Personal Project: Call Center Dataset

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1 Overview

I selected the Call Center dataset from the provided choices, and I plan to analyze the performance of call centers and channels. Analyzing the data which are based on customers, it is valuable and important for the company to know its customers. For instance, the firm can focus on cities where have less customer satisfaction and increase its performance there. Knowing your customers, for example their call reasons, average call durations and their complaints can give you some strategic ideas to improve the company and customers relations. Getting the usage of the call centers channels might give you investment ideas to which channel you should improve, or stop the investment for the that channel, or hire more talented staff for that channel. A consumer-based call center may help you improve complaint, response, and analytics rates, and solutions can evaluate call center staff and evaluate their customer service KPI indicators to multiple objectives. Because the data is provided in an interactive, intuitive, and visual manner, it is straightforward to see, absorb, evaluate, and share critical data, saving time and boosting cross-departmental cooperation.

My aim is to present the analysis by state and city using call center data, to demonstrate the performance of the call centers, the activity of the consumers in October, and to show the analysis of the call center channels.

2 Analytics Questions

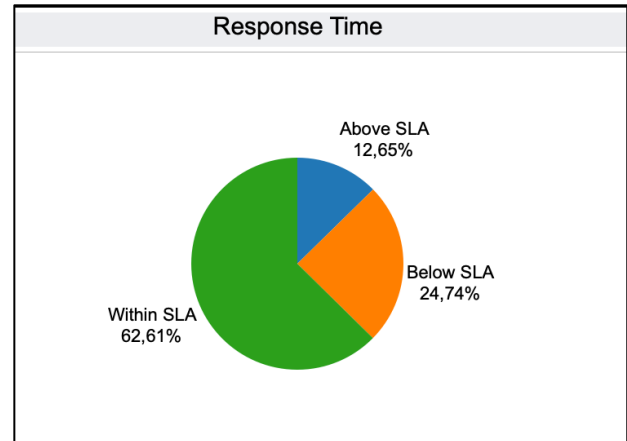- In October, which state received the most calls?
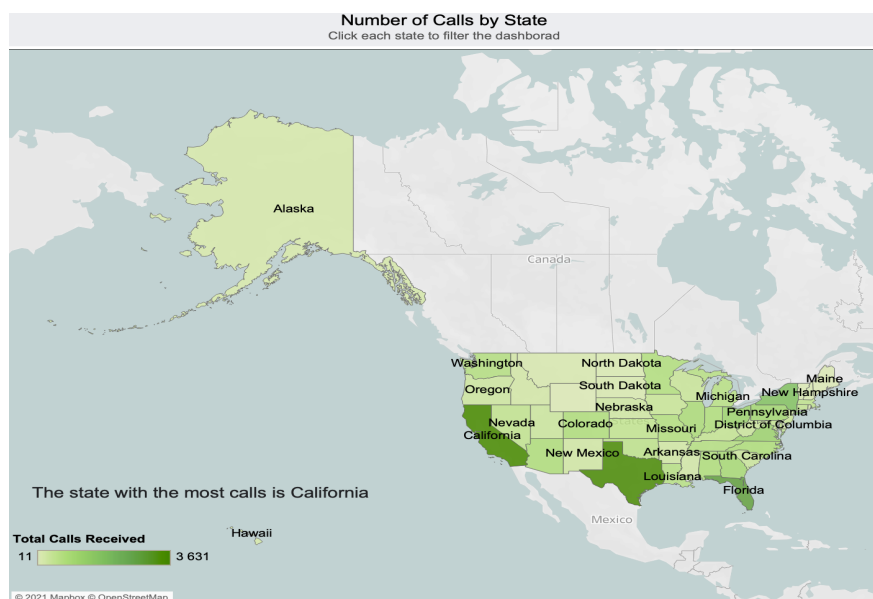
It can be seen easily from the map that California has the largest amount of the total calls. It can be useful to compare California and other states to know the reason because the state with the highest population is California.

- What is the ratio of the call reasons?

Call Reasons Ratio

Service Outage
14,4%

Payments
14,4%

Billing Question
71,2%
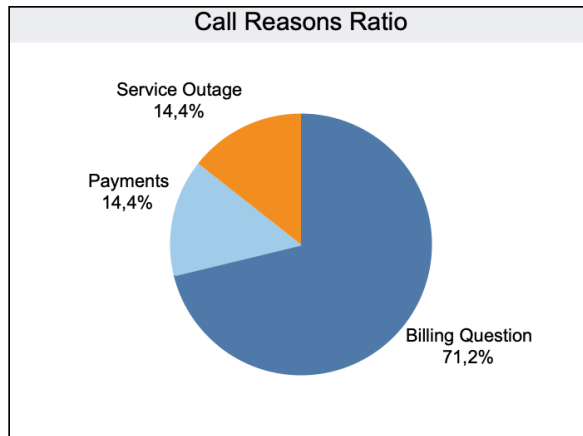
- What is the response time ratio? Which one is the most common?

Response Time

Above SLA
12,65%

Below SLA
24,74%

Within SLA
62,61%

71.2% of the total calls, that is, 23,462 customers, called the call centers due to a billing question. Service outages and payments have almost the same ratio.

It can be concluded from the bar chart that more than half of the calls are responded to Within SLA.

- What is the number of total calls, total call duration, average call duration, average customer satisfaction?
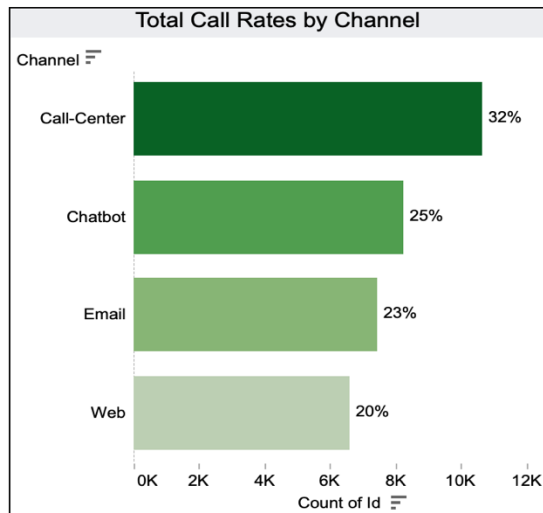
Call Center
(All)

October, 2020
(All)

CALL CENTE

Total Calls Received	Total Call Duration	Average Call Duration	Average Customer Satisfaction
32,941	824 222 min	25 min	5,55/10

Los Angeles/CA receives the most of calls
Denver/CO has the biggest avarage Customer Satisfactin score
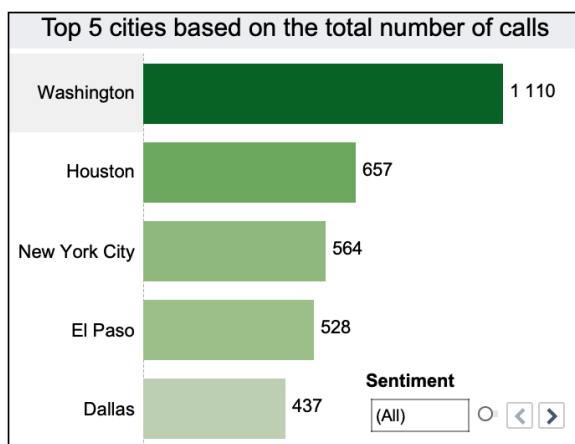
- What is the usage rate of the channels?

Total Call Rates by Channel

Channel

Call-Center	32%
Chatbot	25%
Email	23%
Web	20%

0K   2K   4K   6K   8K   10K   12K
Count of Id

The most used channel by customers, the call center for each center

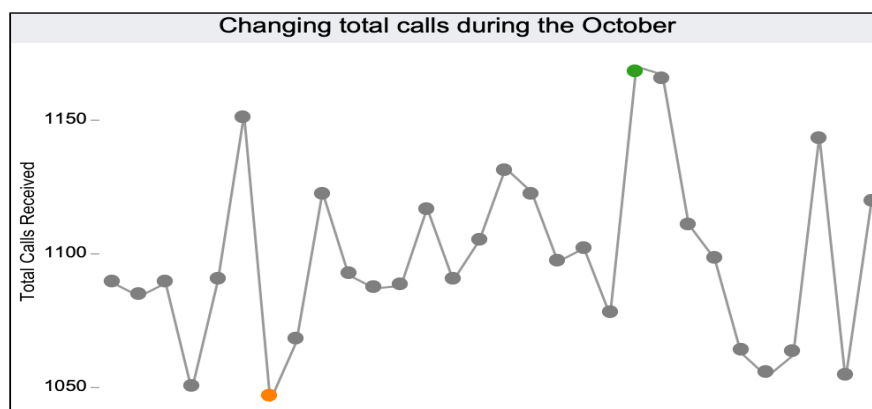- What are the relation weekdays and sentiments based on total calls?
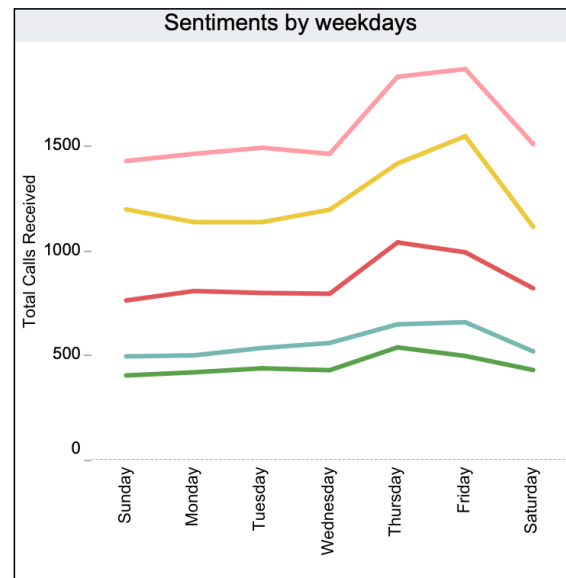
Sentiments by weekdays

Total Calls Received

Sunday   Monday   Tuesday   Wednesday   Thursday   Friday   Saturday

- What are the top 5 cities based on the total number of calls?

Top 5 cities based on the total number of calls

City	Calls
Washington	1 110
Houston	657
New York City	564
El Paso	528
Dallas	437

Sentiment
(All)

- What are the top 5 cities based on the 'Very Positive' sentiment?

Top 5 cities based on the total number of calls

City	Calls
Washington	102
Houston	62
El Paso	53
New York City	45
Dallas	37

Sentiment
Very Posit...
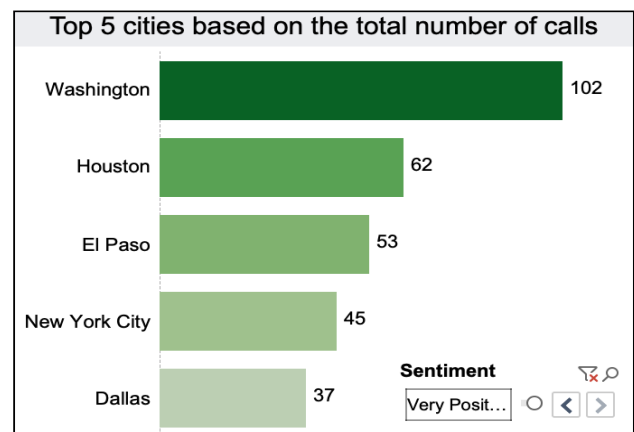
- How did the number of calls change during the last month?

Changing total calls during the October

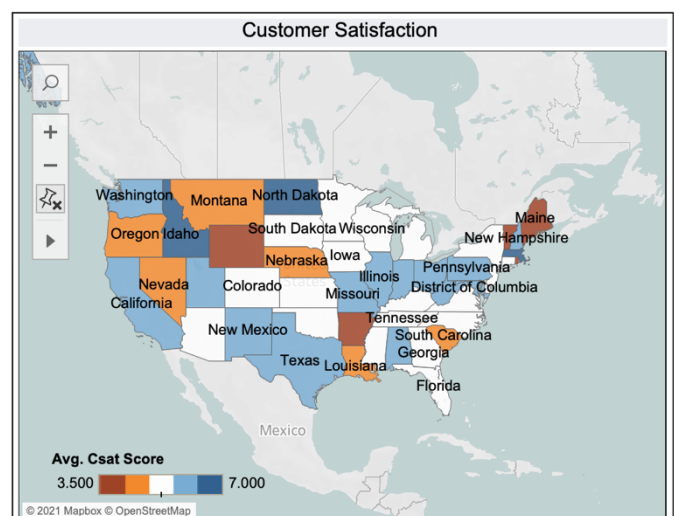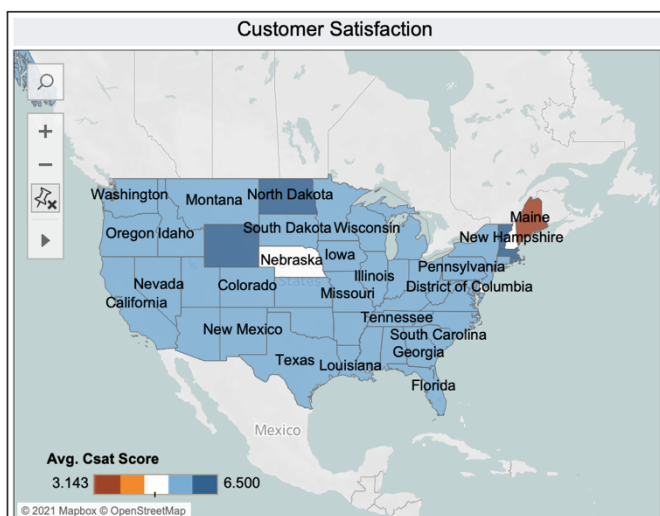Total Calls Received

1150

1100

1050

- Which day of the month got the most calls?
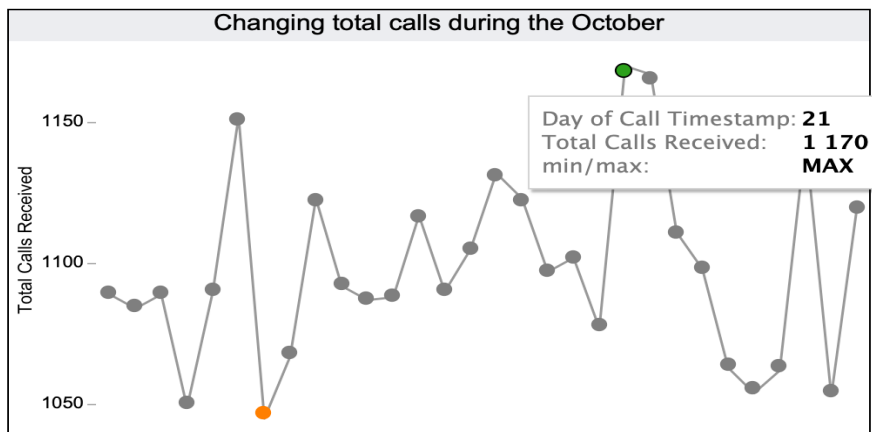
- Which day usually gets the most calls due to the billing questions reason?
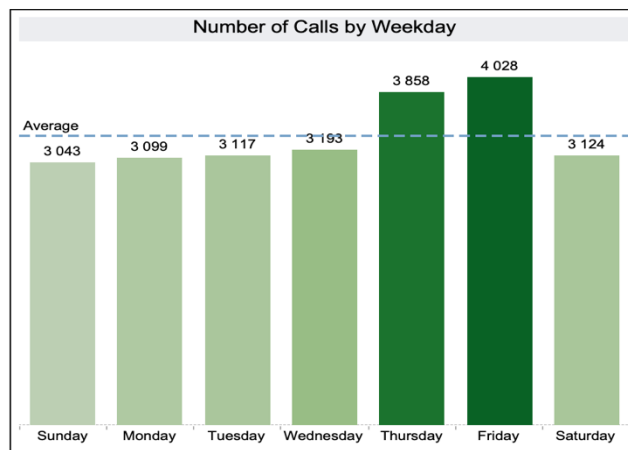
- Which state has the lowest average customer satisfaction score?

- Which state has the highest average customer satisfaction score for calls made due to service outages?

- Which state received the most calls due to the payment reason call?

- Which channel received the most calls due to the service outage reason call?
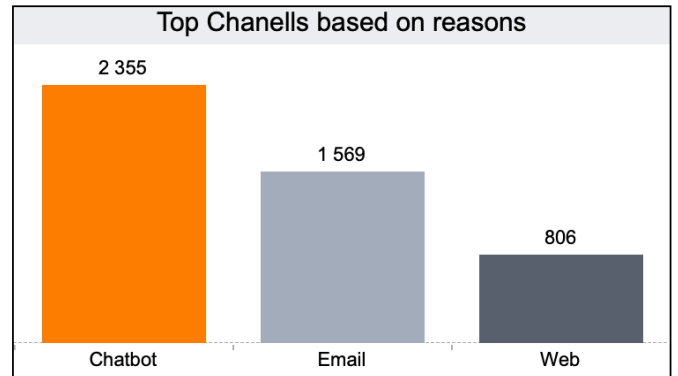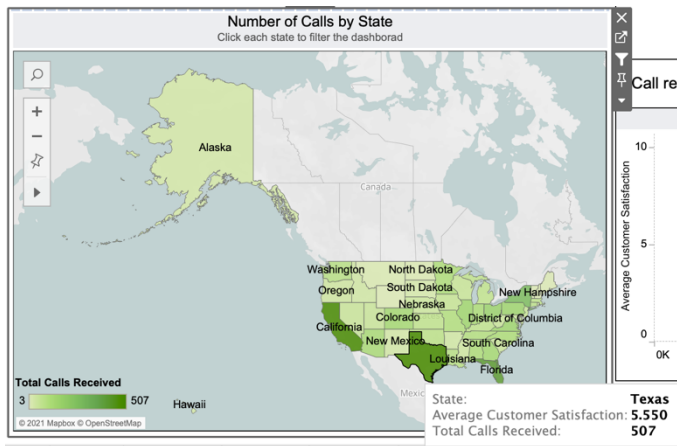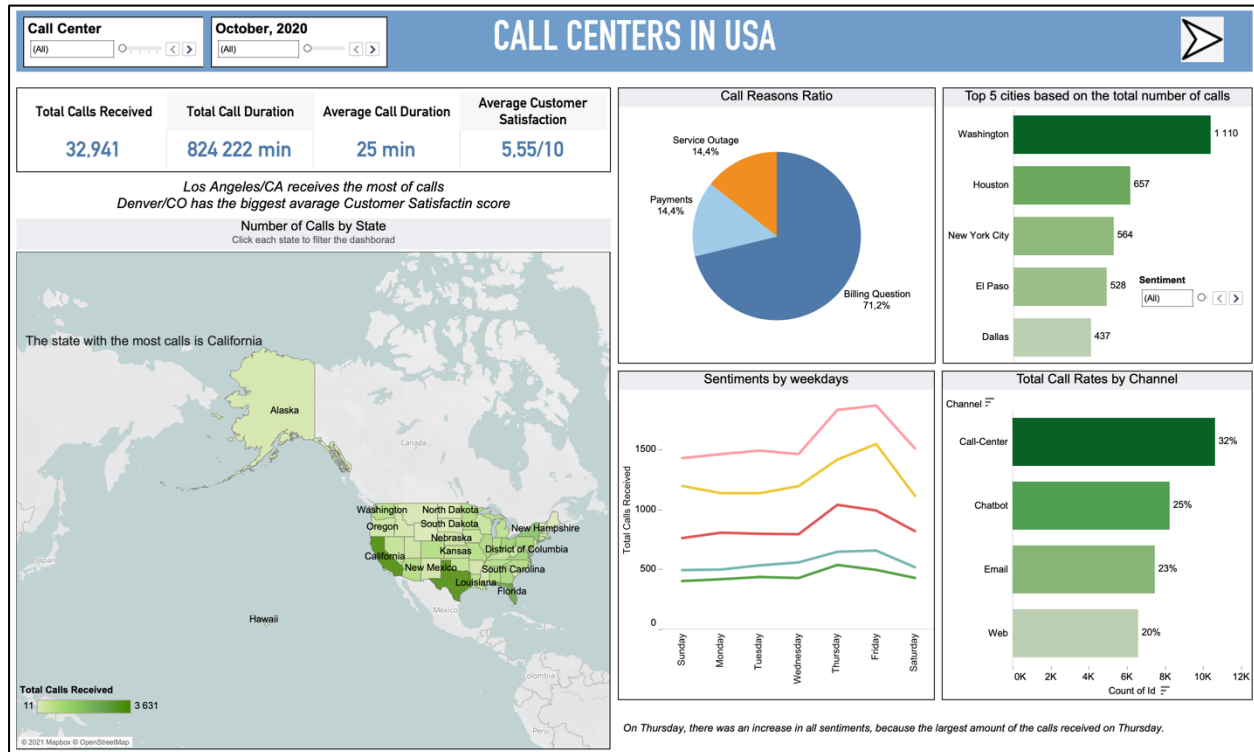

3   Dashboard Description – First dashboard

3.1   Summary

The first dashboard aims to show some general specifications of the call center and States. It contains several visuals which all can be filtered by call center and date to show the specifications. For instance, States map according to the received total number of calls to show which state is the busiest in terms of calls, and it is always useful for the users to compare those states with others. It helps you to observe the data from a wide perspective to the states. The call reasons pie chart is used to show which is the most popular reason in the certain call center or state, the channels bar chart is for showing the most used channels based on state or call center, top 5 cities bar chart is effective to show the rank or popular cities based on the total calls, and the line graph on the dashboard is used to show the relation between weekdays and sentiments based on total number of received calls. The cards which

show some numbers can be useful to get obtain some quick information about the call center, states, or anything that you can filter.

3.2   Screenshot(s)

3.3   Component description

- On the dashboard, the users see first the call center and date filters which are useful to see the specific data that users want to filter.
- Then, the users see the KPI cards, which can be seen easily because they are really needed numbers that the users should know about total number of calls, total duration, average call duration and average customer satisfaction. For instance, if the user wants to see the average call duration data for each call center, it can be seen on the cards by using the call center filter.
- After that, the users see a map distributed proportionally with shades of green based on the total number of calls. The darkest hue indicates the busiest state in terms of total calls. I chose the map to show this data because it is the proper way to show that geographical data and all states distributed. Even this map can be used as a filter and other data can be observed according to the state.
- I wanted to show the call reasons data by using the pie chart because there are only three reasons, and it is comfortable for users to see their ratio according to total calls received.

- Knowing where your customers come from and how they reach you is often helpful and gives ideas about what to do with your business. Getting to know customers means you can always offer them better services or offers. To show the most popular cities and channels which are used to reach the call centers, I chose bar chart because helps to compare the different sets of data among different groups easily.
- On the line graph, the users can see that after thursday, there was an increase in all sentiments, because the largest amount of the calls received on Thursday and Friday. It is effective to show date with line graph such as changing total number of sentiments by weekdays.

3.4   Functionality / Interactivity

- The filter in the upper left corner filters according to the call centers.
- Date filter which is next to the call center filter can be used to select certain day that the user wants to see about the data.
- One of the action filters filter the dashboard to the selected country on the map.
- Another action filter on the dashboard can be used to see all the data on this dashboard according to call reasons.
- The user can navigate to the second dashboard by clicking the arrow on the upper right corner.
- The KPI cards on the dashboard were calculated measure names group field.

4   Dashboard Description – Second dashboard

4.1   Summary

The second dashboard aims to show the analysis of the channels and reasons.
The second dashboard aims to show the analysis of channels and reasons. By choosing the channel we want or the reason for the call, we can see the total number of calls by day, and we can compare the days among themselves and see which day is the busiest. At the same time, customer satisfaction is given in this dashboard for the states and for the call center. For example, by selecting a channel, the average customer satisfaction for each state of the calls made from that channel can be obtained. According to the sentiments of the customers, graphics and filters are used to interpret their satisfaction.

4.2   Screenshot(s)
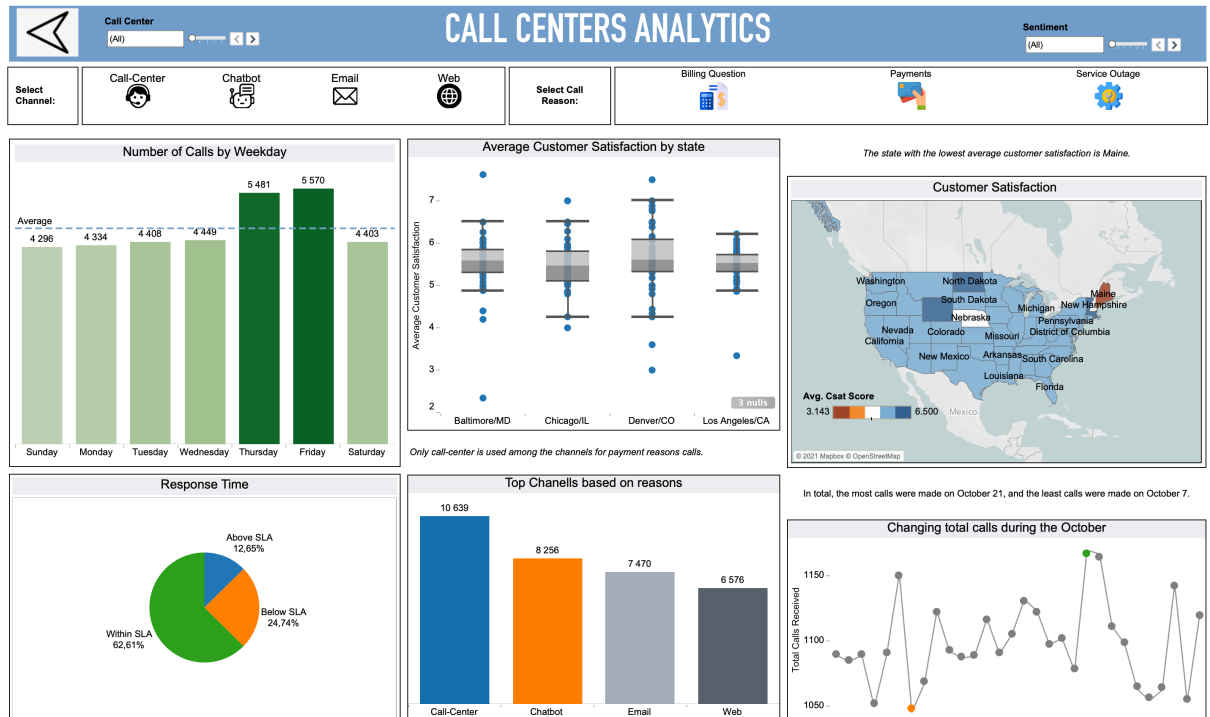
4.3   Component description

- The users see the bar chart, which shows the total number of calls by weekday.
- After that, the users see a pie chart of response time.
- The users see the states map which is distributed based on the average customer satisfaction. The brown color indicates the state which has the lowest average customer score. I chose the map to show this data because showing all the states with their satisfaction scores helps to compare them.
- I wanted to show the top channels by using the bar chart because it its comfortable to see the most common one.
- I also chose box plot graph to show the average customer satisfaction score by state for each call center. The users can see the distribution of the states on the box plot, median, quartiles, and extreme values on the graph.
- On the line graph, the users can see clearly maximum (green) and minimum (orange) points which are represent the day with highest/lowest number of calls. It is effective to show date with line graph such as changing total number of calls by day.

4.4   Functionality / Interactivity

- The arrow in the upper left corner navigates the to the first dashboard.
- It can be shown all data by using reason set action.

- Sentiment filter filters the line graph which is changing total calls during the October. It can be seen how many calls made up each day according to sentiment.
- The line graph can be used as a date filter. Each point on the graph represents days In October from left to the right.
- Another action filter, channel set, on the dashboard can be used to see all the data on this dashboard according to channels.