Portugals math education

By Alice Destrait

Portuguese government

- **Goal:**
- critique Portugal's math education framework
- reshape the system to elevate standards nationwide
- focusing remediation efforts on struggling students earlier on

- **Data:**
- from 395 students across two Portuguese schools

- **Objective:**
- find similarities between failing students and offer support early

Correlations with the final grades

- High positive correlation with partial grades

- Grade 1 could be used as an indicator of needed support

	index	Correlation
0	class_failures	-0.360415
1	age	-0.161579
2	social	-0.132791
3	travel_time	-0.117142
4	family_size	-0.081407
5	health	-0.061335
6	weekday_alcohol	-0.054660
7	weekend_alcohol	-0.051939
8	free_time	0.011307
9	absences	0.034247
10	family_relationship	0.051363
11	study_time	0.097820
12	father_education	0.152457
13	mother_education	0.217147
14	grade_1	0.801468
15	grade_2	0.904868
16	final_grade	1.000000
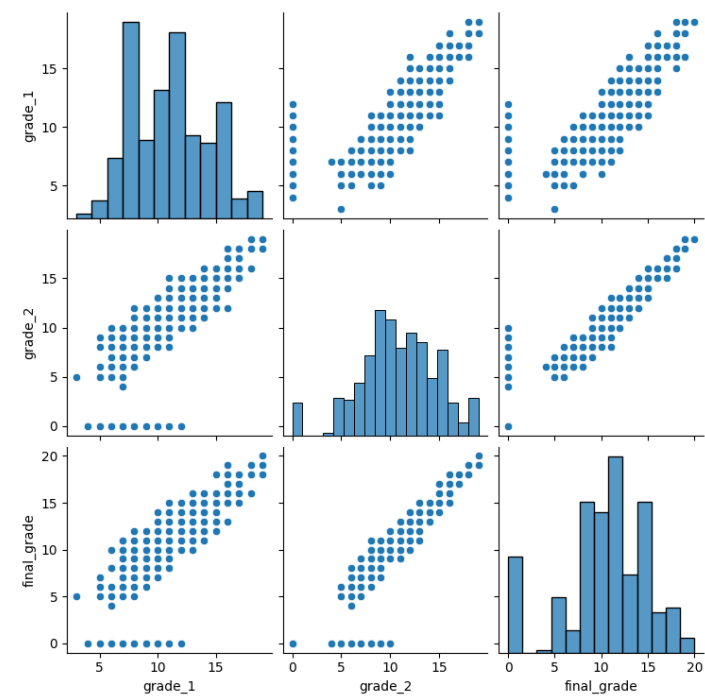
Health, Social,and Alcohol

- Higher alcohol consumption than anticipated

- Mostly healthy students

- High and highly social is linked to lower grades

social	mean final_grade	count final_grade
1.0	9.869565	23
2.0	11.194175	103
3.0	10.961538	130
4.0	9.651163	86
5.0	9.037736	53
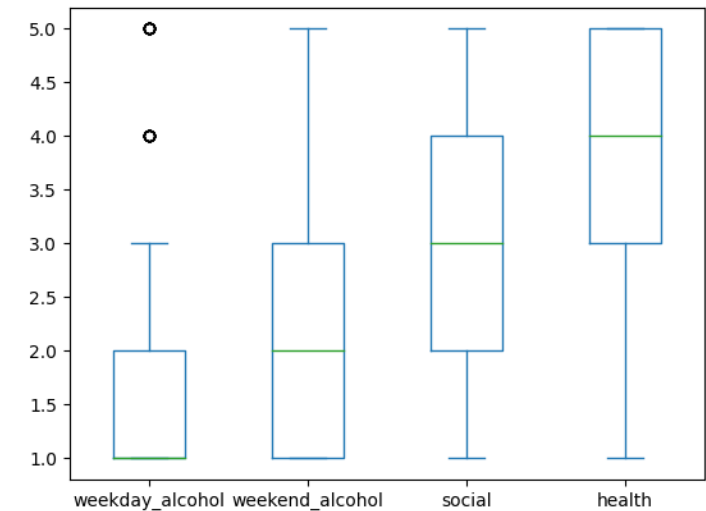
Parents' job

- Stay-at-home parents linked to lower grades
- Teacher and health highest grades

mother_job	mean final_grade	count final_grade
at_home	9.152542	59
health	12.147059	34
other	9.822695	141
services	11.019417	103
teacher	11.051724	58

father_job	mean final_grade	count final_grade
at_home	10.150000	20
health	11.611111	18
other	10.193548	217
services	10.297297	111
teacher	11.965517	29

Mother's job

Father's job
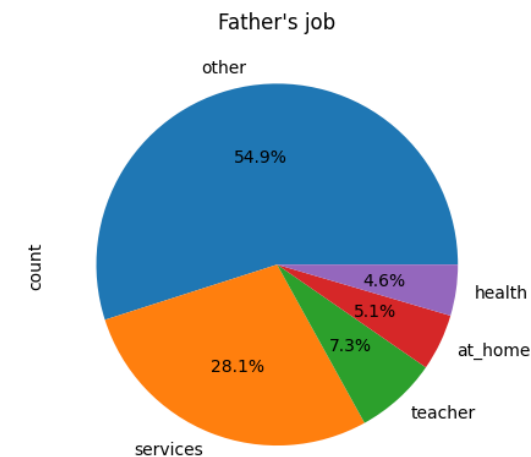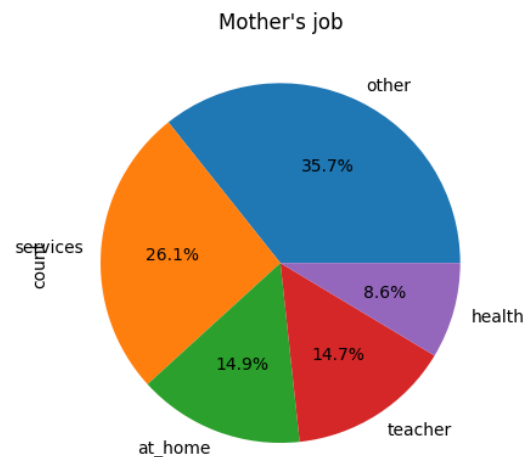
Parents' education

- Higher education, higher grades
- Mother has more impact

(none:0, primary education:1, 5th to 9th grade:2, secondary education:3, higher education:4)

father_education	mean final_grade	count final_grade
0.0	13.000000	2
1.0	9.158537	82
2.0	10.260870	115
3.0	10.660000	100
4.0	11.364583	96

mother_education	mean final_grade	count final_grade
0.0	13.000000	3
1.0	8.677966	59
2.0	9.728155	103
3.0	10.303030	99
4.0	11.763359	131

GOVERNO DE PORTUGAL

Travel time

High travel time, lower grades

	mean	count
	final_grade	final_grade
travel_time		
0.0	10.782101	257
1.0	9.906542	107
2.0	9.260870	23
3.0	8.750000	8

Travel Time
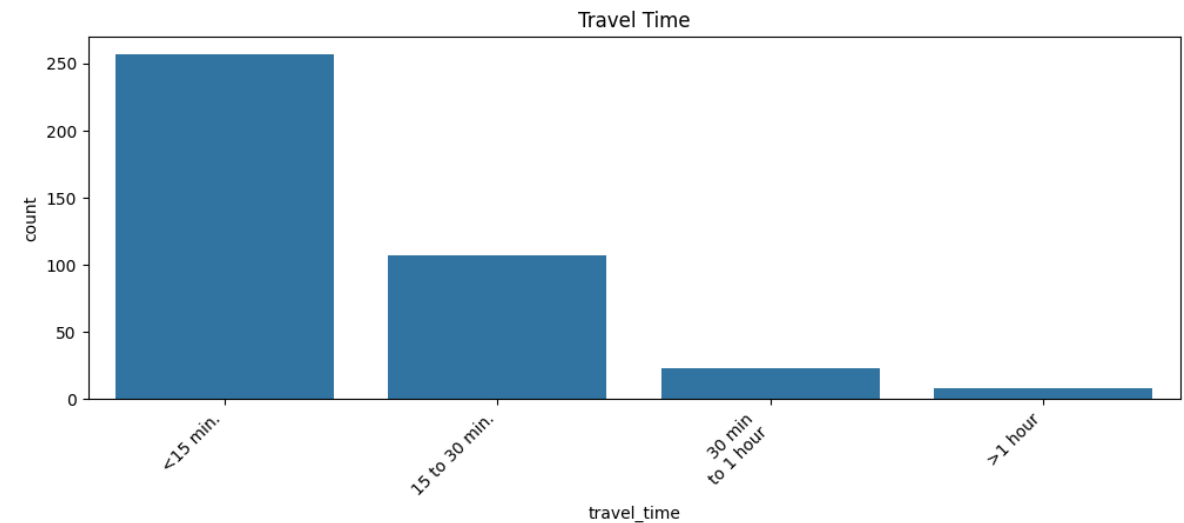
Current support

- More support for failing students
- High amount of failing students, no support

School Support in Top Final Grades

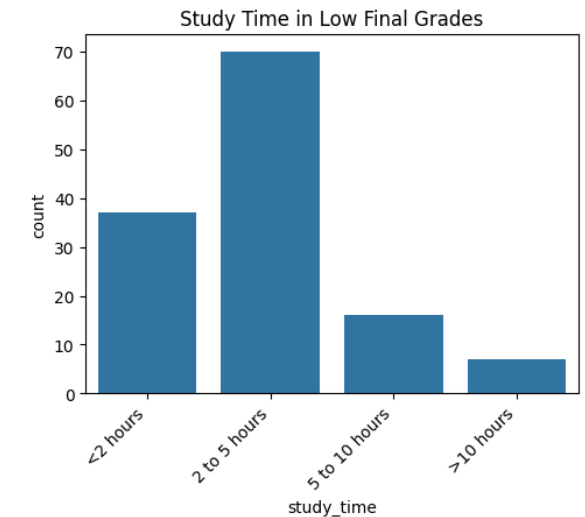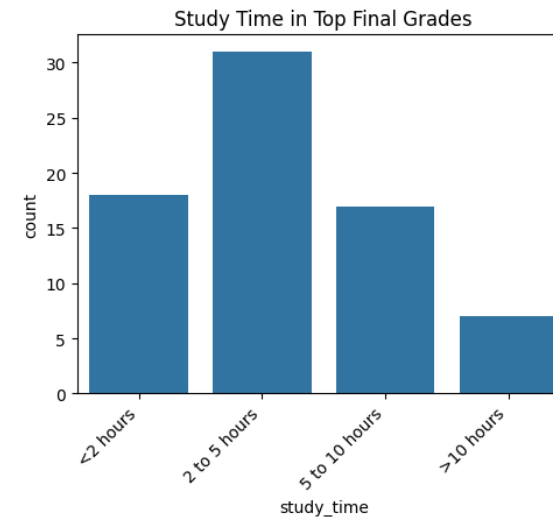School Support in Low Final Grades
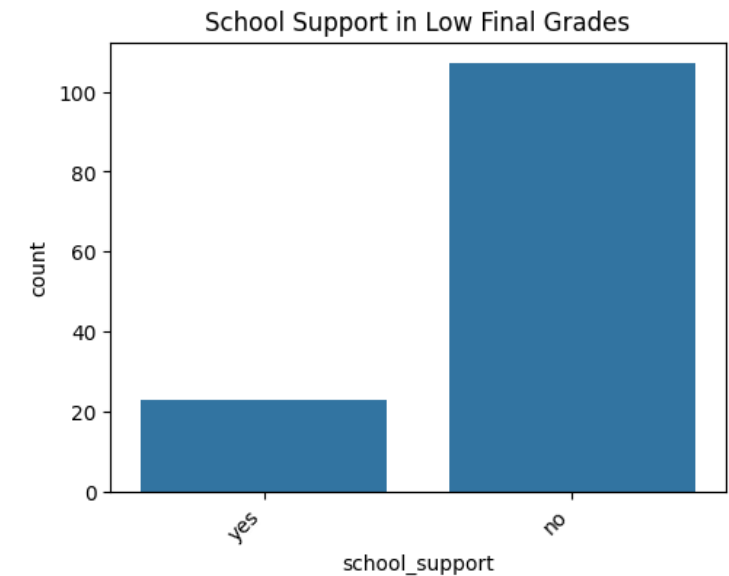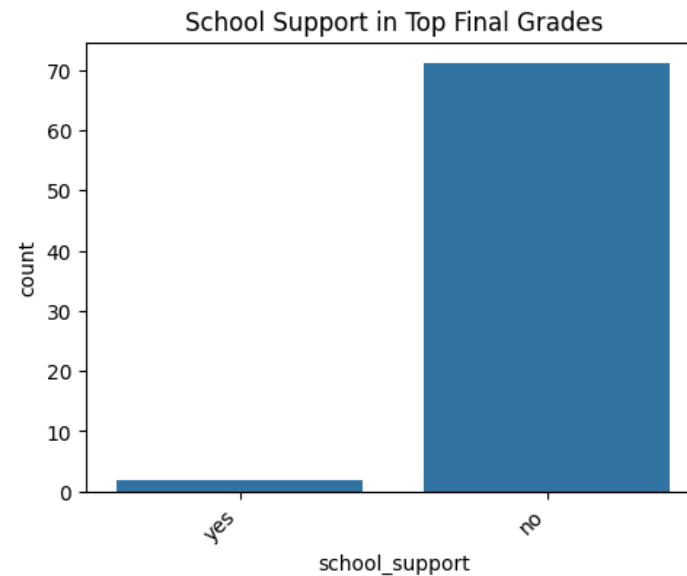
Study time

- Top students: higher % study more
- Best grades not for the ones that study the most
- Implications: only studying more is not the solution

study_time	mean final_grade	count final_grade
0.0	10.047619	105
1.0	10.171717	198
2.0	11.400000	65
3.0	11.259259	27

Study Time in Top Final Grades

Study Time in Low Final Grades

Factors to consider

- Generalization of the findings
- Remediation method
- Evaluation of mathematics skills at different school levels
- Teaching methods