'Fuel_Price', 'CPI', 'Unemployment' in different Size Group.

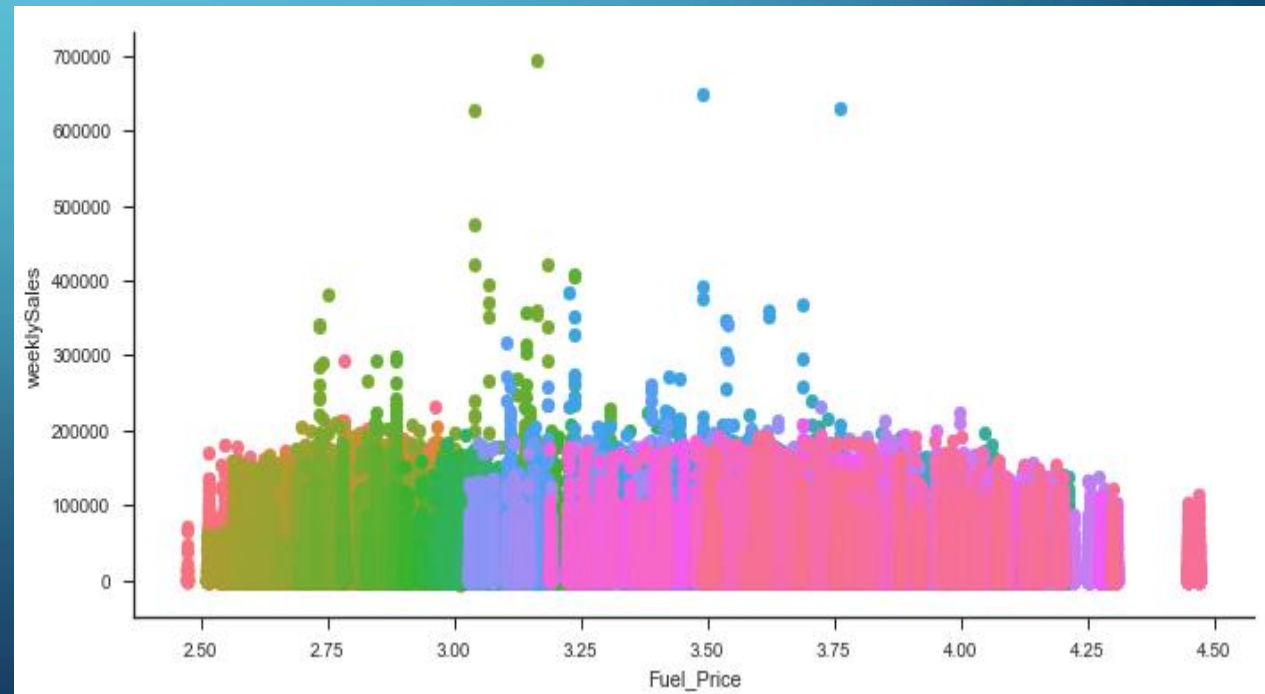
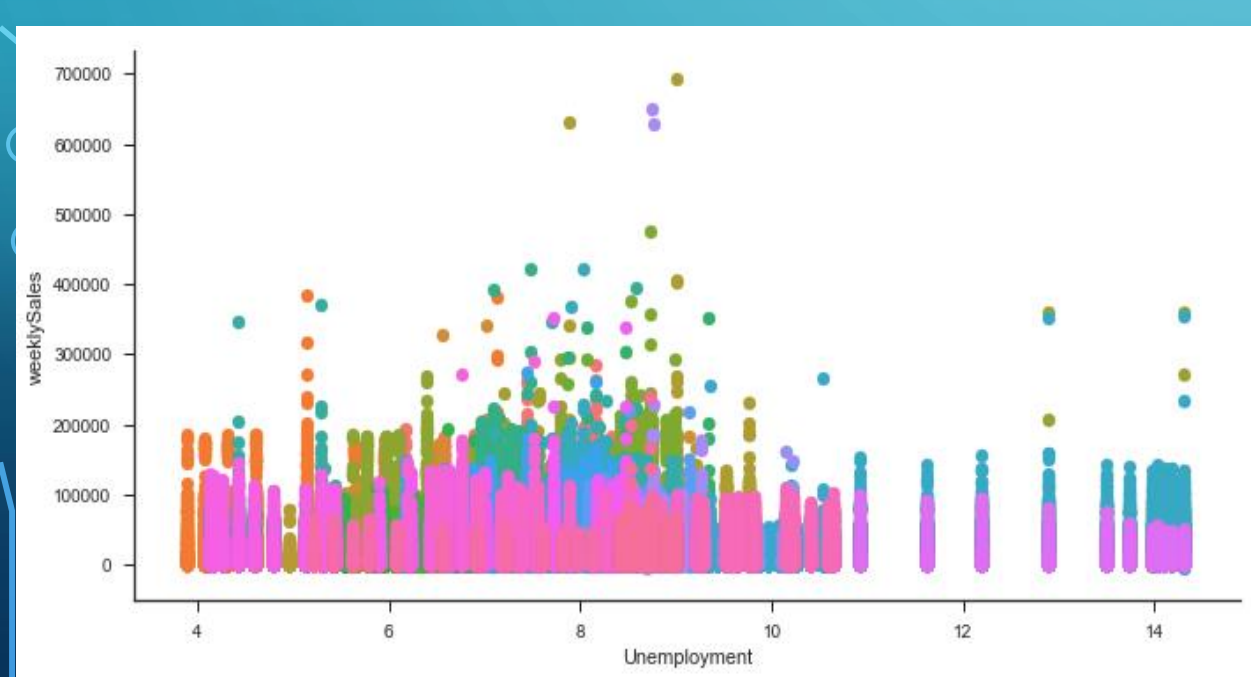
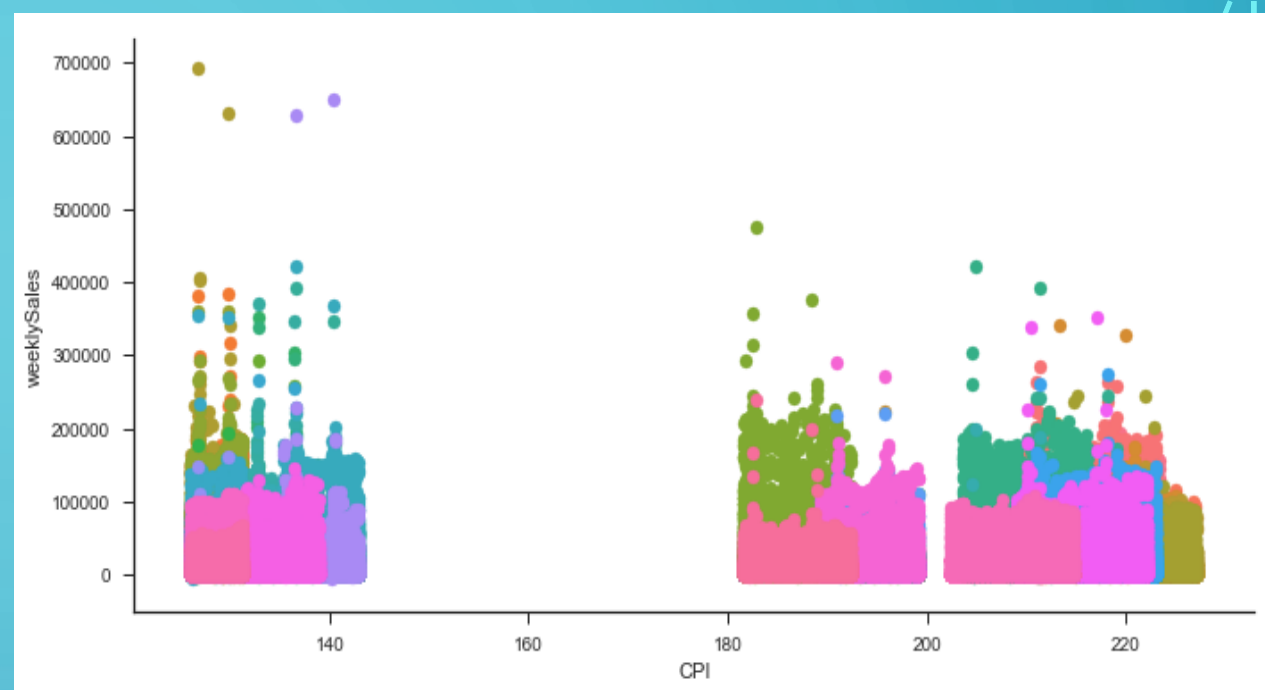
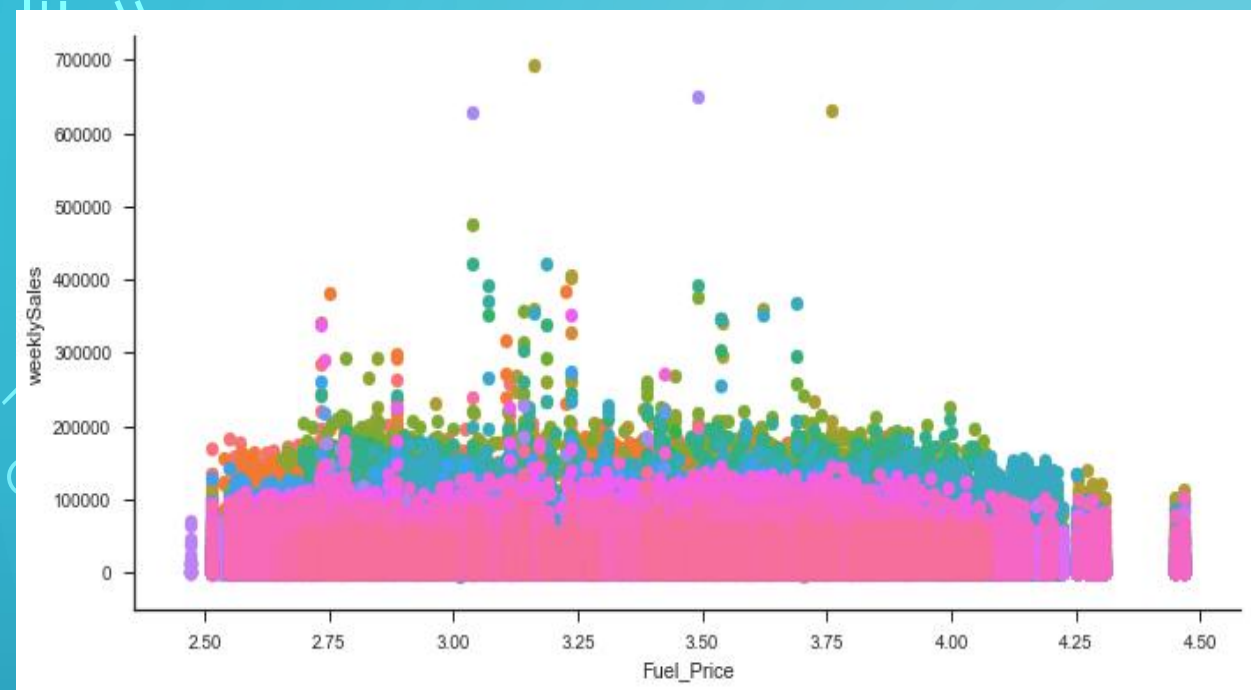


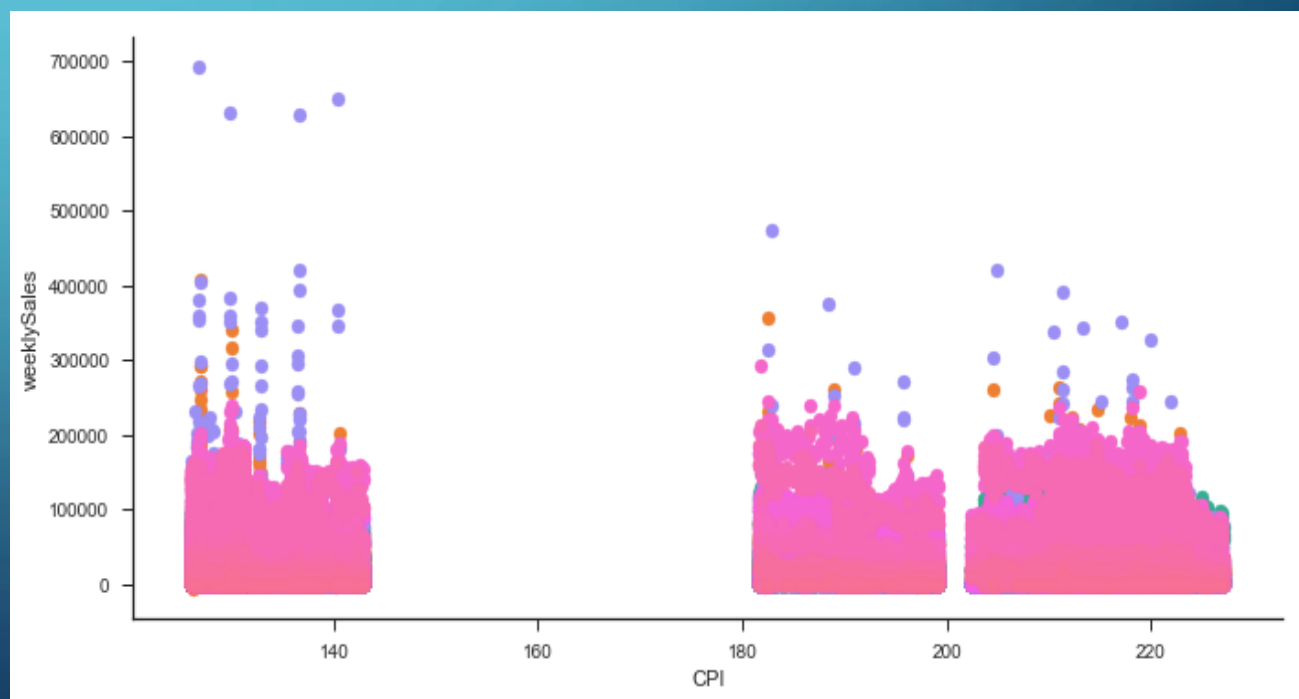
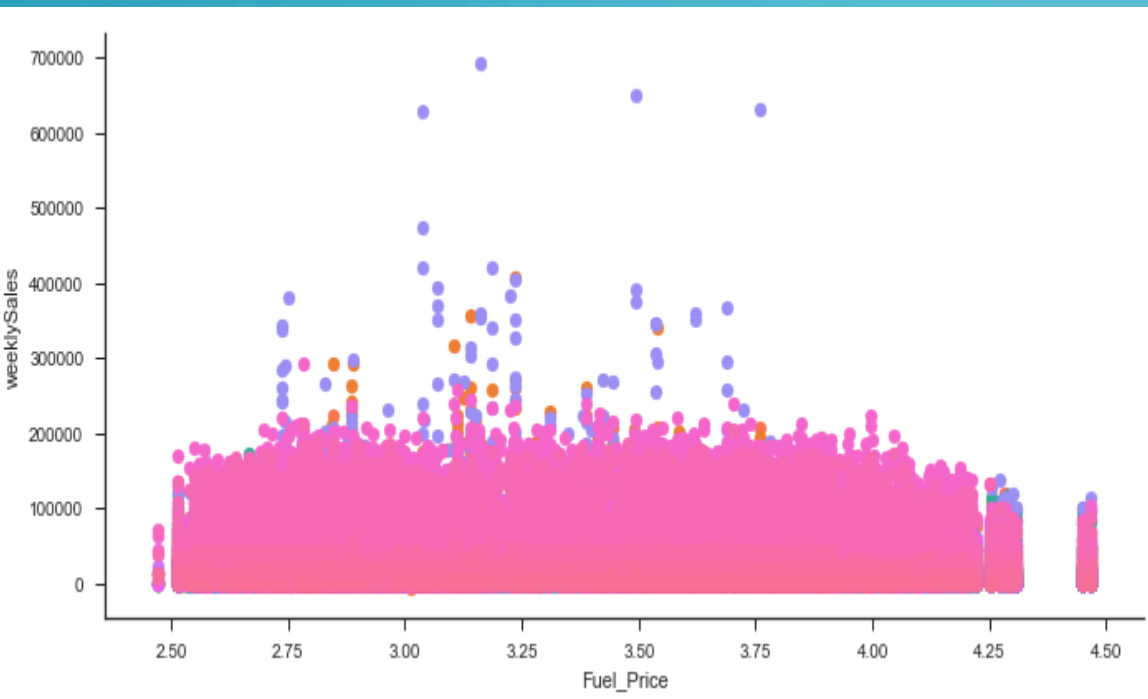
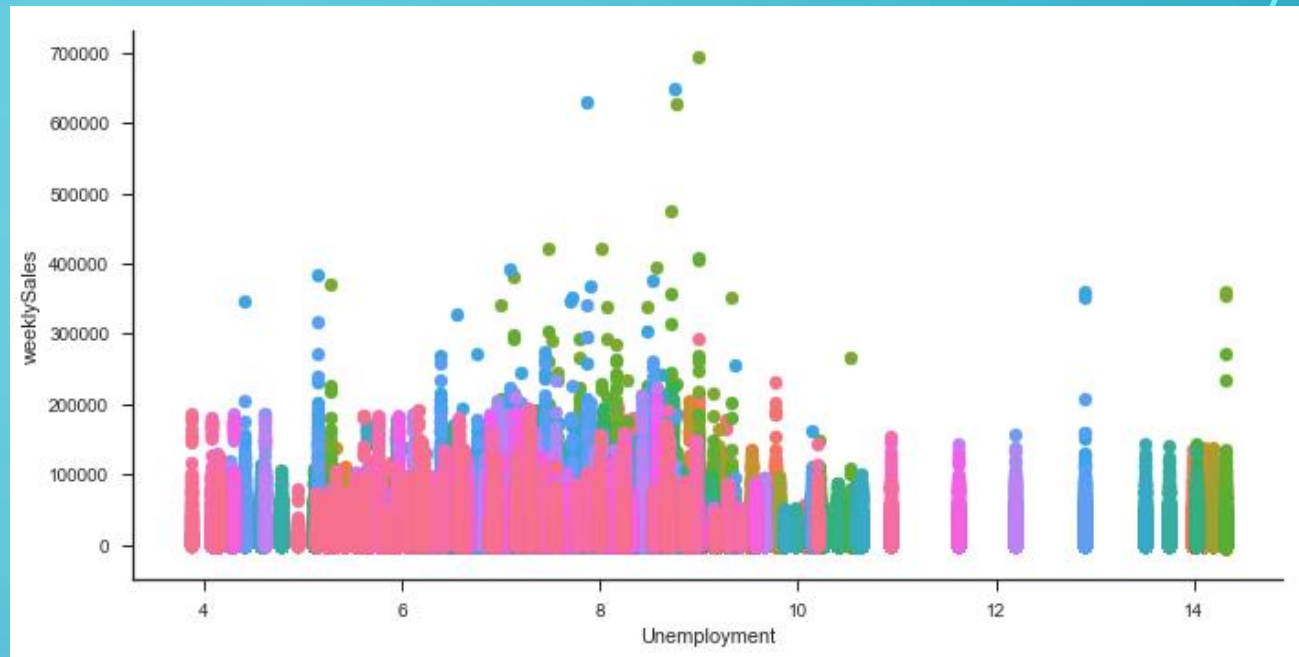
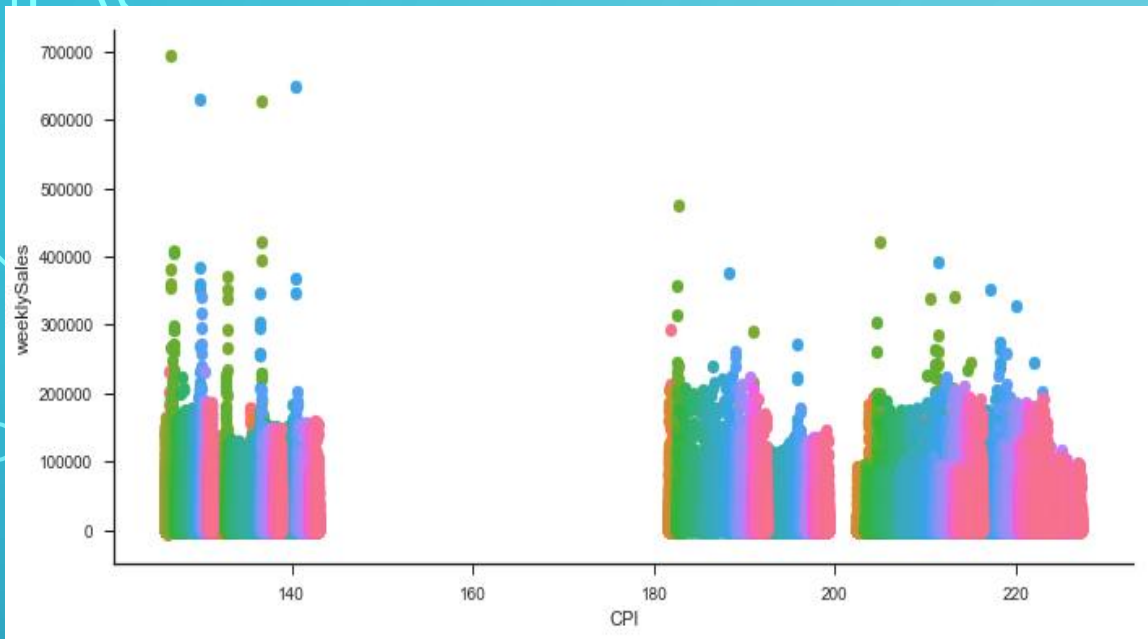


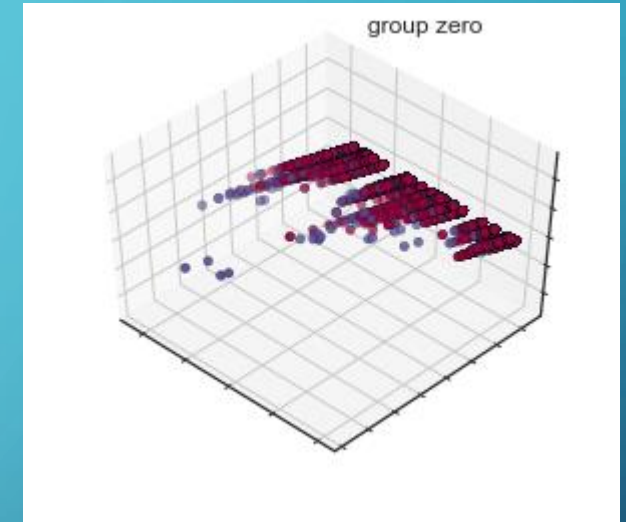
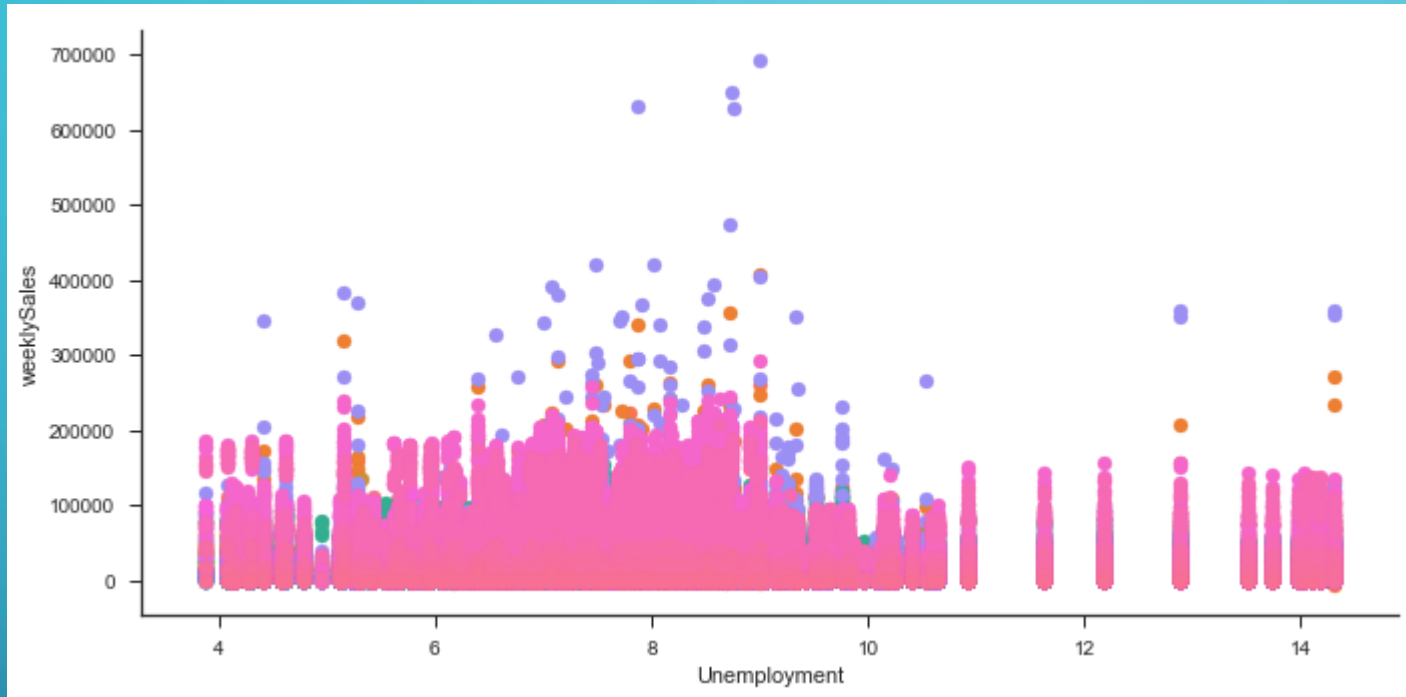


DATA ANALYSIS

- Relationship between Weekly sale and 'Fuel_Price', 'CPI', 'Unemployment' in different **Stores**.
- Relationship between Weekly sale and 'Fuel_Price', 'CPI', 'Unemployment' in different **Date**.
- Relationship between Weekly sale and 'Fuel_Price', 'CPI', 'Unemployment' in different **Departments**.







What We get from these graphs?

CONCLUSION

- 1. The situation of sale for different store are different. The sale of several specific holidays is much better than non-holidays. Some holidays even have less sale than regular non-holidays.
- 2. The end of the year has lots of holiday, and the sale of stores increase.
- 3. Different department have different sales. Most departments sell better in holiday than regular days.
- 4. For different stores (sizes is also different), the CPI is different.
- 5. Different sizes of stores have different unemployment situation.
- 6. For different Date, Fuel_Price and CPI are different.
- 7. If the Fuel price is very high in holiday, the weekly sale just decrease and be very little.

LINEAR REGRESSION

	Coefficients	Standard Errors	t values	P-values
0	6115.7007	400.665	15.264	0.0
1	-87.9700	2.764	-31.832	0.0
2	111.4940	1.098	101.565	0.0
3	0.0876	0.001	156.361	0.0
4	21.7148	1.912	11.358	0.0
5	-370.8796	75.879	-4.888	0.0
6	-22.1171	0.952	-23.242	0.0
7	-171.3561	19.494	-8.790	0.0

CONCLUSION& PREDICTION

The sale in the whole year is not with big up and down. Big increase of sale is in holiday.

I only get the prediction with continuous variables.

$$\text{Weekly sale} = 6115.7007 - 87.9700 * \text{Store} + 111.4940 * \text{Dept} + 0.0876 * \text{Size} + 21.7148 * \text{Temperature} - 370.8796 * \text{Fuel_Price} - 22.1171 * \text{CPI} - 171.3561 * \text{Unemployment}$$

Evaluation

The background is a blue gradient with faint concentric circles. White circuit-like lines with circular nodes are positioned in the corners: top-left, top-right, bottom-left, and bottom-right.

THANK YOU!!!