Control Panel

Configure model parameters and view analytics

Navigation

- Home
- Data Analysis
- Model Training
- Prediction
- About

Version: 1.0.0

Last Updated: 2023-05-20

View Source Code on GitHub

Made with ❤️ by Shiv Sharan

Student Performance Analytics

Advanced prediction platform with ML ensemble techniques

🔬 Model Training & Evaluation

Train and evaluate multiple machine learning models for student performance prediction. Compare different models and analyze their performance metrics.

Train Models

Train Machine Learning Models

Test Size (%)

20

10 50

Random Seed

42

0 100

Model Selection

- [x] Linear Regression
- [x] Random Forest
- [x] XGBoost
- [x] Ensemble Model

Train Selected Models

Model Evaluation

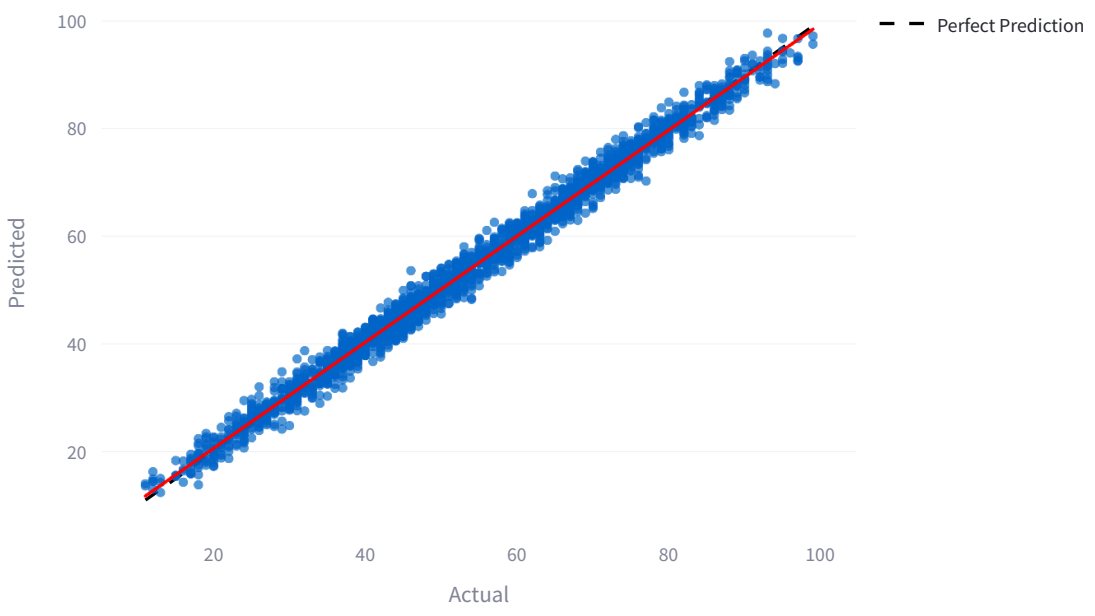
Model Evaluation

Select Model for Evaluation

Linear Regression

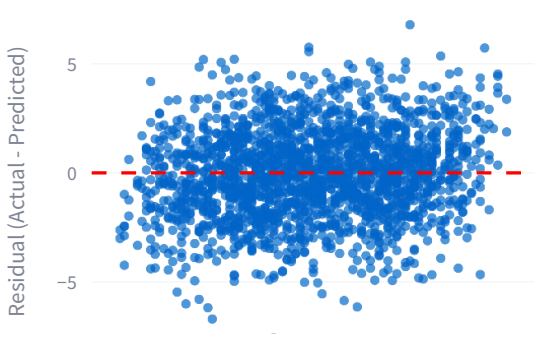
Actual vs Predicted Values

Linear Regression: Actual vs Predicted Values

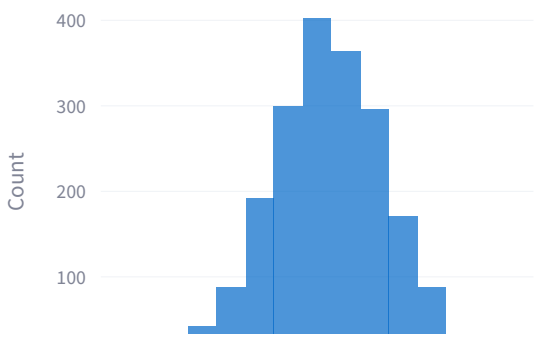


Residual Analysis

Linear Regression: Residual Plot



Linear Regression: Residual Distribution



Performance Metrics

R^2 Score	MAE	RMSE	MSE
0.989	1.609	2.018	4.072

Feature Importance Analysis

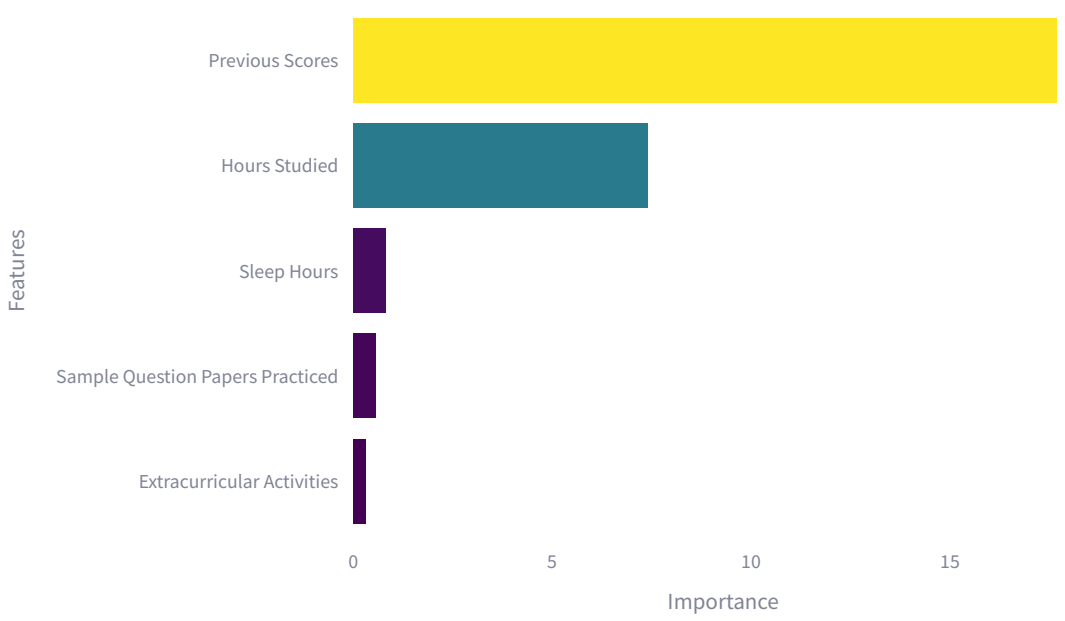
Feature Importance Analysis

Select Model for Feature Importance

Linear Regression

Feature Importance for Linear Regression

Feature Importance



Interpretation

Feature importance shows the relative contribution of each feature to the model's predictions. Higher values indicate more influential features for predicting student performance.

	Feature	Importance
1	Previous Scores	17.6732
0	Hours Studied	7.4006
3	Sleep Hours	0.8228
4	Sample Question Papers Practiced	0.5578
2	Extracurricular Activities	0.3060

Cross-Validation Analysis

Cross-Validation Analysis

Select Model for Cross-Validation

Linear Regression

Number of CV Folds

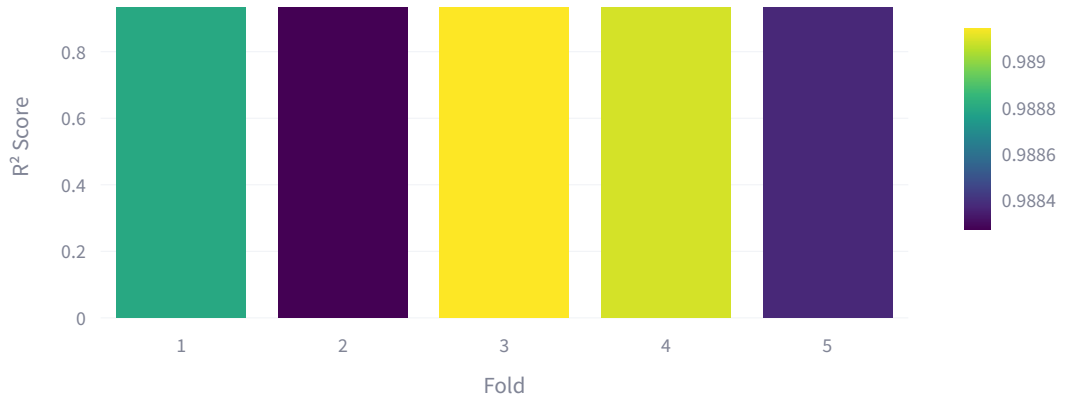
5

3 10

5-Fold Cross-Validation Results

Mean R^2 Score	Standard Deviation
0.989	0.000

Cross-Validation Scores for Linear Regression



Interpretation

The low standard deviation in cross-validation scores suggests that the model's performance is consistent across different subsets of the data. This indicates good generalization.

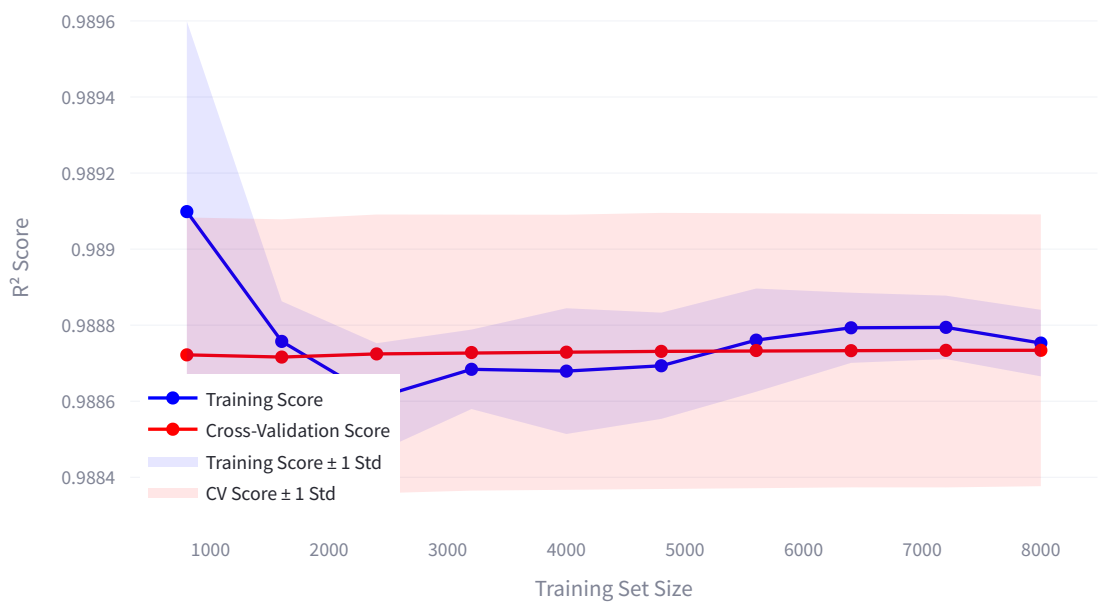
Learning Curves

Learning Curves

Select Model for Learning Curves

Linear Regression

Learning Curves for Linear Regression



Interpretation

The learning curves show that the model is performing well, with both training and cross-validation scores converging to a high value. This indicates good generalization.

The cross-validation score doesn't improve much with more training data. This suggests that collecting more data may not significantly improve model performance.