

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	7
Numeric Columns	6
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)
0.5477	0.5477	0.5477

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
reading_score	(49.999, 66.0]	0.3125	2.2596	7.2307
study_hours	(1.01500000000000001, 2.231]	0.3338	2.3004	6.8925
parent_education	Master's	0.2388	1.4538	6.0894
grade_level	(8.999, 10.0]	0.2562	1.4434	5.6329
writing_score	(49.999, 67.333]	0.3338	1.6601	4.9742

Fairness (No Influence)

Sensitive Feature	DPD	DPD Fair	EOD	EOD Fair	PPV Diff	PPV Fair
gender	0.4559	No	0.4679	No	0.1568	No
age	0.0724	Yes	0.1399	No	0.1333	No

Fairness (With Influence)

Influence Group	Positive Group	Mean (Positive)	Mean (Other)	Mean Difference	Influence Fair
reading_score	(49.999, 66.0]	nan	-5.82e-06	nan	No
study_hours	(1.01500000000000000001, 2.231]	nan	-5.82e-06	nan	No
parent_education	Master's	8.028e-05	-3.282e-05	0.0001131	Yes
grade_level	(8.999, 10.0]	nan	-5.82e-06	nan	No

writing_score	(49.999, 67.333]	nan	-5.82e-06	nan	No
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