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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**MINI PROJECT**

**Social Media Analytics for user Behaviour prediction**

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**OBJECTIVE**

Is to analyze data generated by social media platforms to identify patterns, trends, and insights that can predict user actions, preferences, and interactions. The insights gained can be used for various strategic purposes, such as marketing, content optimization, customer service, and improving user engagement.

**ABSTRACT**

Social media platforms generate vast amounts of data through user interactions, including likes, shares, comments, and posts. Social Media Analytics for User Behavior Prediction leverages this data to understand, analyze, and predict user behavior patterns. This process involves applying techniques like data mining, machine learning, natural language processing (NLP), and network analysis to identify trends, sentiments, and user preferences. The goal is to forecast user engagement, segment audiences, personalize content, and optimize marketing strategies. Insights derived from these predictions help businesses improve decision-making, enhance user engagement, identify influencers, and detect anomalies such as fake accounts or fraudulent activities.

**INTRODUCTION**

In today's digital age, social media platforms have become an integral part of people's lives, serving as spaces for communication, content sharing, and brand interaction. The sheer volume of data generated daily — through likes, shares, comments, posts, and other forms of engagement — presents a valuable opportunity to understand and predict user behavior. Social Media Analytics refers to the process of collecting, analyzing, and interpreting social media data to gain insights into user behavior, preferences, and trends.

**HARDWARE & SOFTWARE REQUIREMENTS**

**RAM:** 8GB  
**Hard Disk:** At least 1GB of free Hard Disk space  
**Operating System:** Windows 11  
**Coding Language:** Python  
**IDE:** Visual Studio

**EXISTING SYSTEM**

Existing systems for social media analytics and user behaviour prediction utilize a blend of advanced technologies and methodologies to extract valuable insights from user-generated data. These systems begin with robust data collection techniques, including APIs and web scraping, to gather information from various platforms like Twitter and Facebook. Natural language processing (NLP) is then employed for sentiment analysis, enabling organizations to gauge the emotional tone of user content and understand public perception of their brand. Behavioural analytics track user interactions—such as likes, shares, and comments—allowing for the identification of trends and preferences.

**PROPOSED SYSTEM**

To address the limitations of existing social media analytics systems for user behavior prediction, a proposed system can integrate various machine learning techniques, including Logistic Regression, K-Nearest Neighbors (KNN), K-Means Clustering, Random Forest, and XGBoost. Logistic Regression serves as a foundational tool for binary classification tasks, such as predicting user engagement, while its simplicity and interpretability enhance understanding of user behavior. KNN can identify user segments based on behavioral similarities, allowing for targeted marketing strategies and personalized content delivery.

**CONCLUSION**

In conclusion, social media analytics has emerged as a powerful tool for predicting user behavior, enabling businesses and organizations to gain valuable insights into their target audience's preferences, interests, and behaviors. By leveraging machine learning algorithms and statistical techniques, social media analytics can help identify patterns and relationships in large datasets, allowing for more accurate predictions of user behavior.

**REFERENCES**

1. https://link.springer.com/article/10.1007/s11042-021-11644-8

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