ALLO HEALTH ASSIGNMENT RECOMMENDATIONS

Dissertation submitted in fulfilment of the requirements for the Degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

By

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DECLARATION STATEMENT

I hereby declare that the research work reported in the dissertation/dissertation proposal entitled "**ALLO HEALTH ASSIGNMENT"** in partial fulfilment of the requirement for the award of Degree for Master of Technology in Computer Science and Engineering at Lovely Professional University, Phagwara, Punjab. I have not submitted this work elsewhere for any degree or diploma.

I understand that the work presented herewith is in direct compliance with Lovely Professional University's Policy on plagiarism, intellectual property rights, and highest standards of moral and ethical conduct. Therefore, to the best of my knowledge, the content of this dissertation represents authentic and honest research effort conducted, in its entirety, by me. I am fully responsible for the contents of my dissertation work.

Signature of Candidate

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INTRODUCTION:

In the dynamic landscape of digital marketing, continuous optimization is key to maintaining and improving campaign performance. This project aims to provide actionable recommendations to enhance the overall marketing strategy for advertising campaigns on Google and Facebook. By analyzing performance data and benchmark comparisons, we can suggest specific adjustments to campaign budgets, targeting, and creatives. Additionally, we will highlight insights and observations that can inform future marketing efforts. Bonus steps include offering strategies to improve underperforming metrics like CTR and identifying day-wise patterns to capitalize on peak engagement times.

METHODOLOGY:

1.Provide actionable recommendations on how to optimise the overall marketing strategy:

Based on the knowledge I gained during my B. Tech career, I would like to suggest pilot testing to aid in business analysis. The main objectives of pilot testing are to identify any potential issues, gather feedback, and make necessary adjustments before a full-scale launch.

Since some of the campaigns are yielding good results, I recommend segmenting the customers into different clusters and assigning each cluster a different type of campaign along with different ad sets. By analysing the results and determining which campaign performed the best, we can make informed recommendations for future actions.

2.Suggest specific changes to campaign/ad set budgets, targeting, or creatives to improve performance:

Average of Clicks (Traffic) by Campaign Name and Ad Set Name
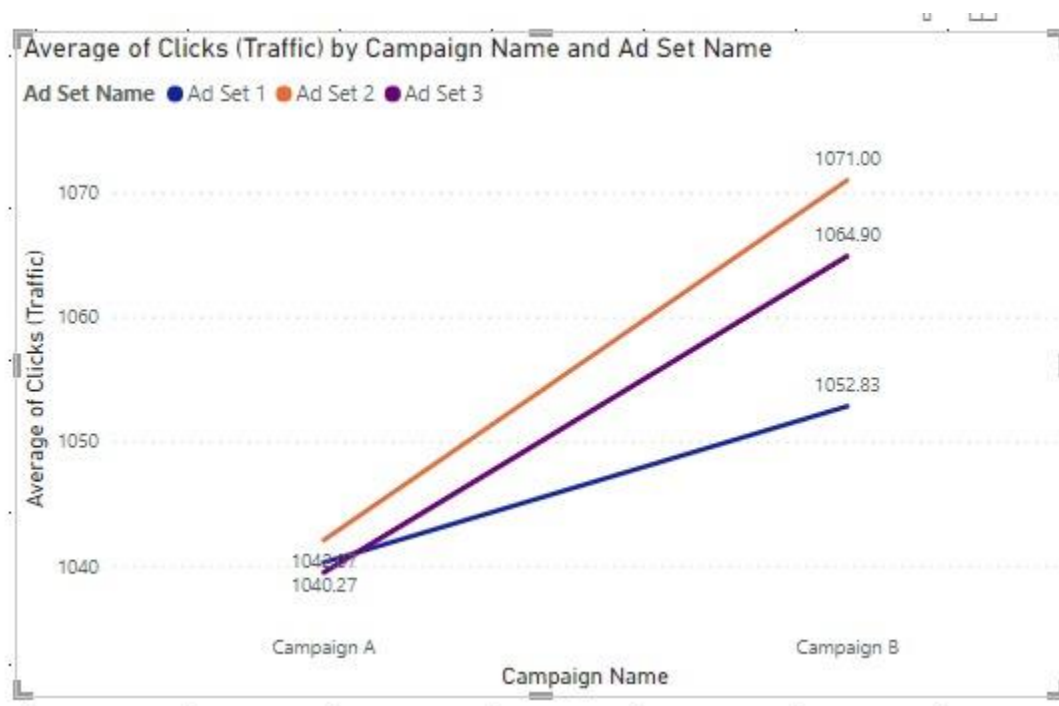
As per the above given graph, campaign B really yields good results as compared to campaign A. All the ad sets are under performing in campaign A. New considerations should be taken care of campaign A to make it perform well.

Average of Leads by Campaign Name and Ad Set Name
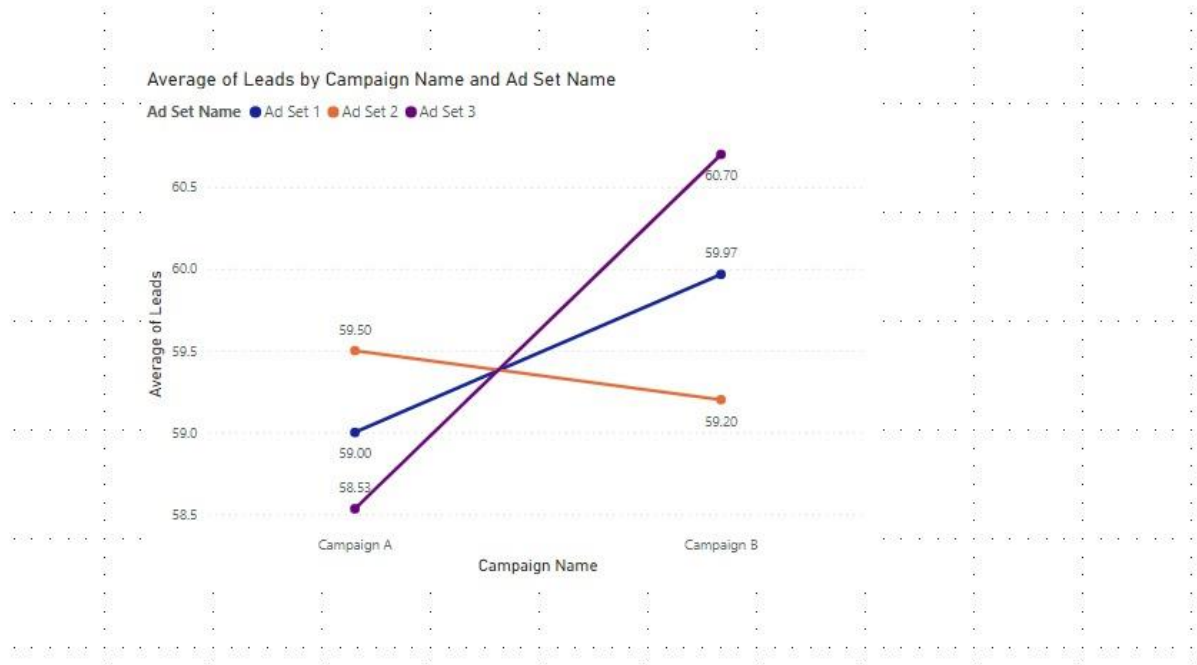
The campaign A is also not performing well in Leads. The strategies should be taken care in campaign A very strictly to improve the results.

Bonus 1:

1. Click-Through Rate (CTR)

Google Ads:

Improve Ad Copy: Use clean, concise, and engaging language that addresses the consumer's desires and includes robust calls to movement.

Test Different Headlines: Experiment with multiple headlines to see which ones resonate best with your audience.

Use Ad Extensions: Implement sitelink, callout, and structured snippet extensions to provide additional information and encourage clicks.

Target More Relevant Keywords: Use keyword research tools to find and target high-performing keywords with high relevance to your ads.

Facebook Ads:

Refine Audience Targeting: Use Facebook's targeting options to reach a more specific and relevant audience.

Use More Engaging Ad Creatives: Include high-quality images, videos, and animations that capture attention.

Experiment with Different Ad Formats: Try different formats such as carousel ads, video ads, and canvas ads to see what works best.

Improve the Relevance Score: Regularly update your ads based on feedback and performance metrics to ensure they remain relevant to your audience.

Bonus 2:

```python
merged_data['Day_of_Week'] = merged_data['Date'].dt.day_name()
```

```python
numeric_columns = ['CTR_google', 'Traffic to Lead_google', 'Lead to Call_google',
                   'CTR_facebook', 'Traffic to Lead_facebook', 'Lead to Call_facebook']
```

```python
for col in numeric_columns:
    merged_data[col] = pd.to_numeric(merged_data[col], errors='coerce')

# Group by day of the week and calculate average metrics, skipping NaN values
daywise_summary = merged_data.groupby('Day_of_Week')[numeric_columns].mean().reset_index()
```

```python
days_order = ['Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday', 'Sunday']
daywise_summary['Day_of_Week'] = pd.Categorical(daywise_summary['Day_of_Week'], categories=days_order, ordered=True)
daywise_summary = daywise_summary.sort_values('Day_of_Week')

# Display day-wise summary
print(daywise_summary)
```

Output:

	Day_of_Week	CTR_google	Traffic to Lead_google	Lead to Call_google \
1	Monday	0.051378	0.057201	0.530280
5	Tuesday	0.053004	0.055901	0.489744
6	Wednesday	0.051108	0.059340	0.479370
4	Thursday	0.050228	0.057568	0.469900
0	Friday	0.053308	0.054287	0.515369
2	Saturday	0.051635	0.056329	0.481970
3	Sunday	0.050858	0.058514	0.488389

	CTR_facebook	Traffic to Lead_facebook	Lead to Call_facebook
1	0.049956	0.062141	0.388974
5	0.048410	0.063663	0.395422
6	0.051670	0.060895	0.394679
4	0.050442	0.062175	0.381330
0	0.050325	0.061658	0.372168
2	0.050817	0.060748	0.390647
3	0.050935	0.061750	0.401271

Visual representation:

```python
# Aggregate metrics by day of the week
daywise_summary = merged_data.groupby('DayOfWeek').agg({
    'CTR_google': 'mean',
    'CTR_facebook': 'mean',
    'Traffic to Lead_google': 'mean',
    'Traffic to Lead_facebook': 'mean',
    'Lead to Call_google': 'mean',
    'Lead to Call_facebook': 'mean'
}).reset_index()

# Sort days of the week correctly
day_order = ['Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday', 'Sunday']
daywise_summary['DayOfWeek'] = pd.Categorical(daywise_summary['DayOfWeek'], categories=day_order, ordered=True)
daywise_summary = daywise_summary.sort_values('DayOfWeek')
```

```python
# Function to create bar plots
def plot_metric(metric):
    plt.figure(figsize=(10, 4))
    sns.barplot(x='DayOfWeek', y=metric, data=daywise_summary)
    plt.title(f'Average {metric} by Day of the Week')
    plt.xlabel('Day of the Week')
    plt.ylabel(metric)
    plt.xticks(rotation=45)
    plt.show()

# Plot each metric
metrics = [
    'CTR_google', 'CTR_facebook',
    'Traffic to Lead_google', 'Traffic to Lead_facebook',
    'Lead to Call_google', 'Lead to Call_facebook'
]

for metric in metrics:
    plot_metric(metric)
```
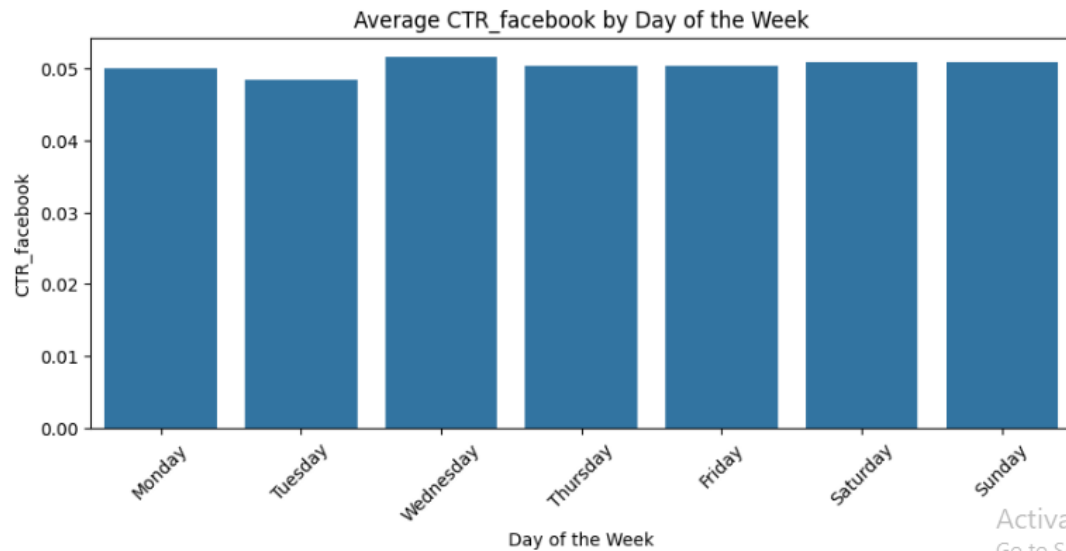

Average CTR_google by Day of the Week
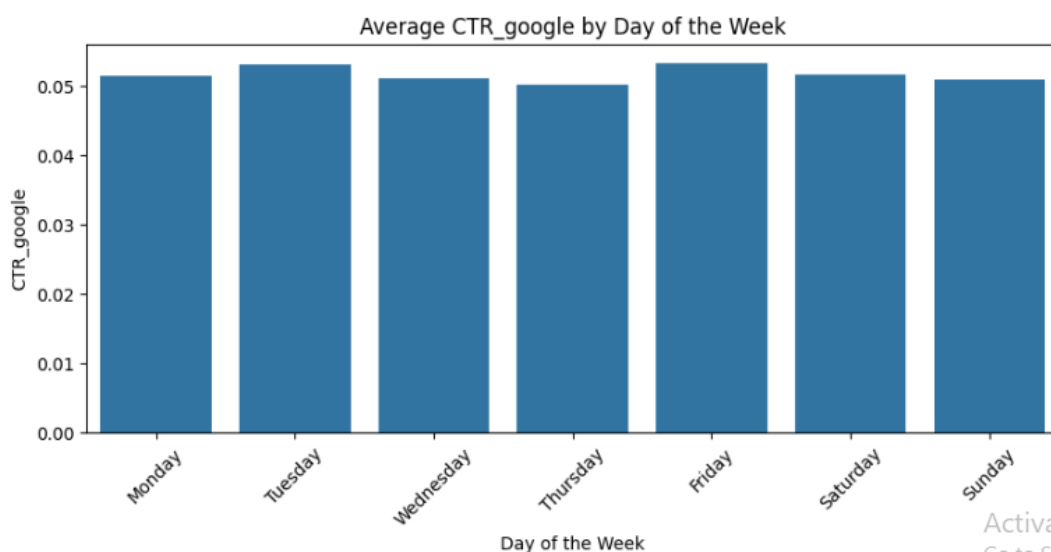
Strategies:

- In this graph we find that the Tuesday,Friday is high compare to the remaining days
- Continuous Monitoring, Continuous Feedback using this strategies we optimise the solution.


Average CTR_facebook by Day of the Week

Strategies:

- In this we find that the Tuesday is low to improve this by improve the Ad quality
- Famous crew in the Ad

Average Traffic to Lead_google by Day of the Week
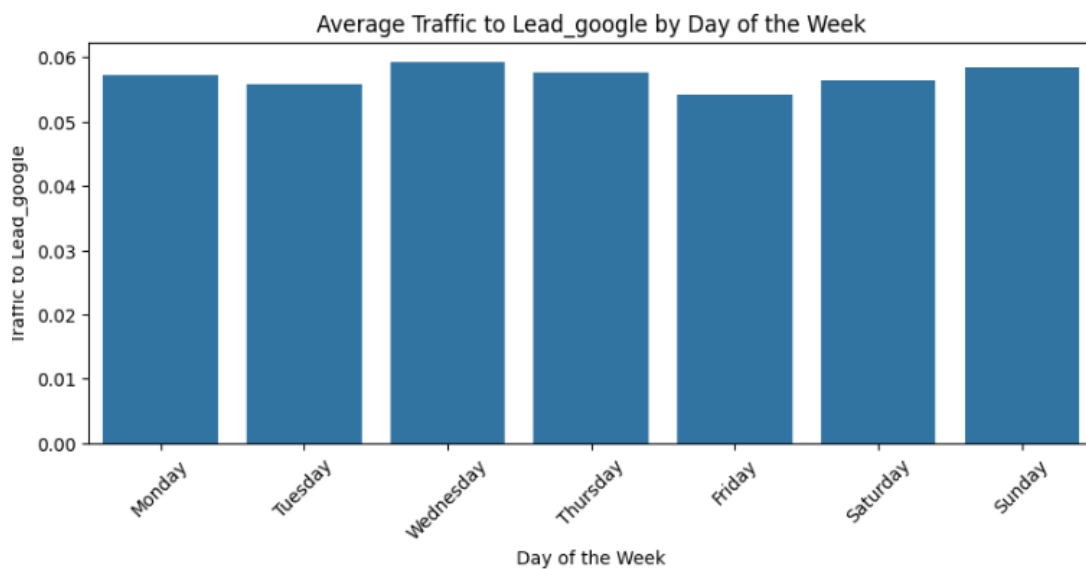
Strategies:

- If the traffic to lead is low then improve using reduce the login information,give better understand of the website or application

Average Lead to Call_google by Day of the Week

Average Lead to Call_facebook by Day of the Week
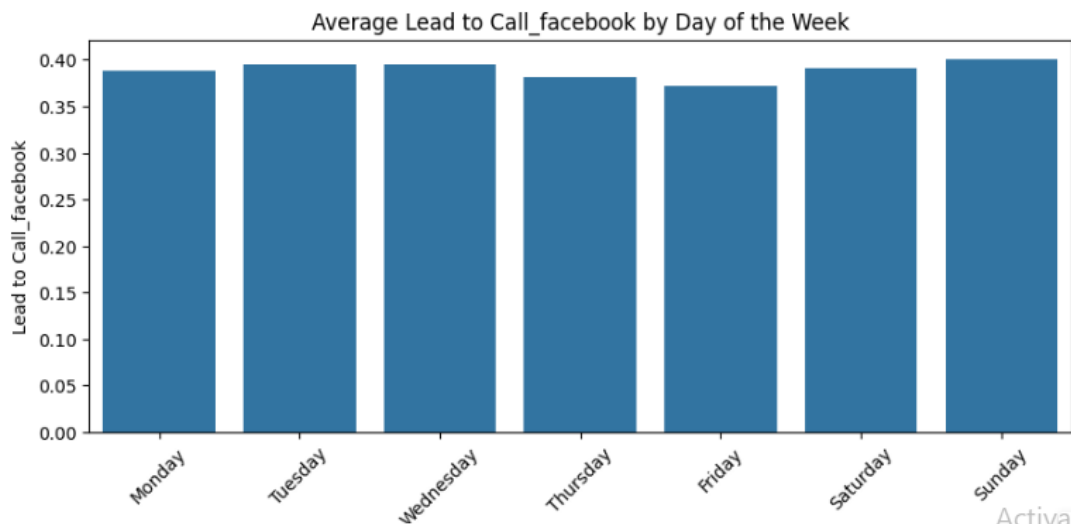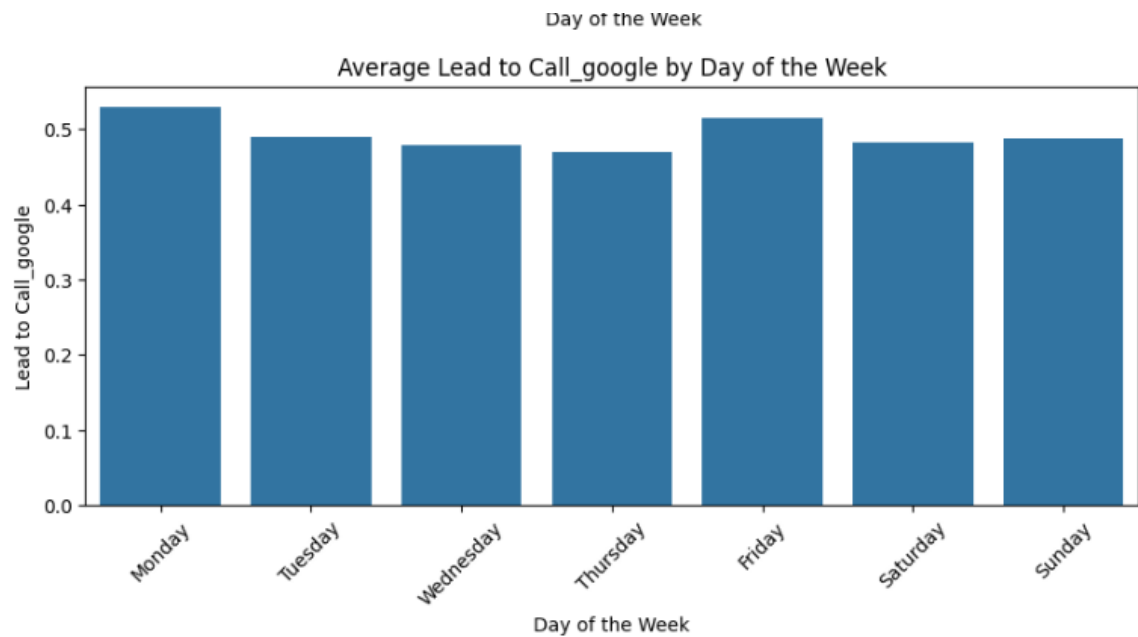
CONCLUSION:

The recommendations derived from this comprehensive analysis offer a strategic pathway to optimize advertising campaigns on Google and Facebook. By implementing suggested changes to budgets, targeting, and creatives, businesses can enhance their campaign effectiveness and achieve better performance metrics. Specific levers, such as improving ad copy, refining audience targeting, and experimenting with different ad formats, are outlined to address areas below benchmark standards. Furthermore, recognizing and leveraging day-wise patterns in user engagement can drive more targeted and effective marketing efforts. These insights and strategies collectively empower businesses to refine their marketing approach, maximize ROI, and sustain competitive advantage in the digital advertising space.