**Project 1: Optimal marketing mix and budget optimization**

Introduction:

In the modern era of digital marketing, businesses are constantly seeking ways to optimize their advertising strategies to achieve maximum impact and return on investment (ROI). The vast array of digital channels, including digital display, sponsored products, sponsored content, and Connected TV (CTV), makes it essential to analyze data effectively to understand the true impact of advertisements at various levels of granularity. This project aims to harness the power of machine learning to analyze log or user-level data from different digital marketing channels and develop a budget optimization methodology to allocate advertisement dollars effectively across various channels and tactics. One suggested approach is marketing mix model

Project Objectives:

The primary objectives of this project are as follows:

- Analyze log or user-level data from digital display, sponsored products, sponsored content, and CTV to measure the true impact of advertisements.

- Determine the effectiveness of ads at different levels of granularity, including creative, campaign, and placement.

- Develop a budget optimization methodology to allocate advertisement budgets strategically across various digital marketing channels and tactics.

- Maximize ROI by identifying the most effective combinations of channels and tactics for the given advertising budget.

Expected Outcomes:

By the end of this project, we expect to achieve the following outcomes:

- Insights into the true impact of advertisements at various levels of granularity, providing actionable information to enhance future marketing campaigns.

- A budget optimization methodology that can efficiently allocate advertising budgets across multiple channels and tactics, leading to improved ROI.

- A detailed analysis of the most effective combinations of channels and tactics for any given advertising budget.

Significance:

The successful completion of this project will have several significant implications:

- Businesses will gain a deeper understanding of their advertising performance, enabling them to optimize their marketing efforts effectively.

- The proposed budget optimization methodology can lead to significant cost savings and improved ROI for companies in their digital marketing campaigns.

- The project's methodology and findings can serve as a foundation for further research and exploration in the field of machine learning for digital marketing.