STUDENT EXAM SCORE PREDICTOR

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CONTENTS

INTRODUCTION

- Academic performance analysis is essential for student success
- This project predicts student exam scores using machine learning
- Helps identify factors affecting student performance
- Provides data-driven insights for improvement

PROBLEM STATEMENT

- Student performance depends on multiple academic factors
- Traditional evaluation methods lack predictive capability
- Manual analysis is inefficient and time-consuming
- Need an automated, intelligent prediction system

DATASET OVERVIEW

- Dataset contains academic and behavioral student data
- Features include study hours, attendance, internal scores
- Target variable is final exam score
- Data collected from reliable educational sources

DATA PREPROCESSING

- Removal of missing and inconsistent data
- Encoding of categorical variables
- Feature scaling for model efficiency
- Train-test split for validation

MACHINE LEARNING MODELS USED

- Linear Regression for baseline performance
- Random Forest Regressor for higher accuracy
- Comparison of model results
- Selection based on evaluation metrics

MODEL TRAINING & EVALUATION

- MODELS TRAINED ON HISTORICAL STUDENT DATA
- EVALUATION USING R^2 SCORE AND MAE
- RANDOM FOREST SHOWED SUPERIOR PREDICTION ACCURACY
- OVERFITTING MINIMIZED USING TUNING TECHNIQUES

STREAMLIT WEB APPLICATION

- INTERACTIVE WEB APPLICATION DEVELOPED USING STREAMLIT
- USER INPUTS STUDENT DETAILS THROUGH UI
- REAL-TIME PREDICTION OF EXAM SCORE
- SIMPLE, RESPONSIVE, AND USER-FRIENDLY DESIGN

RESULTS & FINDINGS

- ACCURATE PREDICTION OF STUDENT EXAM SCORES ACHIEVED
- RANDOM FOREST OUTPERFORMED LINEAR REGRESSION
- MODEL GENERALIZES WELL ON UNSEEN DATA
- USEFUL TOOL FOR ACADEMIC PLANNING

CONCLUSION & FUTURE SCOPE

- MACHINE LEARNING EFFECTIVELY PREDICTS ACADEMIC PERFORMANCE
- SYSTEM SUPPORTS TEACHERS AND STUDENTS IN DECISION-MAKING
- FUTURE SCOPE INCLUDES MORE FEATURES AND DATA SOURCES
- CAN BE DEPLOYED ON CLOUD PLATFORMS