SOCIAL MEDIA MARKETING AND RECOMMENDATION SYSTEMS

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This is to certify that the work present in this Project entitled "SOCIAL MEDIA MARKETING AND RECOMMENDATION SYSTEMS" has been carried out by Mohan Krishna K , Devi Deekshita C , Tanuja Ch , Jasmitha P under my/our supervision. The work is genuine, original, and suitable for submission to the SRM University – AP for the award of Bachelor of Technology/Master of Technology in School of Engineering and Sciences.

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Table of Contents

Certificate

Acknowledgements

Table of Contents

Abstract

List of Publications

Statement of Contributions

Abbreviations

List of Tables

List of Figures

List of Equations

- 1. Introduction
 - 1.1 Heading 2
 - 1.1.1 Heading 3
- 2. Methodology
 - 2.1 Heading 2
 - 2.1.1 Heading 3
- 3. Discussion
- 4. Concluding Remarks
- 5. Future Work

References

Abstract

Social media marketing heavily relies on artificial intelligence. It also covers any intelligence demonstrated by a computer, a robot, or any other machine that resembles human intellect. This study examines how artificial intelligence affects social media marketing and recommendation systems, and the article provides a framework for comprehending how this affects social media marketing. They employ machine learning and AI to serve users the material that interests them, identify visuals, recommend tag choices, recognise people in photos, and serve adverts to generate user-specific offers and promotions. The use of technology can also help with content analysis Various actions, demographic data, and AI are employed in chatbots, social media marketing, and adverts that identify photos. These social media platforms might greatly benefit humanity by disseminating knowledge about contagious diseases and discussing solutions to issues like eliminating child trafficking and violence against women. It's crucial to comprehend the significance of advertising. It requires the A variety of activities, demographic data, and AI image recognition chatbots are utilised in social media marketing and adverts. The transmission of knowledge about infectious diseases and the discussion of solutions to issues facing humanity, such as stopping child trafficking and violence against women, are only two examples of how these social media platforms can greatly benefit society. Marketing tactics incorporate social media data and artificial intelligence technology that are based on social media, giving marketers and the decisions they make a competitive edge. It's important to comprehend the value of advertising. It demands that accurately. While it takes humans a long time to identify behavioural patterns, social media marketing AI can do it quickly and precisely. AI learns the demands of the client through every encounter, and it forecasts the customer's purchasing patterns and preferences. Through the use of software, it can identify images and comprehend changes in user behaviour or pattern. Complex algorithms make it feasible to obtain useful information. On social networking sites, AI security is very high. It defends user data and ensures information privacy. The users can enhance the security of their social media accounts by utilising features like user authentication, fraud protection, pattern detection, and others. AI evaluates a user's emotions. One advantage of AI in social media is that it aids marketers in NLP, or natural language processing, is used to identify terms that are favourable or bad in a remark or post. Social media artificial intelligence (AI) has the potential to change how businesses promote on TikTok, Snapchat, Facebook, Instagram, Twitter, and LinkedIn. AI can now produce your social media posts. It can create and target adverts on social media. It can automate surveillance. And the majority of what you see on any particular social network is powered by it. Using a variety of algorithms, Deep Text artificial intelligence approaches, and other characteristics, users may be authenticated and fraud is prevented. The AI offers a limit option for piracy and sexual material in the community standards of social media networks.

Recommendation systems

Machine learning has a subclass known as recommendation engines that often rank or rate people or items. A recommender system, broadly defined, is a system that anticipates the ratings a user would give to a certain item. These predictions will then be ranked and returned back to the user. They're used by various large name companies like Google, Instagram, Spotify, Amazon, Reddit, Netflix etc. often to increase engagement with users and the platform. For example, Spotify would recommend songs similar to the ones you've repeatedly listened to or liked so that you can continue using their platform to listen to music. Amazon uses recommendations to suggest products to various users based on the data they have gathering data for that user

1. Collaborative Filtering

The collaborative filtering method is based on gathering and analyzing data on user's behavior. This includes the user's online activities and predicting what they will like based on the similarity with other users..

2. Content-Based Filtering

Collaborative filtering is based on collecting and examining user behaviour data. This includes anticipating what the user will like based on similarities to other users and the user's online activities.

3. Hybrid Recommendation Systems

To provide clients a wider selection of items, hybrid recommendation systems promote products using both content-based and collaborative filtering concurrently. It is claimed that this emerging recommendation system makes recommendations that are more accurate than those made by other recommender systems.

Statement of Contributions

The undersigned members of this project team affirm that the source of all data is as represented below to this project "Social Media Marketing And Recommendation Systems". Each member of the team indicated his/her contribution to the project and each participant has competency interaction with every team member.

Team member 1 : Contribution to the project - IDEA, CODE

Name: Mohan Krishna K

Team member 2: Contribution to the project - DATA SIMULATION

Name: Devi Deekshitha.C

Team member 3 : Contribution to the project - ANALYSIS

Name: Tanuja Ch

Team member 4 : Contribution to the project - EXPERIMENTAL WORK

Name: Jasmitha P

Abbreviations:

AI Artificial Intelligence

HITS Hyper Induced Topic Search

FB Facebook

IG Instagram.

LI LinkedIn

TW Twitter

YT YouTube.

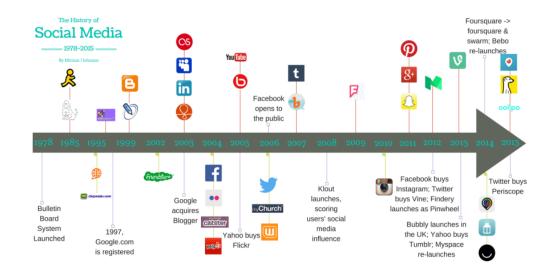
EOD End Of The Day

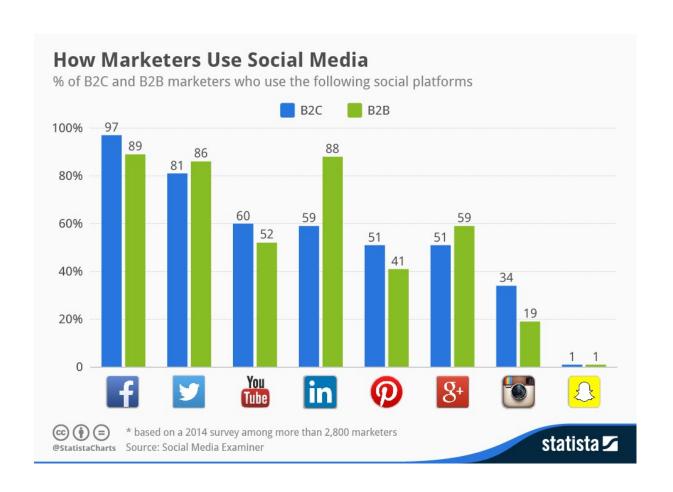
TOS Terms Of Service

List of Tables:

SOCIAL MEDIA MARKETING PLATFORMS PEOPLE CONTENT **STRATEGIES** CONS · Photos & links · Local mkting • 25-34 · Weak organic Information Advertising Boomers reach · Live video Relationships Organic How-tos 18-25 Video is Webinars 26-35 resource-heavy **Explainers** Advertising • 25-34, 35-49 News Customer Small ad Educated/ service audience wealthy · Ads for males Humor Long-form B2B Ad reporting & content Organic custom audience **Professionals** · Core values International WordStream

List of Figures





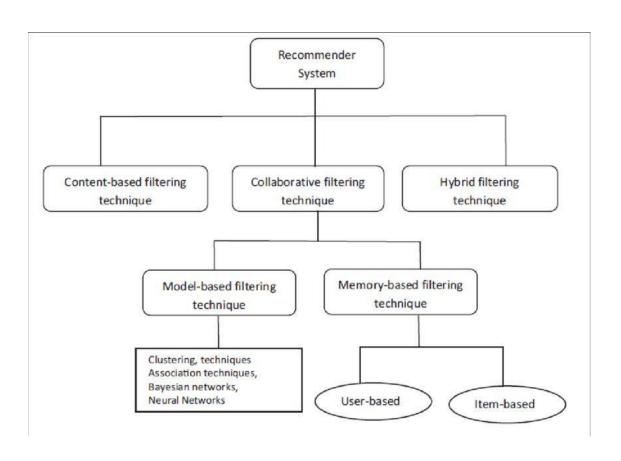
marketing charts Social Media Marketers' Platform Usage Trends in 2019 ■ % planning to increase organic activity in the next year 69% ■% not planning to utilize platform in the next year 62% **53**% **52**% **47**% 35% **32**% 29% 20% 20% 15% 12% 9% 3% Instagram YouTube LinkedIn Facebook Twitter Messenger Pinterest Snapchat

Published on MarketingCharts.com in May 2019 | Data Source: Social Media Examiner

Based on a global survey of 4,859 marketers, the majority of whom work for small businesses (1-10 employees).

Close to two-thirds (64%) focus primarily on B2C marketing, with the remaining 36% on B2B. The majority (55%) of the respondents are based in the US.

Bot



Introduction

Communication and interaction are the cornerstones of learning, talking, arguing, and sharing. Since ancient times, they have played a crucial role in shaping our culture and way of life. They also include indirect forms like the performance and non-performing arts rather than direct modes like speaking, writing, etc. It follows that it is understandable why some people refer to humans as social creatures. However, there have been changes to both the communication's substance and methods. Pigeon's post was the first, followed by postal letters, mobile, and now social media and cellphones. It's interesting to note that social media affects the way people interact, but also the way people interact. Social media is becoming an important part of our lives today. Our day begins with our social media accounts being reviewed and updated and ends on a similar note both influences and is affected by how individuals connect. Today, social media is playing a significant role in our lives. Our day starts with checking and updating our social media profiles, and it concludes the same way.

1.1 What Is Social Media Marketing?

Social media marketing is a tool that enables individuals to communicate with and market to a far larger audience than would have been feasible through traditional advertising methods by using online social networks to promote their websites, products, or services. Most significantly, social media places more emphasis on the group than the individual. On the Internet, there are communities of all sizes and kinds, and individuals communicate with one another. It is up to social media marketers to appropriately utilise these communities in order to interact with group members about certain product and service offers. Social media marketing also entails engaging with the groups as a corporate representative by listening to them and forging connections.

2.1.2 Recommendation Systems

A recommendation system, which is a subclass of information filtering systems, aims to anticipate the rating or preference a user may assign to a certain item. Simply put, it is an algorithm that directs users to relevant items. For instance, choosing which Netflix movie to watch, which e-commerce item to purchase, which Kindle book to read, etc. A possible problem of information overload that prevents timely access to things of interest on the Internet has been caused by the exponential development in the volume of digital information available and the number of Internet users. This issue has been largely resolved by information retrieval tools like Google, DevilFinder, and Altavista, but prioritising and personalisation (where

Information that was relevant to the user's interests and preferences was missing. As a result, recommender systems are more in demand than ever. By selecting important information fragments from a huge quantity of dynamically created material based on the user's choices, interests, or observed behaviour about the item, recommender systems are information filtering systems that address the issue of

information overload. Based on the user's profile, a recommender system can determine if a certain user will favour an item or not. Systems that provide recommendations are advantageous to both consumers and service providers. They lower the transaction costs associated with locating and choosing products in an online buying setting. There is evidence that recommendation systems enhance decision-making quality and procedure. Because they are efficient ways to sell more things, recommender systems increase revenues in e-commerce settings. Recommender systems in scientific libraries assist users by enabling them to go beyond catalogue searches. Therefore, it cannot be overstated how important it is to deploy effective and accurate recommendation processes inside a system that will offer consumers reliable and relevant suggestions

1.2.1Type of Recommendation Systems:

1.2.1.1Collaborative Recommender system:

It is one of the most well-liked, extensively used, and advanced technologies on the market today. Collective recommender systems combine user ratings or suggestions of things, identify user similarities based on ratings, and produce fresh recommendations based on user comparisons. The biggest advantage of collaborative approaches is that they can be used with complex things and are fully independent of any machine-readable representation of the objects being advised, where taste differences account for most of the variance in preferences.

1.2.1.1.2. Content-based recommender system

It primarily falls under the category of an extension and continuation of information filtering research. The items in a content-based recommender system are mostly determined by the attributes that go along with them. Based on the qualities contained in the things the user has evaluated, a content-based recommender creates a profile of the new user's interests. Here, keywords are utilised to define the objects in a manner similar to a keyword-specific recommender system. So, in a content-based recommender system, consumers are given recommendations for goods that are comparable to those they have previously enjoyed or are now looking at.

1.2.1.1.3 . Hybrid recommender system

Hybrid recommender systems combine any of the two methods in a way that works for a certain sector. This is the most desired recommender system that many businesses pursue since it combines the advantages of many systems while also addressing any weaknesses that may arise from using a single recommender system alone.

1.3 How Social media marketing using recommendation systems

Social media platforms use recommendation algorithms to determine what you should see on their sites (e.g., posts, sponsored ads, people) based on data about what you have viewed, bought, or done before the recommendations using in social media for customer requirement and also doing business with these recommendations

Methodology

2.1 Social media marketing:

Using social media marketing the company or organization expands their business. Marketing helps business people via social media like they recommend their ads in certain social media sites like FB,YT,IG. In this we used social media marketing like recommendation systems methods that help to improve the market via social media according to the customer browsing what he searches in google then that type of recommendations show in other social media sites.

2.2 Recommendation system:

In this research work we used methods of recommendation like content based, popularity based, collaborative based, to recommend according to customer past browsing data. This recommendation systems recommends the movies based on the watching pattern of individuals based on some previous data it has collected from the other individuals

2.2.1 Content based recommendation

We used content recommendations to recommend movies according to the customer's previous downloading movies by usage of python and some other softwares . content-based recommendation system will mainly recommend recommend them you know space related movies and so on so this system is completely based on the content of the movie and its story and so on

2.2.2 Popularity based recommendation

we are using popular recommendation because popularity based recommendation system so this kind of system recommends which movie or series has been very popular so in netflix there is an uh you know column called as top 10 movies in india and the top 10 movies of ultimate such kind of things so it is completely based on popularity and the popularity you know basically and the popularity you know basically increases if more number of people watches those kind of films okay so that is the popularity based recommendation system which mainly relies on what is the popularity of films and what is the popularity of the actors acted in the movie directors

2.2.3 collaborative recommendation system

And we are also using collaborative recommendation system .Due this type of recommendation system groups people based on their watching pattern let's say that there is a group of people and this certain group of people are you know watching similar kind of movie but these people doesn't know each other this is the data collected by these kind of apps so let's say that okay so these group of people what some kind of movies and now let's say this there is a new user and he watches one or

two movies which are watched by those group of people now the system knows that this group of people and this new user has a similar test so this new user will be recommended movies which were watched by those people okay so this is how collaborative recommendation system works where the system will try to recommend movies based on the watching pattern of an individual based on some previous data it has collected from the other individuals okay so these are the three main types of recommendation system

3 Python

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. And it is IDLE (integrated development and learning environment) and it is used to execute a single statement and create, modify and execute the python program it compiles line by line. IDLE is a default editor and IDE is a software environment that usually consists of package development. we used python language to represent the recommendation systems works.

3.1 ANACONDA

Programming language for scientific computing of machine learning applications and large-scale data that will process in predictive and simplify packages management and development.

3.2 Excel

we used excel file for using of data sets of movies which the movies insert in the file according to their genres, titles, cast, crew , director etc; and customer data sets which movies are downloaded

3.3 Pandas

To import data sets we are using pandas because pandas is python library Python library for data analysis. It is a powerful and flexible quantitative analysis tool, pandas has grown into one of the most popular Python libraries

3.4 Numpy

To get numericals in this research work we used numpy python library .NumPy is a Python library used for working with arrays. It also has functions for working in the domain of linear algebra, fourier transform, and matrices.

3.5 Data collection

We need to have the data of these movies and several details about them like director name, genres, description. Once we collect the data we need to perform this data

3.3 Preprocessing data

We have to clean this data if there are any missing values and feature extraction. The main thing about movie data is that all data will be in the form of text right. we cannot use the textual data we can convert the textual data using preprocessing techniques called features vectors and we using the similarity score to find similar movies , and also used cosine similar we will try to find which movies are similar to each other by you know giving them a similarity score or we can call this as a similarity confidence score .

3.3.1 Vectors

To feature vectors so the reason we are doing here is doing this particular task is we cannot find the percent value this is causing similarity value easily with the text data but if you have a numerical data you can easily find the cosine similarity value that is the reason we are converting it using this vectorized function so we are going to use this tf id of vectorizer in order to convert the text in to you know numerical values so vectorizer so i am just creating an instance of this tf id vectorizer and yeah so you need to mention this parenthesis here now we need to fit and transform the data so will run this and will create a variable as feature vector feature vectors and feature vectors is equal to vectorizer dot fit transform and within the bracket you need to mention combined features so what we are basically trying to do is so we know that we have imported the tf idea vectorizer right so we have imported it from sklearn dot feature extraction dot text so I am loading this tf id vectorizer to an instance called as vectorizer okay so I am just using this vectorizer instead of using this tf it's not it's basically the same i am loading this tf idea vectorizer into this vectorizer variable and i am going to use this vectorization in order to fit and transform the data now what happens is so i am mentioning feature vector so i am creating another variable called as feature request and this is where i am going to store all the numerical values now so i am calling this vectorizer which is nothing but my tf idf and i am fitting and transforming all the data so which data i am transforming here is the combine features right so the combined feature is nothing but the combination of all the columns that we have in our set so this will transform uh the data to numerical values which are nothing but afeature vector so it will be stored in this variable and now let us try to print this so print feature vectors

Discussion

We are doing this project for recommending movies based on user's data via popularity, content and collaborative methods. As a result, it suggests the movies to the users based on their previous data. It recommends upto 20 movies to the users based on their previous data.

Here, user favorite movie is

```
Enter the customer name :Deekshitha
Customer favourite movie Tangled
```

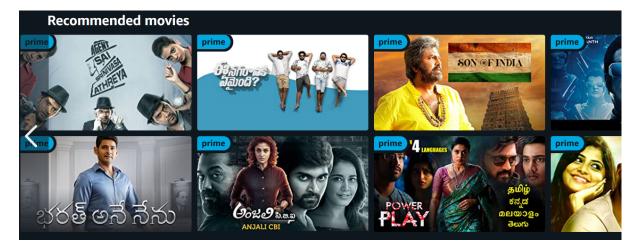
and based on user's movie data the recommended movies as follows via recommendations methods example as we see in the below figure

```
Movies suggested for you :
1 . Spider-Man 3
2 . Spider-Man 2
3 . Spider-Man
4 . The Specials
5 . The One
6 . Oz: The Great and Powerful
7 . George of the Jungle
8 . The Good German
9 . Daddy's Home
10 . We Bought a Zoo
11 . Wimbledon
12 . John Carter
13 . The Calling
14 . Don McKay
15 . The Grace Card
16 . Fear and Loathing in Las Vegas
17 . Crazy/Beautiful
18 . Win a Date with Tad Hamilton!
19 . Eternal Sunshine of the Spotless Mind
20 . Imagine That
21 . Heaven is for Real
```

Such movie are recommended by amazon prime through coustmer past watched movies on basis of recommendation systems

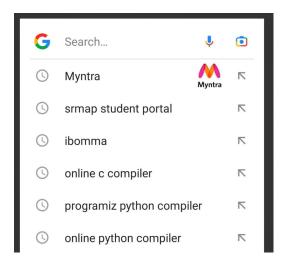


then the recommended movies are:



As our research is based on how the social media used these recommendations how the social media helps in business of the companies via marketing here shown as example :

we search in myntra in google:



so the social media like instagram recommend the myntra as advertisement here how the social media using of recommendations for the marketing purposes these way make more helps in various companies.



Concluding Remarks

In this project we have taken movie dataset from the internet. And we have created customers dataset, including their downloaded movies. Based on our code the recommended movie as shown via with recommended methods. So the recommendation systems are more useful and robust ,effective and used in may purposes. And the companies ,organizations using these strategies to improve their reliability and profits ,expand through social media. All companies make more publicity on products to attract more customers and build Brand Awareness and Recognition through social media.

Future work

The weaknesses and limitations of each of these system methods and techniques developed in the research study have indicated the following areas as recommendations for further work.

In the project those recommendation systems used in ott platforms to recommend movies which the users make more shows interested to watch more movies from ott platforms. In my observation these method these recommendations used in social media marketing as builds brand awareness and recognition, generates conversation around your brand, helps understand your target customers' Interests, Helps Provide Responsive customer service, helps build customer loyalty, drive traffic to your website, helps drive traffic to your website

Another way of implementing of these project is how what the customer is search on google any product that will advertise in all platforms like Youtube, Facebook,

instagram, and another sites and many webpages we visited these make more help to the companies these things which makes more marketise the users

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