Title: Multi-Category Classification using Machine Learning

Abstract:
This project focuses on building a multi-category classification system using supervised machine learning algorithms. The Iris dataset was used to classify flowers into multiple categories based on their physical characteristics. Various machine learning models such as Logistic Regression, Decision Tree, and Random Forest were implemented and evaluated. The Random Forest model achieved the highest accuracy.

Objectives:
• To understand multi-category classification
• To preprocess and analyze data
• To implement multiple ML models
• To evaluate model performance

Dataset Description:
Dataset Name: Iris Dataset
Records: 150
Features: 4
Classes: 3

Tools & Technologies:
Python, Google Colab, Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn

Methodology:
1. Data Collection
2. Data Preprocessing
3. Data Visualization
4. Model Training
5. Model Evaluation

Models Used:
• Logistic Regression
• Decision Tree Classifier
• Random Forest Classifier

Results:
Random Forest achieved the highest accuracy among all models.

Conclusion:
The project successfully demonstrates a complete machine learning pipeline for multi-category classification. Random Forest proved to be the most efficient model for this dataset.

Future Scope:
• Use larger datasets
• Apply deep learning techniques
• Deploy as a web application