<https://www.kaggle.com/datasets/mrigaankjaswal/student-performance-in-mathematics-and-portuguese/data>

Problem statement:

A Gabriel Pereira and Mousinho da Silveira schools in Portugal wanted to study the influence of socio-economic factors and academic performance and the relationship between them in predicting student success and educational outcomes. To do this, they collected data for two subjects (mathematics and Portuguese), to study the influence of different factors on the student's final grades.

**Clean:**

**python student clean1:**

First in (python student clean1) in folder(python clean) many columns that have the cods, so I change the this codes to words to have meaning With these steps, also I rename the columns for Excel (student-mat, student-por):

1. school - student's school (binary: "GP" - Gabriel Pereira or "MS" - Mousinho da Silveira)
2. sex - student's sex (binary: "F" - female or "M" - male)
3. age - student's age (numeric: from 15 to 22)
4. address - student's home address type (binary: "U" - urban or "R" - rural)
5. famsize - family size (binary: "LE3" - less or equal to 3 or "GT3" - greater than 3)
6. Pstatus - parent's cohabitation status (binary: "T" - living together or "A" - apart)
7. Medu - mother's education (numeric: 0 - none, 1 - primary education (4th grade), 2 – 5th to 9th grade, 3 – secondary education or 4 – higher education)
8. Fedu - father's education (numeric: 0 - none, 1 - primary education (4th grade), 2 – 5th to 9th grade, 3 – secondary education or 4 – higher education)
9. Mjob - mother's job (nominal: "teacher", "health" care related, civil "services" (e.g. administrative or police), "at\_home" or "other")
10. Fjob - father's job (nominal: "teacher", "health" care related, civil "services" (e.g. administrative or police), "at\_home" or "other")
11. reason - reason to choose this school (nominal: close to "home", school "reputation", "course" preference or "other")
12. guardian - student's guardian (nominal: "mother", "father" or "other")
13. traveltime - home to school travel time (numeric: 1 - <15 min., 2 - 15 to 30 min., 3 - 30 min. to 1 hour, or 4 - >1 hour)
14. studytime - weekly study time (numeric: 1 - <2 hours, 2 - 2 to 5 hours, 3 - 5 to 10 hours, or 4 - >10 hours)
15. failures - number of past class failures (numeric: n if 1<=n<3, else 4)
16. schoolsup - extra educational support (binary: yes or no)
17. famsup - family educational support (binary: yes or no)
18. paid - extra paid classes within the course subject (Math or Portuguese) (binary: yes or no)
19. activities - extra-curricular activities (binary: yes or no)
20. nursery - attended nursery school (binary: yes or no)
21. higher - wants to take higher education (binary: yes or no)
22. internet - Internet access at home (binary: yes or no)
23. romantic - with a romantic relationship (binary: yes or no)
24. famrel - quality of family relationships (numeric: from 1 - very bad to 5 - excellent)
25. freetime - free time after school (numeric: from 1 - very low to 5 - very high)
26. goout - going out with friends (numeric: from 1 - very low to 5 - very high)
27. Dalc - workday alcohol consumption (numeric: from 1 - very low to 5 - very high)
28. Walc - weekend alcohol consumption (numeric: from 1 - very low to 5 - very high)
29. health - current health status (numeric: from 1 - very bad to 5 - very good)
30. absences - number of school absences (numeric: from 0 to 93)
31. G1 - first period grade (numeric: from 0 to 20)
32. G2 - second period grade (numeric: from 0 to 20)
33. G3 - final grade (numeric: from 0 to 20, output target)

The change was saved in Excel (MAT,POR) for Excel (student-mat, student-por) in the folder (new csv) .

MAT = student-mat

POR = student-por

**python student clean2:**

After that in (python student clean2) in folder (python clean)

First drop column not need to analytics in (MAT,POR) Excels

And checking if there are any nulls

Aso join (MAT,POR) to st

then Delete all similar column in the results in one of the two tables, also rename the column except columns have grades

columns have )mat\_ (this for math grades, and columns have (por\_) this for Portuguese language grades

hen save St = student.csv

**Analysis:**

**Objective:**

1. Success rate by school?
2. Impact of extra educational support and family?
3. Friends and staying out of the home for gender?
4. Impact of internet at home and success rates?
5. length of absences from school due to current health conditions?

**Q1) Success rate by school?**

A screenshot of a computer

Description automatically generated

**Q2) Impact of extra educational support and family?**

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated