Data Provided in the Case:

1. Campaign Period: November 2015 to February 2016.

2. Total Impressions Served: 14.5 million impressions were served by Rocket Fuel during the campaign.

3. Cost Per Thousand Impressions (CPM): The average CPM was $9.

4. Total Targeted Consumers: The campaign aimed to target approximately 590,000 consumers.

5. Number of Purchases (Conversions): Around 15,000 users purchased the handbag as a result of the campaign.

6. Control Group Size: 4% of users were placed in the control group, who saw a Public Service Announcement (PSA) instead of the actual advertisement.

7. Handbag Price: The price of the handbag exceeded $100.

8. Revenue Per Conversion: Each converted user was estimated to generate $40 in revenue, excluding fixed costs such as advertising expenses

Information about the dataset:

The dataset is based on the two groups -

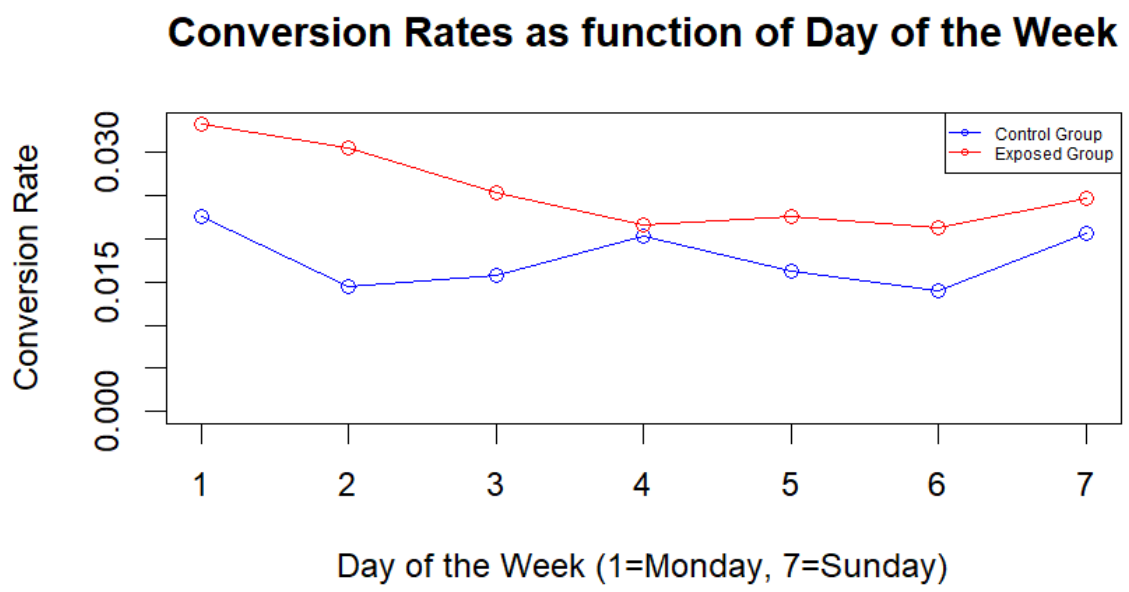
- ➔ Control Group: users who saw a Public Service Announcement (PSA) instead of the actual advertisement.

- ➔ Exposed Group: who saw the actual advertisement.

Case Discussion Questions:

How does consumer response to advertising vary on different days of the week and at different times of the day?

a. Create a chart with the conversion rates for the control group and the exposed group as a function of the day of week when they were shown the most impressions.



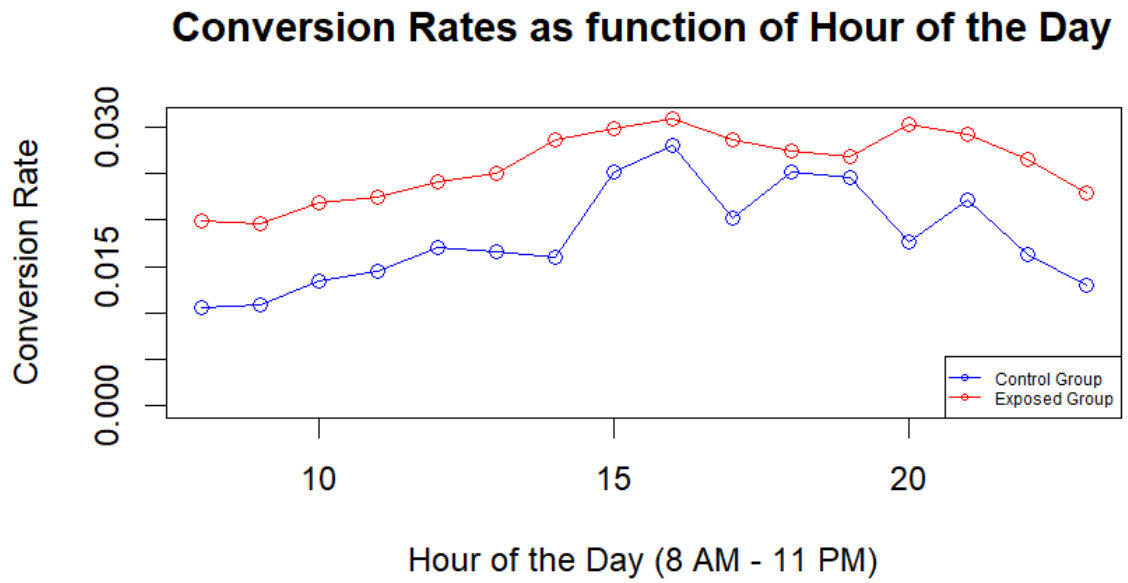
Steps:

- ➔ We have first grouped the datset by 'mode_impr_day' and calculated the conversion rates for both control and exposed groups separately.
  # For control group (test == 0)
  # For exposed group (test == 1)
- ➔ We have then created a line plot for both the groups.
  # control group (blue line)
  # exposed group (red line)
- ➔ We have lastly added the legend for the plot.

Interpretation:

- ➔ The conversion rates of the exposed group who were shown the ads on different timings is more than the conversion rates of the control group who were shown the PSA.
- ➔ And overall, the conversion is maximum on Monday, after which there is diminishing returns as despite having more impressions, the conversion rate is declining. This can be taken into consideration while running next m arfketing campaign to save the costs.

b. Create the same chart for hours within a day (excluding the period between midnight and 8 a.m.).



Steps:

- ➔ We have first filtered out users who saw ads between midnight and 8 a.m and retrieved only the users who saw the ads between 8 a.m to midnight.
- ➔ We have then grouped the dataset by 'mode_impr_hour' and calculated conversion rates for control and exposed groups separately.
  # For control group (test == 0)
  # For exposed group (test == 1)
- ➔ We have then created a line plot for both the groups.
  # control group (blue line)
  # exposed group (red line)
- ➔ We have lastly added the legend for the plot.

Interpretation:

- ➔ The conversion rates of the exposed group who were shown the ads on different timings is more than the conversion rates of the control group who were shown the PSA.
- ➔ And overall, the conversion is maximum around 3-4 PM, after which there is diminishing returns as despite having more impressions, the conversion rate is declining. This can be taken into consideration while running next m arfketing campaign to save the costs.

c. What days/hours is advertising most/least effective?

Interpretation of the graphs:

Most Effective Advertising for Exposed Group -

The next marketing campaign must be designed while considering the most effective day and time for impressions to make the optimum utilization of the entire marketing budget.

The most effective day for advertising turned out to be **(1) Monday,** where there is the highest conversion rates for the exposed groups, i.e., **0.03324,** which is approximately **3.3%.**

The most effective time for advertising turned out to to **16 (4 PM),** where there is the highest conversion rates for the exposed groups, i.e., **0.03089,** which is approximately **3%.**

Least Effective Advertising for Exposed Group -

The least effective day for advertising turned out to be **(6) Saturday,** where there is the lowest conversion rate for the exposed group, i.e., **0.0213,** which is approximately **2.1%.**

The least effective time for advertising turned out to to **9 (9 AM),** where there is the lowest conversion rate for the exposed group, i.e., **0.019528,** which is approximately **3%**.

Most Conversions for Control Group -

(1) Monday has the highest conversion rate for the control group, i.e., **0.02255,** which is approximately **2.2%.**

16 (4 PM), where there is the highest conversion rates for the exposed groups, i.e., **0.02805,** which is approximately **2.8%.**

Least Conversions for Control Group -

(6) Saturday has the least conversion rate for the control group, i.e., **0.01399,** which is approximately **1.3%.**

8 (8 AM), where there is the least conversion rates for the exposed groups, i.e., **0.10622,** which is approximately **1%.**