

Behavior Analysis based on Movies Watched

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Abstract-Behavioral psychology or behaviorism is the study of the how our behavior is connected to our mind and our thoughts. A person's personality and behavior is influenced by many things including his/her surrounding, social network, culture etc. In behavioral psychology scientist or researcher tries to comprehend why we act the way we do. Understanding an individual's personality and actions can help a psychology researcher understand the individual's strengths and weaknesses. Data analytics techniques can help us perform this analysis. Movies and content people watch can immensely influence their behavior in many ways. It also affects a person's social life. This paper mainly focuses on the relation between movies or content a person sees and his/her behavior. Research has proved that types of content one likes to see is associated with the type of one's personality. Altering attitude or mood status, apartheid of the real world, and rising general knowledge are certain effects that content would have on a person. This paper proposes a machine learning model to predict the individual behavior based on movies /content watched. The model can be built on data available to predict the behavior of an individual and identify potentially extreme behavioral traits or tendencies.

Keywords: Behaviorism, Data analytics, Machine learning.

1. INTRODUCTION

Everyone seems to agree on a fact that there is a close relation between movies watched and behavior of an individual. Movie is one the most complex and powerful way to express your message. Movies are mainly used to understand our life, lives of people around us, society we are living and different cultures. Italian film theoretician Ricciotto Canudo in his manifesto claimed that cinema is a new form of art and he also called cinema as "The seventh art" [1]. It is the form of art which has a significant influence on our life. Movies can be an effective way to change people's attitude and their lookout on life. Good or bad – films almost always have some affect on the viewer. The extent a movie affects an individual is dependent on the movie and the person. Movies affect people and society we live in either in positive way or in negative way. In India more than 1800 movies are released per year [2], which averages to a little under five movies per day! Since the cinema industry is so large scale and movies have become such an integrated part of our lives, the net consequence and influence that cinema has on our society is massive and cannot be ignored.

Machine learning is the science of letting computers learn by providing data and information to them. Using supervised machine learning approach we can construct a model from previously available labeled data. This model can help to predict the output of new data points. Machine learning

approach is easier and efficient than the traditional statistical approach.

2. LITERATURE REVIEW

For a few decades researchers are trying to comprehend the link between movies and behavior of the society. Dr. Udofia and Anyim [3] in their research stated that, movies have a strong influence on behavior of an adolescent in both positive and negative ways. Since 1895 when the first movie was released in Paris, movies have been one of the prime sources of entertainment and when they are censored and regulated adequately, it can also become a source of learning. But in other way inappropriate movies and content can trigger negative traits in adolescents and that could lead to an emotionally volatile adolescents.

Researches have also discover that there is a direct relation between movie star and their tobacco consumption in modern movies with adolescents smoking and mass media depictions of smoking among beloved movie stars contribute to smoking in youth. Tickle, Sargent et al. [4] in their research proved that relation between juveniles' favorite movie stars, the demonstration of tobacco use by those stars in present motion pictures, and smoking in youth. This research shows a strong connection between tobacco use by movie stars in movies and higher level of smoking acceptance in youngsters who admire them.

Movies are also related to what an individual likes to eat, what he/she admires as well as the destinations or places he/she wants to explore. Researchers accepted the significance of movies in influencing individual's sentiments and encouraging tourists to travel to some tourist destinations, regions and country thus, tourism destinations try to support their brand by product placement in TV shows or movies. It can help the tourism industry and cinema industry to develop a connection to support destination marketing as well as strategic product placement [5].

Movies have several effects on society and they may be either positive or negative. Movies are such a powerful platform to express emotion and convey messages, thus big movie studios must take care of what they are presenting to audience. Viewer or audience should be aware about the things to take away from movies, since the minor thing can influence them to do something strange or to act differently. There is a solid impact of movies on society and they help to form the modern world we live in. They can be responsible for individual to transform and evolve.

Recommendation system plays a vital role in what type of content we watch. Now-a-days everyone is having many options available in every aspect of life primarily media such

as movies, videos, books etc. Netflix is one of the premium example of how a recommender system can influence an individual. Netflix’s recommendation system is used to suggest an individual a show or a movie he might like and it influences total of 80% hours spent on Netflix [6].

Research in Nigeria by the researchers Oluka1, Obi and Ezeh [7] also stated people are often influenced by the promotions or the appearance of the celebrities they have seen in movies. People are happy and confident when they use products promoted by their favorite movie star. They think movie celebrities are important aspects of advertisement because they describe product features in a manner that everyone can appreciate. It influences their choice of product and most of the product used are influenced by a movie star.

A study also shows that smoking in movies can influence the smoking behavior of smokers tremendously. This study inspected the effect of smoking indication in movies on immediate smoking pattern of frequent smokers. It also verified whether these signs have the same effect in smokers who have different transportation routine. This study also proves that smokers who watched movies with smoking cues would smoke more cigarettes while watching the movie rather than movies which have non-smoking characters [8]. On the other hand, it was found that the mental and social characteristics of the audience had a significant effect on box office success. The audience who relate the actual situations of the films shares the contents of the films and forms a promise through a word of mouth to their known group [9]. Different statistical methods are used to obtain the above inference.

Different machine learning techniques are also used to perform sentimental analysis of movies. Amolik, Jivane et al [10] have proved in their research that Naïve Bayesian and Support vector machine algorithms offer good accuracy for this analysis.

This leads us to a very strong hypothesis, that movies and content have a strong relation with an individual’s behavior. So it must be possible to predict an individual’s behavior based on the content he/she watches consistently. Further analysis can be done to find a co-relation between genres of movie and their psychological impact on individual. This analysis can be useful in many ways. We can use the outcomes to identify the content types /movies to be used to increase the noble influence by movies on society. This study can also be helpful to guide someone with unfortunate experience to a healthy life. Patients with psychosomatic disorders such as depression, may be helped by prescribing content that can help change their mindset into a more positive one. As movies affect people’s attitude and perspective this analysis can be used to build an efficacious society.

3. PROPOSED SYSTEM

The system proposed by this paper will be intended to create a machine learning model, which can help in prediction of behavioral traits based on content watched. There are various genres of movie. For this analysis we begin by considering few of the genres as follows- Drama, Action, Historical, Romance, Sci-Fi, Adventure, Horror, Comedy

and Fantasy. As the violence content in the Action, Drama and Horror movies are expected to be high we will consider these types as type 1. Most of the sci-fi, Historical and adventure movies are based on facts and some interesting thoughts thus, we will consider them as Type2. Genre like Romance, Comedy and Fantasy contains less amount of violence and more of an emotional appeal hence we will consider them as Type 3.

Genre	Violence	Facts and information	Emotional Appeal, Humor	Type
Action	Y	N	N	Type 1
Drama	Y	N	N	Type 1
Historical	N	Y	N	Type 2
Comedy	N	N	Y	Type 3
Sci-fi	N	Y	N	Type 2
Romance	N	N	Y	Type 3
Horror	Y	N	N	Type 1

Table 1. Genre of movies, type of content and types

Machine learning is a technique to build a model based on previous data. This model can be used to classify the output for new record. For this model information about movie like genre of a movie, duration, ratings and other attributes as well as information about viewer like age, gender, average time spend for movies, etc. is also required. Online streaming platforms like Netflix [11], Amazon prime [12] etc. and online movie ticket booking platform like book my show [13] can gathered this information effectively.

On the data mentioned above, machine learning algorithm is applied to create a model. Supervised Machine Learning algorithms can be used to categorize people into behavioral categories - i.e. Type 1, Type 2 and Type 3. When the data of new user originates this model will predict the behavioral category of the new user. By performing a time-based analysis, we may also predict the movement of an individual from one behavioral cluster to another over time.

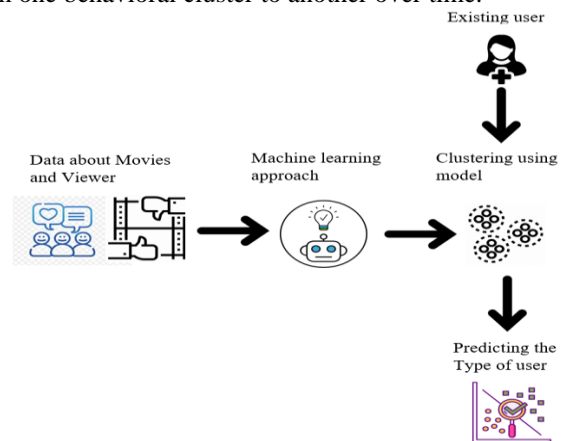


Diagram 1. Workflow of the model

As of date, we could not find an open source dataset which can be used for this analysis. The closest match was data available on Kaggle [9], which holds information on users’ favorite anime of more than 73,000 users on 12,294 anime. This dataset has information related to anime such as anime id, name, genre, type, rating etc. as well as it also contain rating given by an individual user to the movies or videos

they have watched. This data is insufficient as it does not contain information about user's age, gender and other attributes which can be used for the proposed system as it does not contain much information related to user and user's psychological behavior. User's information can be effectively used to find the link between age of audience, genres of movie and psychological behavior and other parameters. This information can be valuable in the fields like criminal psychology behavior as well as cinematic industry to create awareness about the type of content they are presenting to audience.

Data preprocessing is a technique of cleaning the data before providing the same to any model. Different Machine learning classifiers can be used to build this model. We can compare the accuracy given by each classifier and select the most optimized classifier. The model will categorize all the users into one of the above categories mentioned. To do this, model will check the ratings given by a user to each anime and its genre. Model can classify the new user as particular type based on genre he/she has given the highest rating.

4. LIMITATIONS

While creating the categories or clusters we have introduced some bias by considering different genre under a given category. The preferred notion of behavioral category for a given genre may differ from person to person.

There can be different movies with same genre which have very different influence on individual. Some movies of a particular genre can appeal audience in a positive way and other movie of the same genre may have negative impact on audience.

5. CONCLUSION

This paper discusses the impact of movies on individual behavior as well as society. This paper gives a detailed overview of how movies and content we see can potentially affect our behavior. It also elaborates a machine learning algorithms that can be used to predict the category of an individual based on the type of content preferred by that individual.

Analysis can be done to find the authentic relation between genres of movie and human behavior. This study can be used to map the genre with appropriate attitude or behavior. It can help model to give a better non-biased prediction.

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