SMART LOAN APPOROVAL PREDICTION

ADD-ON ARTIFICIAL INTELLIGENCE

Submitted by

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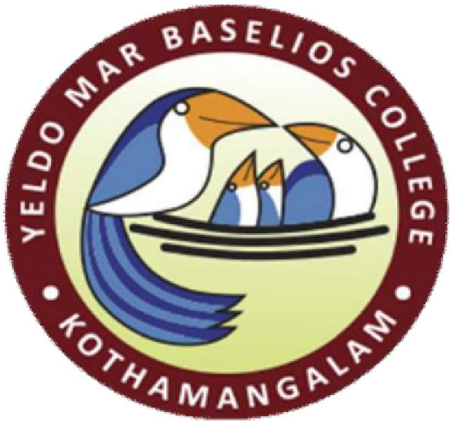

DEPARTMENT OF COMPUTER APPLICATIONS

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JULY – 2025

CERTIFICATE

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CERTIFICATE

This is to certify that the project report, entitled **SMART LOAN APPROVAL PREDICTION**, submitted as part of the requirements for the award of the certificate in the Add-on Course in Artificial Intelligence, conducted under the Department of Computer Applications, is a record of work done by **ARJUN PS (Register No: 230021079495)** under my supervision and guidance.

Signature of the HoD

NIMMY N ABHRAHAM

HoD, Computer Applications.

Signature of the Guide

PRAVEENA E

AI Trainer from Unique World

Robotics

Signature of the Principal

SOLOMON K PETER

Submitted for viva-voce examination held on……..

INTERNAL EXAMINER **EXTERNAL EXAMINER**

ACKNOWLEDGEMENT

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First of all, I express my heartfelt thanks to **ALMIGHTY GOD** for blessings to complete my project work successfully.

I take immense pleasure in expressing my gratitude for blessings to successful completion of the course.

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ARJUN PS

ABSTRACT

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This project, titled **SMART LOAN APPROVAL PREDICTION**, is designed to apply machine learning techniques to improve the accuracy and efficiency of loan approval decisions. The system analyses various input features including loan amount, interest rate, tenure, employment status, monthly income, CIBIL score, debt-to-income ratio, property ownership, and number of dependents to classify loan applications as *Approved*, *Declined*, or *Fraudulent*. Traditional manual methods in financial institutions are often time-consuming and subject to human bias, whereas this model ensures faster, more consistent, and data-driven evaluations.

To achieve this, extensive data preprocessing was performed, including missing value handling, categorical encoding, and feature scaling. The XGBoost classification algorithm was chosen after comparing it with other models like Decision Tree and Logistic Regression, due to its high performance in structured data problems. The trained model demonstrated reliable accuracy, and was evaluated using standard metrics such as accuracy score, confusion matrix, and F1-score.

Furthermore, the system was deployed as an interactive web application using Streamlit. This allows users to input loan and applicant details and receive instant prediction results, enhancing its real-world usability. The project showcases how Artificial Intelligence can significantly optimize financial workflows and offers a scalable foundation for smart lending solutions in modern banking environments.

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