

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)
0.5385	0.5385	0.5385

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	1.2575	4.0238
age	(14.999, 16.0]	0.3388	1.046	3.0878
age	(16.0, 17.0]	0.3362	1.0279	3.0569
lunch_type	Standard	0.5062	1.4867	2.9366
gender	Female	0.3225	0.9205	2.8542

Fairness (No Influence)

Sensitive Feature	DPD	DPD Fair	EOD	EOD Fair	PPV Diff	PPV Fair
gender	0.3539	No	0.3767	No	0.1966	No
age	0.1474	No	0.2946	No	0.2061	No

Fairness (With Influence)

Influence Group	Positive Group	Mean (Positive)	Mean (Other)	Mean Difference	Influence Fair	Cohen Fair
reading_score	(49.999, 66.0]	-0.00023453	0.00002527	-0.00025981	No	Yes
age	(14.999, 16.0]	-0.00019076	0.00020515	-0.00039592	Yes	Yes
age	(16.0, 17.0]	0.00020515	-0.00019076	0.00039592	Yes	Yes
lunch_type	Standard	-0.00018233	0.00006120	-0.00024353	No	Yes
gender	Female	-0.00017721	-0.00000729	-0.00016992	No	Yes