



An AI Bot Who Is Suggesting Words to Create Trending Social Media Posts

SJSU Rajapaksha
(Reg. No.: MS19806532)
M.Sc. in IT
Specialized in Information Technology

Supervisor: Dr. Anuradha Jayakody


June 2021

**Department of Information Technology
Faculty of Graduate Studies and Research
Sri Lanka Institute of Information Technology**

Declaration

I declare that to the best of my knowledge, this submission is my own work and does not contain any pre-published or written material by any other person or thing, which has been widely accepted for the granting of any other degree to a university or other higher education institution.

Certified by: SJSU Rajapaksha (MS19806532)

Signature: 

Date: 17-09-2021

The above candidate has carried out research for the M.Sc. thesis under my supervision.

Name of Supervisor: Dr. Anuradha Jayakody

Signature:

Date:

Abstract

Today, social media is the mainstay of many advertising campaigns. As an example, facebook, youtube social media are widely used by TV and radio channels to advertise their programs. Not only that but many higher education institutions and even business organizations use social media extensively to reach out to a wider audience. At the same time, more and more of these advertising agencies are emerging than ever before. Despite spending so much money on social media, it can be seen that only selected advertisements reach the masses. The main reason for this is that although many people advertise on social media, they do not have a good understanding of how to do it correctly using the correct keywords. As a solution to this, before placing such an advertisement or any post on social media, if there is a prior understanding of how the product or service should be advertised these days and what words and pictures should be used for the post, then advertising is most effectively can be done. Therefore, the purpose of this project, which author is going to carry out, is to create a website for those who want to study the trending information in the social media, using artificial intelligence technology and want to do a new publicity. In other words author has created a system to get suggested keywords for social media posts according to the relevant category what should be included in their new posts to be a trending post. The author has collected data & information to archive this task related to trending social media posts for various categories and then has done a prediction by considering the amount of reaches, likes and also the comments. In this project author has used two models with linear regression and multi linear regression based AI techniques. In methodology chapter author has clearly mentioned about them. After used newly created system it was identified that new system has an increment of user reactions than using the traditional posting methods. Therefore following the testing of the new system, user responses to posts created using keywords derived from the new system were found to be higher than the responses to posts created in the normal way, and more details are contained in testing & evaluation chapter.

Acknowledgment

I would like to express my heartfelt thanks to all the outstanding people who helped me to successfully carry out this research. First of all, many thanks to my supervisor, Dr. Anuradha Jayakody, Assistant Professor, Coordinator, MSc in IS, Sri Lanka Institute of Information Technology, its extensive knowledge, expertise, and valuable guidance helped me to complete this research successfully.

My heartfelt thanks to Mr. Samantha Rajapaksha, senior lecturer and M.Sc. Coordinator (IT), Faculty of Computing, Sri Lanka Institute of Information Technology, for providing his valuable advice and suggestions related to my research. Also, my heartfelt thanks to the research progress review committee, for their important suggestions and comments for improving the quality of my research.

Lastly, I always thank my friends and parents for their support and encouragement throughout my research study.

SJSU Rajapaksha

Table of Contents

Declaration	ii
Abstract	iii
Acknowledgment	iv
Table of Contents.....	v
List of Figures	vii
List of Tables	viii
List of Equation	ix
Chapter 1 : Introduction	1
1.1 Introduction	1
1.2 Background to study	1
1.2.1 About Business & service promotions.....	1
1.2.2 Types of promotion media	2
1.2.3 Why social media important among other media?	2
1.2.4 How to success using social media posts-based promotions	3
1.2.5 Why it is important create a trending post?	3
1.3 Problem Statement	3
1.4 Research objective	4
1.5 Research Question	4
1.6 Overview of the thesis	4
Chapter 2 : Literature Review	6
2.1 Social media signals, people’s behavior & business model using content analysis in social media ...	6
2.2 Explore the effect of trending topics in social media through likes, comments & sentiment analysis	7
2.3 Post popularity prediction & use of clustering and regression techniques to predict post likes in social media	10
2.4 Information cascade predicting using support vector regression & Trust rating prediction using fuzzy linear regression	16
2.5 Automated content based classification & use of artificial neural networks to predict Facebook post performance	20
2.6 Student performance prediction using the linear regression & Exploiting Knowledge Graph to Improve Text-based Prediction	22
2.7 User preference judge method & campaigns profiling with political influence in social networking	25
2.8 Effectiveness of social media based advertising & approach of deep learning to robust detection of bots in twitter using transformers	31
2.9 Research gap & Conceptual framework.....	34
	v

Chapter 3 : Methodology.....	36
3.1 Abstract diagram of the mechanism	36
3.2 Block diagram for linear regression model based mechanism.....	38
3.3 Algorithm for linear regression model based mechanism.....	38
3.4 Block diagram for multi linear regression model based mechanism.....	43
3.5 Algorithm for multi linear regression model based mechanism	43
3.6 Innovation of the proposed system	46
Chapter 4 : Implementation.....	47
4.1 About Implementation.....	47
4.2 Using general posts	47
4.3 Using developed system	47
Chapter 5 : Testing and evaluation	52
5.1 Test scenarios & experimental results	52
5.2 Results obtained for various categories	55
5.3 Evaluation	64
5.4 Discussion	69
5.5 Conclusion.....	70
5.6 Idea for future researches.....	71
5.6.1 Regarding Images	71
5.6.2 Regarding Videos	71
5.6.3 Regarding Audio.....	72
5.6.4 Regarding mass media	72
5.6.5 Regarding advertising companies	73
References	74

List of Figures

Figure 2.1 Linear regression graph.....	16
Figure 2.2 Conceptual framework.....	34
Figure 3.1 Abstract diagram of the mechanism	36
Figure 3.2 Block diagram for linear regression model based mechanism	38
Figure 3.3 Block diagram for multi linear regression model based mechanism.....	43
Figure 4.1 Use case diagram of the system.....	48
Figure 4.2 User's selection for linear regression based model	49
Figure 4.3 Output according to user's selection for linear regression based model	49
Figure 4.4 User's selection for multi linear regression based model	50
Figure 4.5 Output according to user's selection for multi linear regression based model	50
Figure 5.1 Model Comparison Graph	53
Figure 5.2 Experimental result for the post promoted without using developed system	54
Figure 5.3 Experimental result for the post promoted using multi linear regression based developed system.....	54
Figure 5.4 Experimental result for the post promoted using linear regression based developed system	55
Figure 5.5 No of Reaches classic	56
Figure 5.6 No of Likes classic.....	57
Figure 5.7 No of Comments classic	58
Figure 5.8 No of Shares classic	59
Figure 5.9 No of Reaches New System.....	60
Figure 5.10 No of Likes New System	61
Figure 5.11 No of Comments New System.....	62
Figure 5.12 No of Shares New System	63
Figure 5.13 Reaches Comparison	65
Figure 5.14 Likes Comparison	66
Figure 5.15 Comments Comparison.....	67
Figure 5.16 Shares Comparison	68

List of Tables

Table 3.1 Linear regression predicted values	40
Table 3.2 Multi linear regression predicted values	44
Table 5.1 Model Comparison	52
Table 5.2 No of Reaches classic detailed	56
Table 5.3 No of Likes classic detailed	57
Table 5.4 No of Comments classic Detailed	58
Table 5.5 No of Shares classic Detailed	59
Table 5.6 No of Reaches New System Detailed.....	60
Table 5.7 No of Likes New System Detailed	61
Table 5.8 No of Comments New System Detailed	62
Table 5.9 No of Shares New System Detailed	63
Table 5.10 Reaches Comparison Detailed	65
Table 5.11 Likes Comparison Detailed	66
Table 5.12 Comments Comparison Detailed	67
Table 5.13 Shares Comparison Detailed	68
Table 5.14 Increased Reaches	69
Table 5.15 Increased Likes	69
Table 5.16 Increased Comments.....	70
Table 5.17 Increased Shares	70

List of Equation

Equation 2.1 Calculate Normalization.....	14
Equation 2.2 Linear regression formula	15