Project Introduction

Machine learning has revolutionized how we analyze data, make predictions, and automate decision-making processes across various domains, including healthcare, finance, and technology. Among the foundational techniques in machine learning, logistic regression has been a cornerstone for binary classification tasks due to its simplicity and interpretability.

Logistic regression is a statistical model that predicts the probability of a binary outcome based on input features. Its mathematical foundation and ease of implementation make it a popular choice for problems of bank loan risk assessment.

While logistic regression is effective for simpler tasks, it faces limitations when handling complex, non-linear relationships in data. To address these challenges, deep learning models, inspired by logistic regression, have emerged. These models leverage neural networks to extend the principles of logistic regression, allowing for greater flexibility and the ability to handle large-scale, high-dimensional data.

This project aims to provide a comprehensive overview of logistic regression, exploring its theoretical foundations, applications, and limitations. Additionally, it delves into its deep learning extensions, comparing their performance and suitability for various problem domains.

With the increasing demand for accurate and scalable classification systems, understanding the progression from logistic regression to deep learning models is crucial. This project not only sheds light on the theoretical aspects but also demonstrates practical implementations in domains such as bank loan paid back predictive analytics.