National University
of computer and emerging sciences

Data Science Tools and Technologies

Semester Project

Title

Predicting Credit Card Default Risk Using Machine Learning: A
Comparative Analysis of Classification Model

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

The process will continue in a tight loop, with different models, feature selection and Pre Processing to get the best accuracy of the model

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