

*A  
Project Report  
On*

**“CREDIT CARD FRAUD DETECTION”**

*Submitted in partial fulfillment of  
the requirements for the 7<sup>th</sup> Semester Sessional Examination of*

*BACHELOR OF TECHNOLOGY  
IN*

**Computer Science and Engineering**

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## **CERTIFICATE**

*This is to certify that the project work entitled “**Credit Card Fraud Detection**” is done by **Rajat Kumar Sahu(21UGO10511)**, **Mihir Kumar Bhanja(21UG010433)** in partial fulfillment of the requirements for the 7<sup>th</sup> Semester Sessional Examination of Bachelor of Technology in **Computer Science and Engineering** during the academic year 2024-25. This work is submitted to the department as a part of evaluation of 7<sup>th</sup> Semester Major Project-1.*

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## **ABSTRACT**

The **Credit Card Fraud Detection** project focuses on applying machine learning techniques to enhance the security of financial transactions by accurately identifying fraudulent activities. As digital payments become increasingly prevalent, the necessity for effective fraud detection systems has grown to prevent significant financial losses for both consumers and financial institutions. The primary objective of this project is to develop a robust system capable of real-time detection of fraudulent transactions. By analyzing transaction data patterns, the system aims to minimize false positives—instances where legitimate transactions are incorrectly flagged as fraudulent—while ensuring prompt detection of actual fraudulent activities. This balance is crucial for maintaining user trust in digital payment systems. The project encompasses several key components, including data preprocessing, feature extraction, model training, and evaluation. The focus on real-time monitoring is essential to enhance accuracy in fraud detection and reduce the occurrence of false positives. Furthermore, the system is designed to be scalable, allowing for seamless integration into existing banking systems and online payment platforms. In terms of system requirements, the project utilizes Python as the programming language, along with libraries such as Scikit-learn, Pandas, NumPy, and TensorFlow for data analysis and machine learning. The database management is handled through MySQL, with Google Colab serving as the integrated development environment (IDE). Hardware requirements include a Pentium III processor, 128 MB of RAM, and 20 GB of hard disk space. In conclusion, the Credit Card Fraud Detection project addresses a critical need for secure transaction monitoring in today's digital landscape. By leveraging advanced machine learning algorithms, the system effectively identifies fraudulent activities in real time, significantly reducing potential financial losses while enhancing overall security. Its ability to adapt to evolving fraud patterns ensures continuous improvement in detection capabilities. This proactive approach not only secures digital payments but also builds trust among users and financial institutions, making it a comprehensive solution for combating credit card fraud. The project's scalability further ensures that it can be integrated with various banking platforms, paving the way for safer financial transactions in an increasingly digital economy.

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