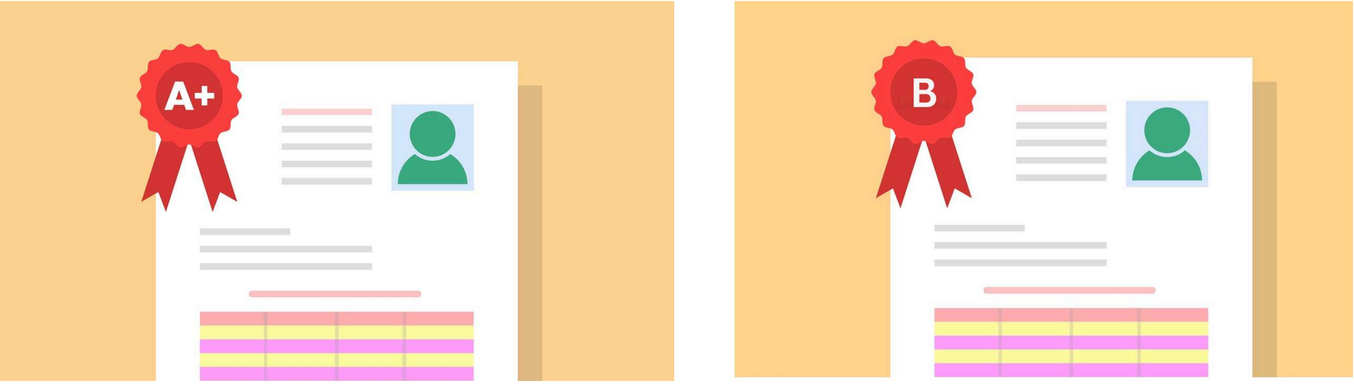
PROJECT: FACTORS THAT FUEL STUDENT PERFORMANCE

datalab



In today's fast-paced and competitive educational environment, understanding the factors that influence student success is more important than ever. Just like the transport system in a bustling city like London must adapt to serve its residents, schools and educators must adapt to meet the needs of students. In this project, we will take a deep dive into a dataset containing rich details about various aspects of student life, such as hours studied, sleep patterns, attendance, and more, to uncover what truly impacts exam performance.

The dataset we'll be working with includes a wide range of factors influencing student performance. By analyzing this data, we'll be able to identify key drivers of success and provide insights that could help students, teachers, and policymakers make informed decisions. The table we'll use for this project is called `student_performance` and includes the following data:

Column	Definition	Data type
`attendance`	Percentage of classes attended	`float`
`extracurricular_activities`	Participation in extracurricular activities	`varchar` (Yes, No)
`sleep_hours`	Average number of hours of sleep per night	`float`
`tutoring_sessions`	Number of tutoring sessions attended per month	`integer`
`teacher_quality`	Quality of the teachers	`varchar` (Low, Medium, High)
`exam_score`	Final exam score	`float`

You will execute SQL queries to answer three questions, as listed in the instructions.

Projects Data DataFrame as `df`

```sql
SELECT *
FROM student_performance
LIMIT 30;
```

i.	hours_studi...	atten...	extracurricular_activities	sleep_h...	tutoring_sessions
0	23	84	No	7	
1	19	64	No	8	
2	24	98	Yes	7	
3	29	89	Yes	8	
4	19	92	Yes	6	
5	19	88	Yes	8	
6	29	84	Yes	7	
7	25	78	Yes	6	
8	17	94	No	6	
9	23	98	Yes	8	
10	17	80	No	8	
11	17	97	Yes	6	
12	21	83	Yes	8	
13	9	82	Yes	8	
14	10	78	Yes	8	
15	17	68	No	8	
16	14	60	Yes	10	

Rows: 30

Projects Data DataFrame as `avg_exam_score_by_study_`

```
-- avg_exam_score_by_study_and_extracurricular
-- Edit the query below as needed
SELECT
    hours_studied,
    AVG(exam_score) AS avg_exam_score
FROM student_performance
WHERE hours_studied > 10
    AND extracurricular_activities = 'Yes'
GROUP BY hours_studied
ORDER BY hours_studied DESC;
```

index	hours_studied	avg_exam_score
0	43	
1	39	
2	38	
3	37	
4	36	
5	35	
6	34	
7	33	
8	32	
9	31	
10	30	
11	29	
12	28	
13	27	
14	26	
15	25	
16	24	

Rows: 30

Projects Data DataFrame as `avg_exam_score_l`

```
-- avg_exam_score_by_hours_studied_range
-- Add solution code below
SELECT
    CASE WHEN hours_studied <= 5 THEN '1-5 hours'
        WHEN hours_studied BETWEEN 6 AND 10 THEN '6-10 hours'
        WHEN hours_studied BETWEEN 11 AND 15 THEN '11-15 hours'
        WHEN hours_studied >= 16 THEN '16+ hours' END
    AS hours_studied_range,
    AVG(exam_score) AS avg_exam_score
FROM student_performance
GROUP BY hours_studied_range
ORDER BY avg_exam_score DESC;
```

	hours_studied_ra...	avg_exa...
0	16+ hours	67.9233633869
1	11-15 hours	65.2043859649
2	6-10 hours	64.2254901961
3	1-5 hours	62.6271186441

Rows: 4

Projects Data DataFrame as s

```sql
-- student_exam_ranking
-- Add solution code below
SELECT
    attendance,
    hours_studied,
    sleep_hours,
    tutoring_sessions,
    DENSE_RANK() OVER(ORDER BY exam_score DESC) AS exam_rank
FROM student_performance
ORDER BY exam_rank ASC
LIMIT 30;
```

	a...	hours_...	sle...	tutoring_sessi...	e.
0	98	27	6	5	1
1	89	18	4	3	2
2	90	14	8	4	3
3	83	23	4	1	3
4	96	28	4	1	4
5	90	28	9	0	4
6	83	16	8	2	4
7	83	15	7	2	5
8	74	21	6	1	5
9	99	25	7	0	5
10	93	18	7	2	6
11	90	18	6	1	7
12	67	21	6	1	7
13	96	24	6	2	8
14	98	25	7	1	8
15	76	29	8	2	8
16	90	19	5	0	8

Rows: 30