A

Major Project Report

on

GROUP SHILLING ATTACKS IN ONLINE RECOMMENDER SYSTEMS BASED ON BISECTING K-MEANS CLUSTERING

Submitted to

Jawaharlal Nehru Technological University, Hyderabad

in partial fulfillment of the requirements for the award of Degree of

Bachelor of Technology

in

Computer Science & Engineering

by

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2022-2023

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the major project entitled "**GROUP SHILLING ATTACKS IN ONLINE RECOMMENDER SYSTEMS BASED ON BISECTING K-MEANS CLUSTERING**" is submitted by **M. Sravani (196Y1A0562), R. Sri Chandana (196Y1A0588), N. Vyshnavi (196Y1A0569), S. Sandhya (196Y1A0595)** in the partial fulfillment of requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering during academic year 2022-2023.

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ABSTRACT

Existing shilling attack detection approaches focus mainly on identifying individual attackers in online recommender systems and rarely address the detection of group shilling attacks in which a group of attackers colludes to bias the output of an online recommender system by injecting fake profiles. In this article, we propose a group shilling attack detection method based on the bisecting K-means clustering algorithm. First, we extract the rating track of each item and divide the rating tracks to generate candidate groups according to a fixed time interval. Second, we propose item attention degree and user activity to calculate the suspicious degrees of candidate groups. Finally, we employ the bisecting K-means algorithm to cluster the candidate groups according to their suspicious degrees and obtain the attack groups. The results of experiments on the Netflix and Amazon data sets indicate that the proposed method outperforms the baseline methods.

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