A

Major Project Report

on

PROTECTING YOUR SHOPPING PREFERENCE WITH DIFFERENTIAL PRIVACY

Submitted to

Jawaharlal Nehru Technological University, Hyderabad

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

Bachelor of Technology

in

Computer Science & Engineering

by

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2022-2023

S.R.I.T. FOR WOMEN * WARANGAL *

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CERTIFICATE

This is to certify that the Major-Project entitled "**PROTECTING YOUR SHOPPING PREFERENCE WITH DIFFERENTIAL PRIVACY**" is submitted by **GUFFRANA ANJUM** ***(196Y1A0542)***, **KAKKERLA NEHA** ***(196Y1A0548)***, **DUGYALA JYOTHI** ***(196Y1A0529)*** *and* **GOLLA NIKHITHA SREE** ***(196Y1A0536)*** in the partial fulfillment of requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering during academic year 2022-23.

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ABSTRACT

Due to a variety of attacks, customer shopping habits may become publicised by online banks. Differential privacy enables users to alter their consumption amounts locally before transmitting them to their respective online banks. However, the noise boundary problem is not taken into account by existing differential privacy schemes, so implementing it directly in online banking will lead to complications in practise. In this paper, we propose a scheme called Optimized Differential private Online transaction (O-DIOR) for use by online banks in establishing spending limits that take into account the presence of noise. To select new boundaries in accordance with the differential privacy definition, we then modify O-DIOR and create a RO-DIOR scheme. We also provide extensive theoretical analysis to show that our schemes can meet the differential privacy requirement. Finally, we have tested our schemes in the context of mobile payment scenarios in order to assess their efficacy. In terms of mutual information, experimental results show that privacy losses are less than 0.5, and the relevance between consumption amount and online bank amount is significantly reduced.

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