

MARKET WATCH

A
Project Report

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requirements for the award of the degree of*

BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE & ENGINEERING

by

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Project Proposal Approval Form (2021-22)

Major - II

Synopsis Report (2021)

Project Title: MARKET WATCH - Media Mix modeling

ABSTRACT

In this project titled Market watch, a media mix modeling is used which is an analysis technique that allows marketers to measure the impact of their marketing and advertising campaigns to determine how various elements contribute their goal, often conversion. The Market watch is essentially a blend of various promotion techniques which are picked so that it arrives at a most extreme number of individuals. Here these channels are utilized to promote their products or administrations with the goal that greatest number of individuals can get mindful of it and afterward get it. With expanding need of client investigation in businesses, it has become extremely significant for organizations to gather client information and applying different models to pick up business bits of knowledge from them. Combining transactional, demographic and offer information to figure out which demographic groups react best to which offer sort and provide different solutions benefiting the company promotion campaigns. In this digital age, where organizations spend so much money on rolling out different offers for the customer, it is really important to foresee whether the campaigns rolled out will have an impact on customers. In current times, when digital marketing is considered to be a preeminent factor in determining the success of a company, presence of our platform will be beneficial.

Keywords: Media mix modeling, market analysis, digital marketing.

INTRODUCTION

It's hard for organizations to decide how a marketing campaign has acted in the past never mind predicting how one will act later on. This turns out to be progressively increasingly troublesome when numerous sorts of campaigns are running over a similar period, various items are accessible or unforeseen outside variables impact client conduct. The project utilizes machine learning models, to decide how marketing campaigns have performed and predict how they will act later on. Perhaps the most ideal approaches to figure out what will occur later on is to take a gander at the past. In the present huge information driven world, we can access and use data on how customers are interfacing with our sites and web-based life networks. Once we've started utilizing historical information, we'll continue with new campaigns with another mindset. Knowing that the outcomes will be utilized to settle on choices about your future campaigns will permit us to experiment, attempting new strategies for arriving at customers. In the event that it works with this campaign, we'll know to join it into future campaigns while expelling whatever didn't appear to get a positive response. It's extremely essential to ensure we're estimating the correct information. If we're selling an item, our site ought to quantify what number of customers approached our site from our internet-based life posts and what number made a purchase, instead of only browsing. Keeping this as a primary concern, we propose a model which would empower us to utilize historical information so as to focus on the customers for best offers.

PROBLEM STATEMENT

- Making Predictions on the outcomes of different marketing campaigns and offers.
- Proposing a robust solution which could help identify offers for a customer on a real time basis utilizing modern cutting-edge cloud technologies, data modelling and machine learning modelling.
- Making the project available for the end users, catering to the real-world challenges.
- Proposing new methodologies for the tasks to gain real world data about the organizations in order to get better insights about which offers will in turn help them in maximizing profits.

LITERATURE REVIEW

MMM provides high-level insights into specific marketing tactics, over a longer period of time. This allows marketers to understand trends such as seasonality, weather, holidays, brand equity, etc. MMM typically analyzes two to three years' worth of historical data to identify patterns in campaign effectiveness.

MMM came into popular use in the 1960-70s when the marketing landscape was more simplified than it is today. Kraft was an early user of this type of analysis. As they launched Jell-O, they were able to choose between three or four television networks and magazine advertising to promote the new product. The approach of traditional MMM allowed them to see if they advertised at different levels - in different parts of the country, at different times of the year - how that drove sales in those regions. For example, they could advertise Jell-O in ten cities over ten weeks to see if sales increased. This is MMM in its simplest form, allowing marketers to get high-level insights into campaign effectiveness. Today as fragmentation has exploded in all of the ways we consume media, MMM data is more often compared to insights from more flexible, granular models.

In retail industries, only 8-10% of sales revenue goes toward marketing activity; leaving CMOs and marketing managers to face the issue of how and where to invest their limited marketing budgets. Understandably, the biggest concern is how best to allocate this budget to a wide range of marketing activities. Methodical, strategic planning in the form of Marketing Mix Modelling (MMM) can help you overcome this problem, by finding the optimal mix of marketing variables and proving the return of investment (ROI) that your painstakingly-researched marketing strategy provides.

The downside? The model is only as good as the inputs it receives. Garbage in, garbage out, as they say. And it can be very difficult to take into account every possible factor that could drive sales. That's because PR professionals are not trained in statistical modeling, and people with that particular mathematical skill set are not very familiar with PR in the marketing communications mix.

Without hard facts, it's difficult to predict the future. But with quantitative MMM insights based on past performance, it's possible to answer all sorts of 'what if' questions. What if we reduced our direct mail budget and used it for video? What if we upped our spend on social media? MMM can project the sales gains and losses expected with an increased or decreased investment in each channel. In doing so, marketers can reduce spend on ineffective channels and confirm they are using the right channels. The superannuation fund, for example, discovered through MMM that a more aggressive digital media strategy could lift sales. So could an increase in the reach and frequency of campaigns using traditional media. Our MMM presentation included recommendations on how the superannuation fund could gain incremental dollars above what their brand already achieved from its current marketing activities. Several short-term actions aimed at improving media efficiency were found to add a 10% lift in incremental sales.

OBJECTIVES

It's hard for organizations to decide how a marketing campaign has acted in the past never mind predicting how one will act later on. This turns out to be progressively increasingly troublesome when numerous sorts of campaigns are running over a similar period. In this project we will attempt, utilizing different machine learning models, to decide how marketing campaigns have performed and predict how they will act later on.

SYSTEM REQUIREMENTS

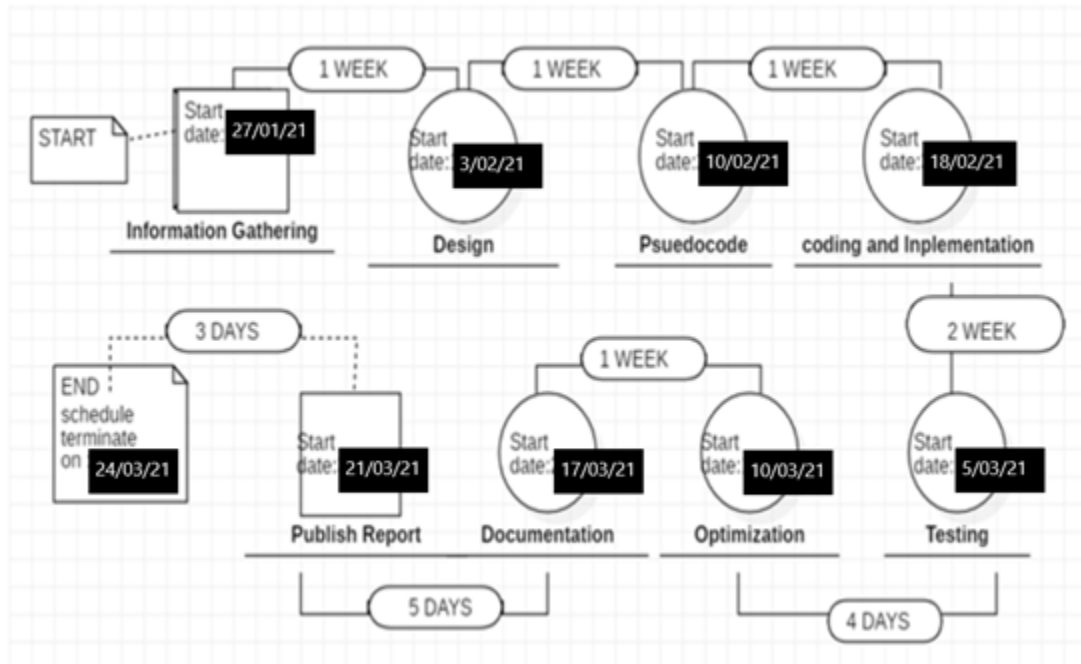
Hardware and Software Requirements

- Minimum 4 gigabytes of RAM
- Jupyter Notebook
- Dataset for Data ingestion

A few of the libraries which were included as a part of the project were:

- ☐ NumPy: popular package for scientific computing with Python
- ☐ Pandas: popular package which provides data structures designed to work with structured data.
- ☐ Sklearn: machine learning library for the Python programming language.

SCHEDULE



REFERENCES

- [1] [https://www.marketingevolution.com/marketing-essentials/media-mix-modeling#:~:text=Media%20mix%20modeling%20\(MMM\)%20is,contribute%20their%20goal%2C%20of%20conversion.](https://www.marketingevolution.com/marketing-essentials/media-mix-modeling#:~:text=Media%20mix%20modeling%20(MMM)%20is,contribute%20their%20goal%2C%20of%20conversion.)
- [2] <https://www.aarki.com/blog/using-machine-learning-to-predict-campaign-performance>
- [3] <https://towardsdatascience.com/the-cloud-google-cloud-platform-gcp-made-easy-anish-mahapatra-3d0aed3fe7fa>
- [4] <https://www.marketingevolution.com/marketing-essentials/media-mix-modeling>
- [5] <https://www.marketingevolution.com/marketing-essentials/media-mix-modeling>
- [6] <https://blog.hurree.co/blog/marketing-mix-modeling>
- [7] <https://onclusive.com/resources/blog/what-is-media-mix-modeling/>
- [8] <https://www.datalicious.com/resources/article/media-mix-modelling-5-useful-ways-it-can-benefit-your-marketing>

