



National University
of computer and emerging sciences

Data Science Tools and Technologies

Semester Project

Title

Predicting Credit Card Default Risk Using Machine Learning

Supervised By
Dr. Kashif Zafar

Members

Aousaf Sulaman	25L-8013
Ali Hussan	25L-8007
Sana Imtiaz	25L-8037

Overview:

This project focuses on analyzing the **Default of Credit Card Clients dataset**, sourced from Kaggle and the UCI Machine Learning Repository. The objective is to build a classification model that predicts whether a credit card client will default on their next payment. By leveraging past payment records, demographic details, and financial behavior, the project applies machine learning techniques to classify clients into **default** or **non-default** categories. This predictive modelling not only helps in understanding risk factors but also provides insights useful for financial institutions in credit risk management and decision-making.

Problem Statement:

Credit card defaults pose a major financial risk to banks and institutions. Identifying potential defaulters in advance enables better decision-making and risk management.

Expected Outcomes:

- A trained classification model to predict client defaults.
- Performance comparison across multiple ML algorithms.
- Insights into key factors influencing defaults.

Tools & Technologies

Python, Pandas, Scikit-learn, Matplotlib/Seaborn, Jupyter Notebook, WEKA

Data Sources:

- Kaggle
- UC Irvine Machine Learning Repository
- Hugging Face

Steps:

- Data Preprocessing
- Feature Selection
- Splitting Dataset into Training and Testing Sets
- Model Training
- Evaluating Model Performance by different evaluation metrics
- Visualisation
- Story Telling

Project Objective:

To predict credit card client defaults using classification models for improved credit risk assessment.