

# Fairfluence Report

The dataset used to create this report:

<https://www.kaggle.com/datasets/therohithanand/student-academic-performance-dataset>

## Dataset Summary

Metric	Value
Number of Columns	15
Number of Records	1000
Total Cells	15000
Missing Cells	0
Missing Percentage	0.00%
Duplicate Records	0
Duplicate Percentage	0.00%
Memory Usage	484.79 KB
Average Record Size	496.42 Bytes

## Column Type Summary

Column Type	Count
Categorical Columns	8
Numeric Columns	5
Text Columns	2

## Alerts

Level	Message
Info	Column "student_id" has no missing values
Info	Column "student_id" has all unique values
Info	Column "name" has no missing values
Info	Column "name" has all unique values
Info	Column "gender" has no missing values
Info	Column "age" has no missing values
Info	Column "grade_level" has no missing values
Info	Column "math_score" has no missing values
Info	Column "reading_score" has no missing values
Info	Column "writing_score" has no missing values
Info	Column "attendance_rate" has no missing values
Info	Column "attendance_rate" has all unique values
Info	Column "parent_education" has no missing values
Info	Column "study_hours" has no missing values

Info	Column "study_hours" has all unique values
Info	Column "internet_access" has no missing values
Info	Column "lunch_type" has no missing values
Info	Column "extra_activities" has no missing values
Info	Column "final_result" has no missing values

Quality Results

F1 Score Report

F1 Score (Original)	F1 Score (Statistic)	F1 Score (Influence)
0.5517	0.5517	0.5517

Outlier Summary

Influence Outliers (Count)	Influence Outliers (%)	Mahalanobis Outliers (Count)	Mahalanobis Outliers (%)	Overlap (Count)
0	0.0	0	0.0	0

Fairness Results

Top Patterns

Pattern Column 1	Pattern Value 1	Support	Responsibility	Interestingness
grade_level	(11.0, 12.0]	0.2275	1.1477	5.0447
parent_education	High School	0.2425	0.8562	3.5306
lunch_type	Free or reduced	0.4938	1.5771	3.1942
reading_score	(66.0, 83.0]	0.3512	1.1085	3.1559
writing_score	(84.0, 99.0]	0.325	0.9551	2.9388

Fairness (No Influence)

Sensitive Feature	DPD	DPD Fair	EOD	EOD Fair	PPV Diff	PPV Fair
gender	0.3676	No	0.3821	No	0.1727	No
age	0.1474	No	0.266	No	0.1958	No

Fairness (With Influence)

Influence Group	Positive Group	Mean (Positive)	Mean (Other)	Mean Difference	Influence Fair	Cohen Fair
grade_level	(11.0, 12.0]	-0.00004472	0.00010254	-0.00014727	Yes	Yes
parent_education	High School	0.00022621	0.00001216	0.00021405	No	Yes
lunch_type	Free or reduced	0.00020465	-0.00007304	0.00027770	No	Yes

reading_score	(66.0, 83.0]	0.00018702	-0.00000213	0.00018915	No	Yes
writing_score	(84.0, 99.0]	0.00026869	-0.00003786	0.00030654	No	Yes