



# Data Analysis of Portuguese Education Statistics

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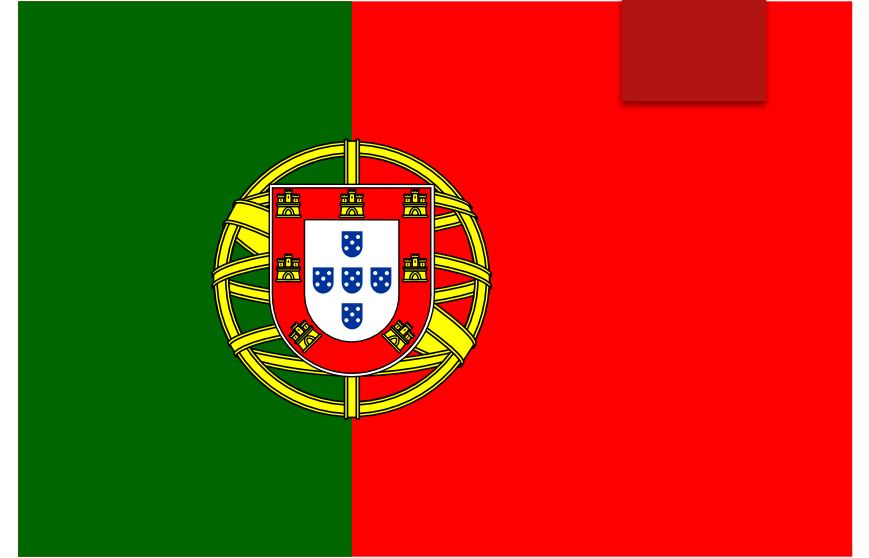
# Problem Statement

How do various factors impact on a student's final grades?

This analysis will be based on students in secondary education at two Portuguese schools. The grades will be their performance in two distinct subjects: Mathematics and Portuguese Language.

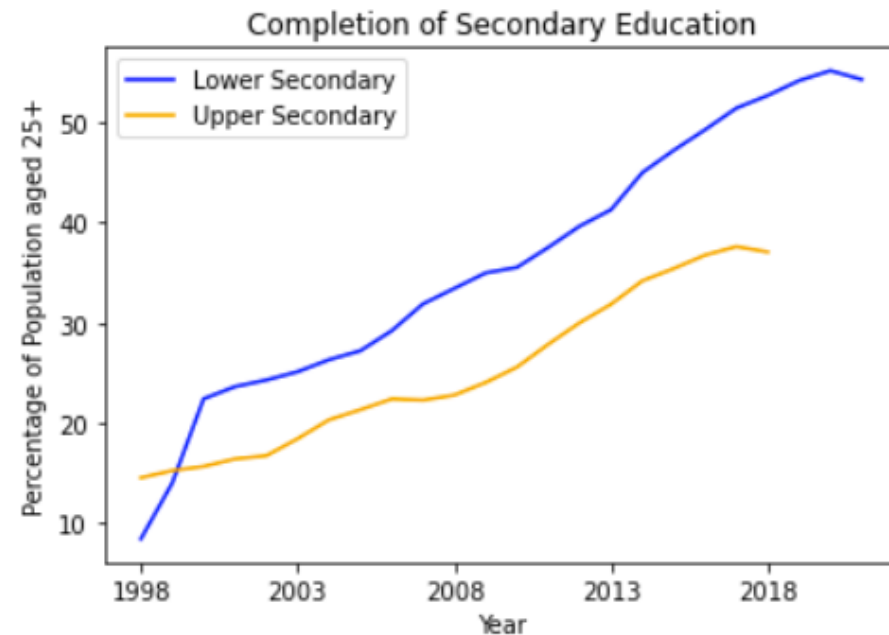
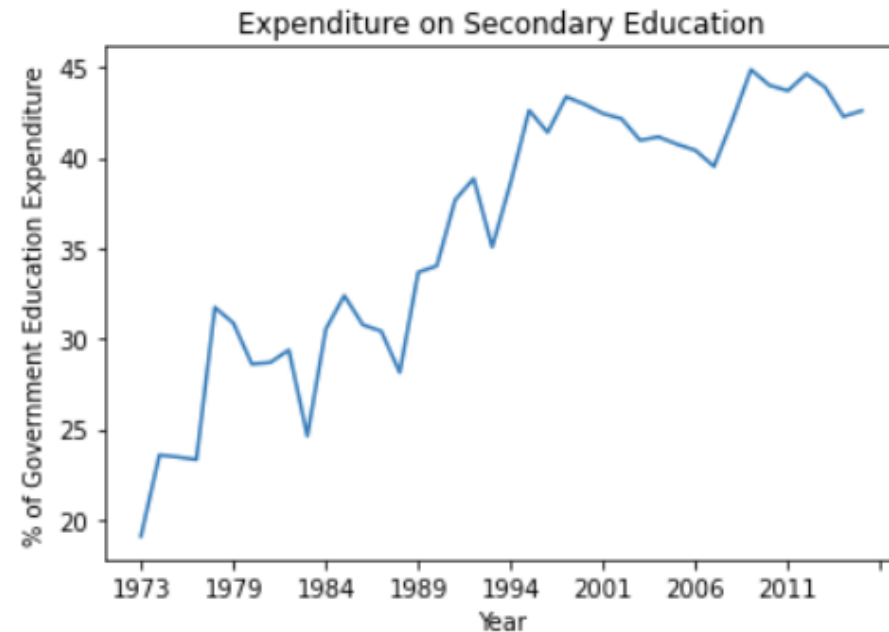
This report will explore the correlations between various factors, and their ultimate impact on a student's final performance.

External demographic statistics are sourced from The World Bank (<https://data.worldbank.org/country/PT>).

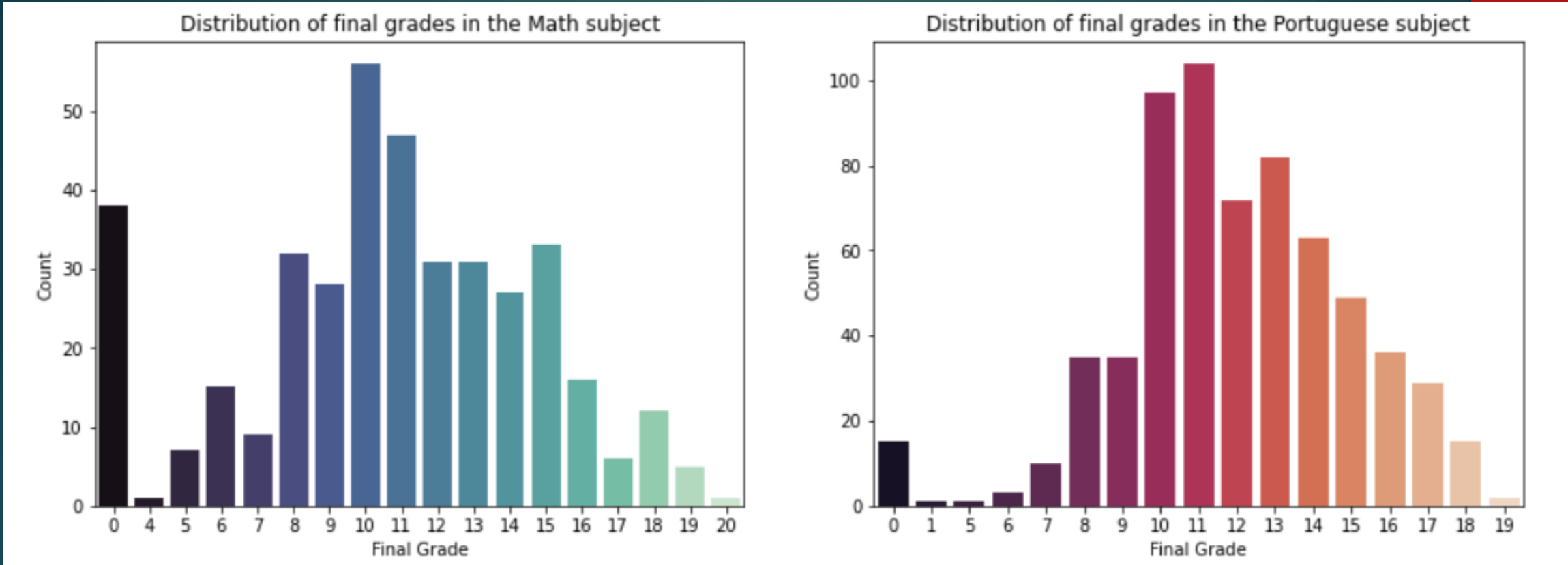


# Secondary Education in Portugal

- ▶ Government spending on secondary education has been increasing over time
- ▶ More students are completing secondary education than ever before

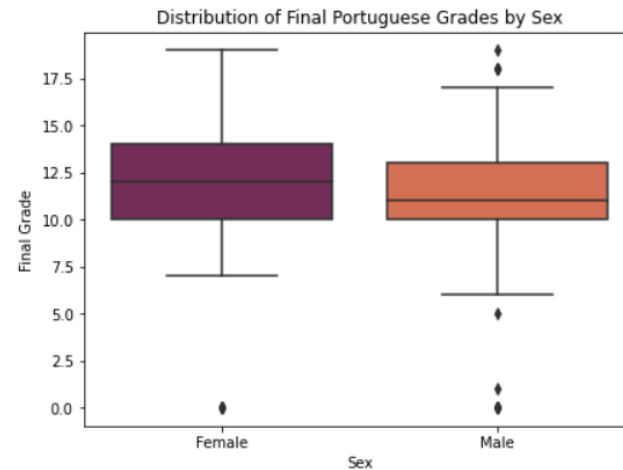
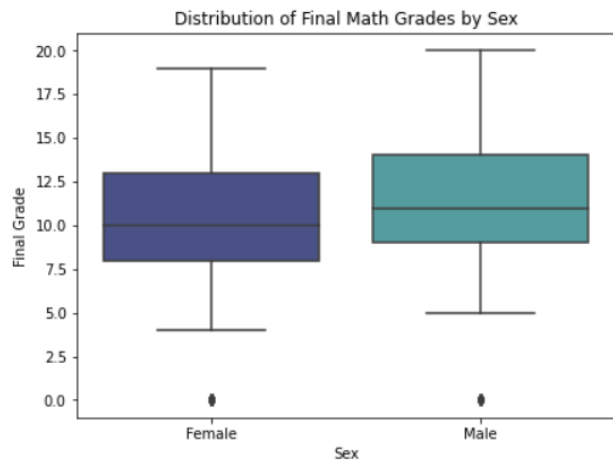
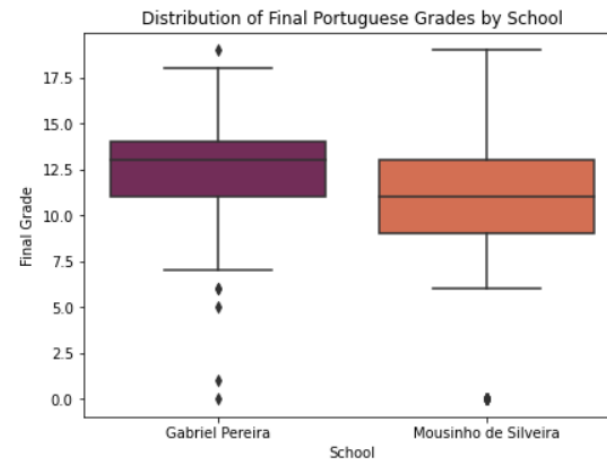
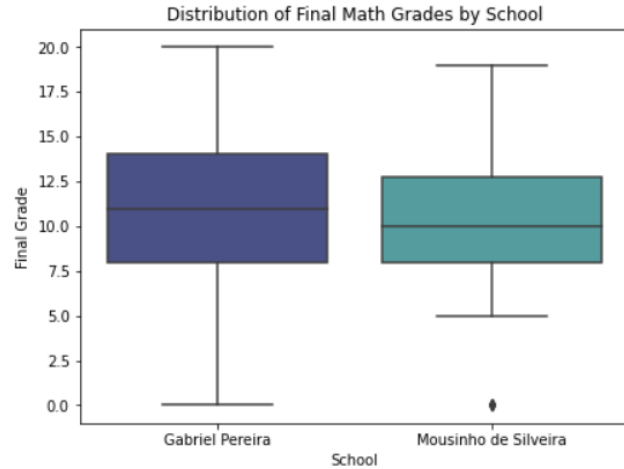


# Final Grades



Summary Statistics:

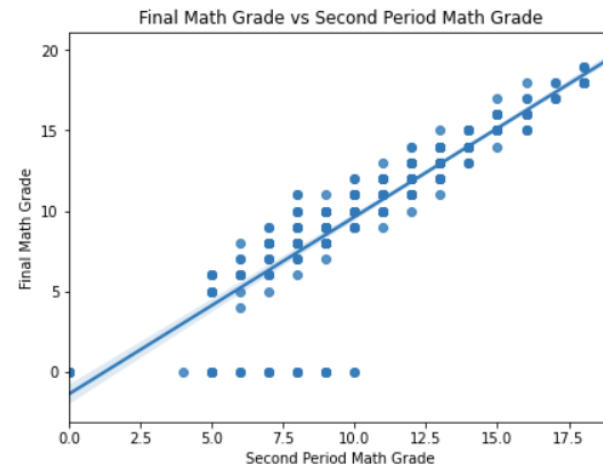
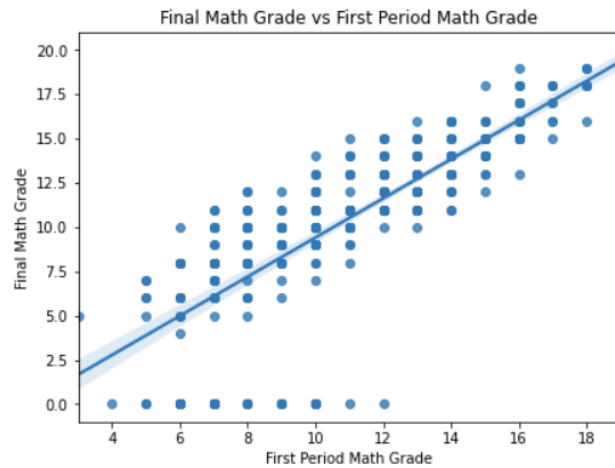
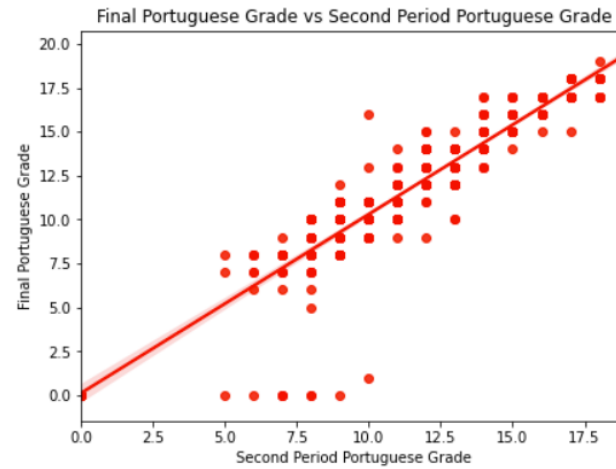
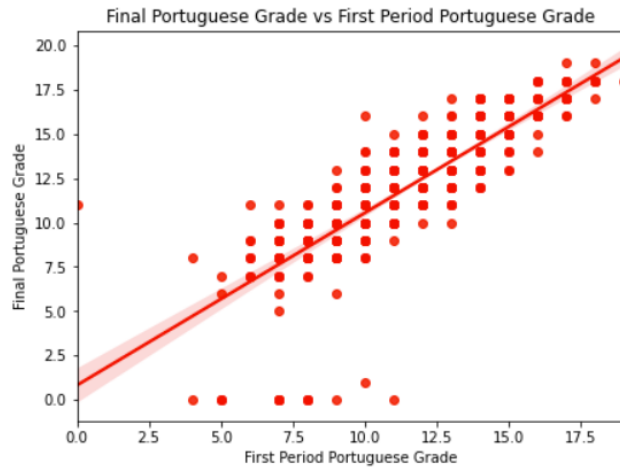
	Math	Portuguese
Student Count	395	649
Average Grade	10.4	11.9
Median Grade	10	11



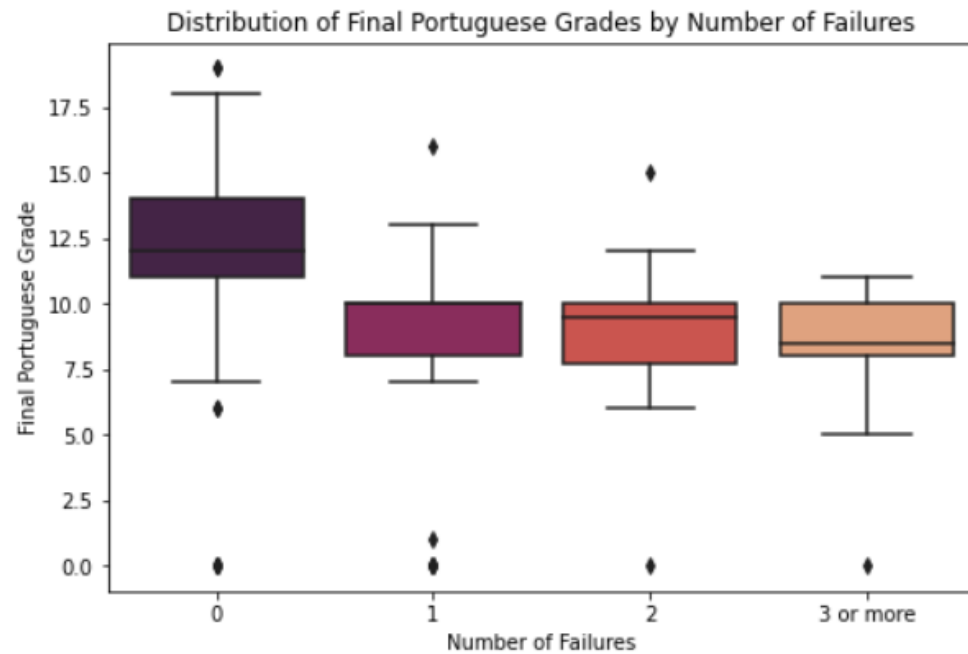
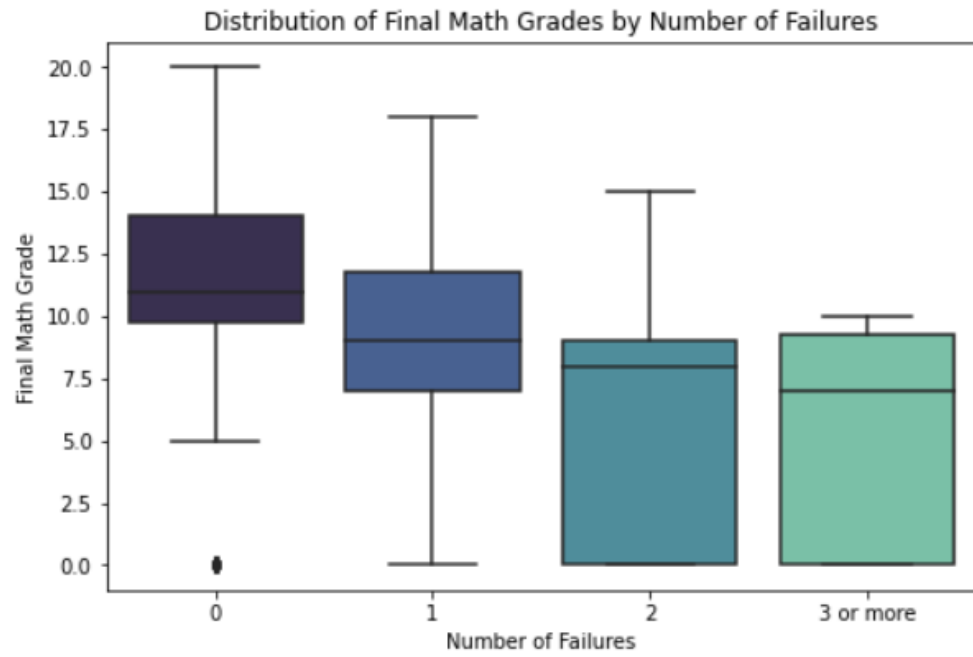
# Student Breakdown

- ▶ Students at Gabriel Pereira achieve higher grades in Math and Portuguese than do students at Mousinho de Silveira
- ▶ Males achieve higher grades in Math, while female achieve higher grades in Portuguese

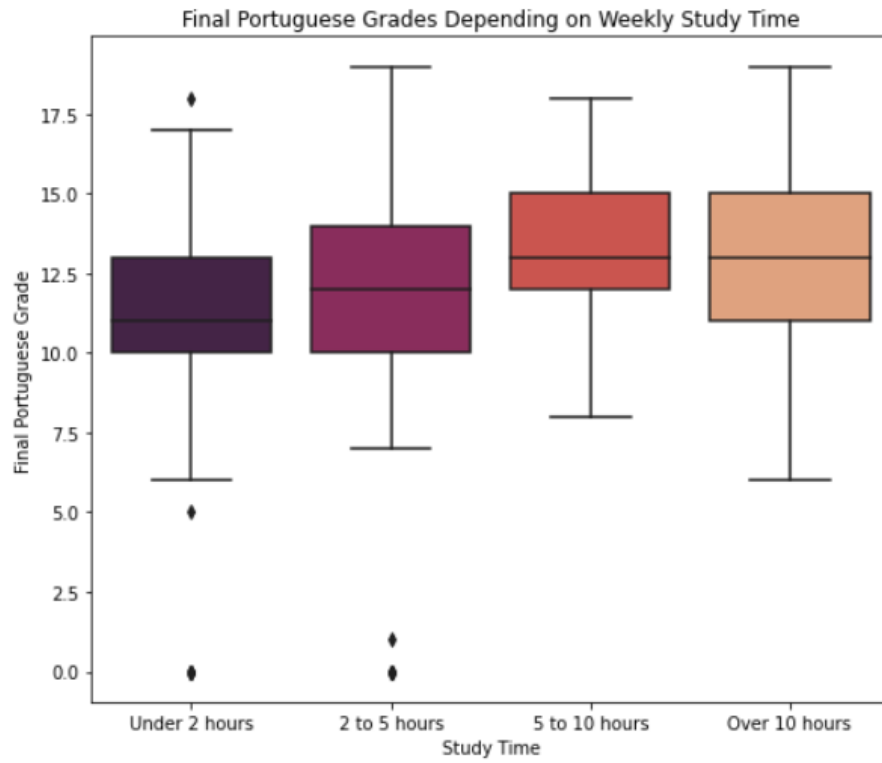
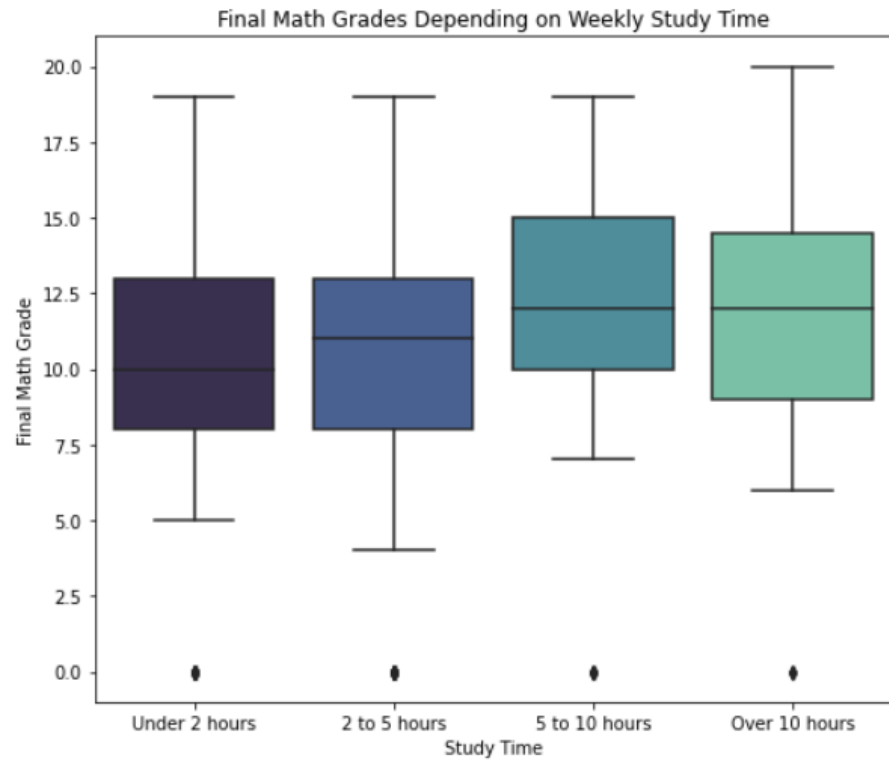




Previous grades are the best predictor of final grades



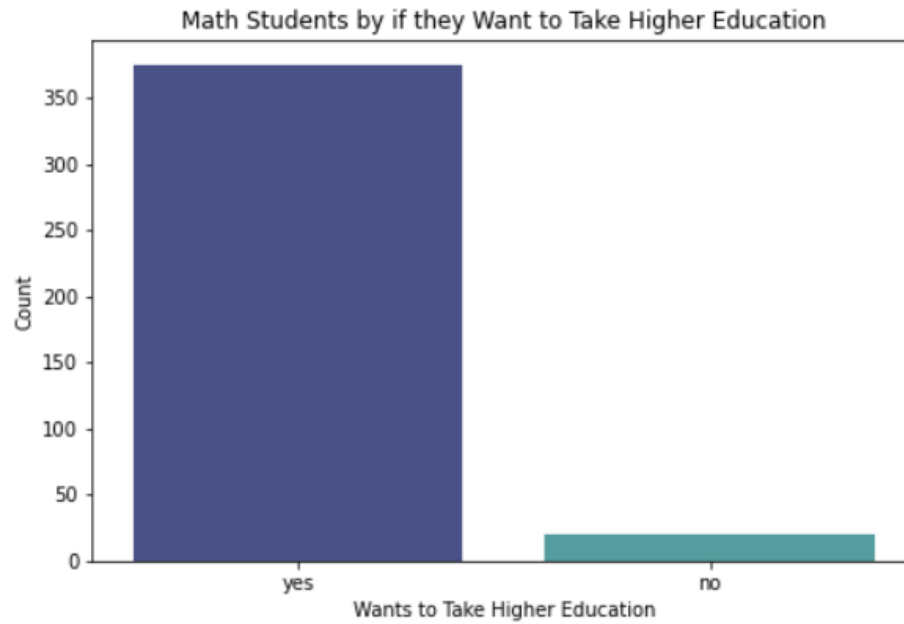
And students who have never failed a class do better than those who have



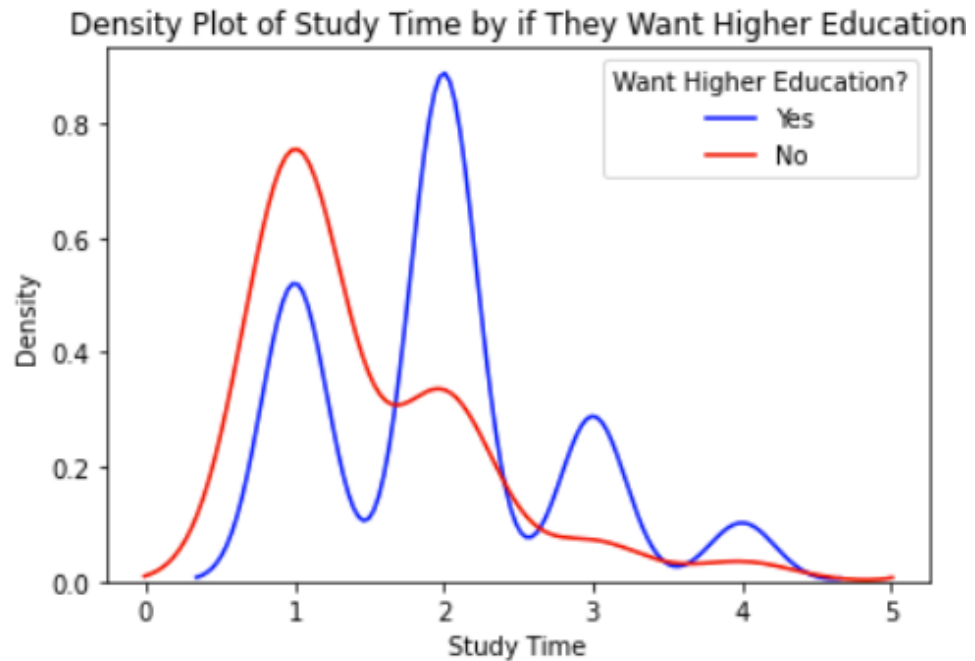
More study time leads to higher grades.



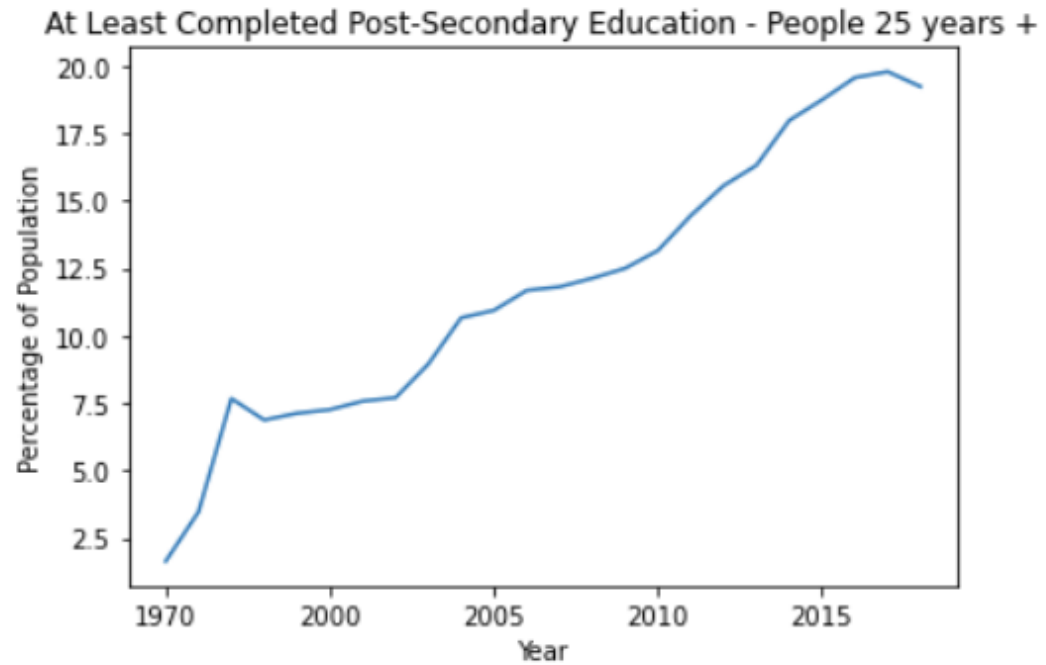
The vast majority of secondary students want to pursue higher education.



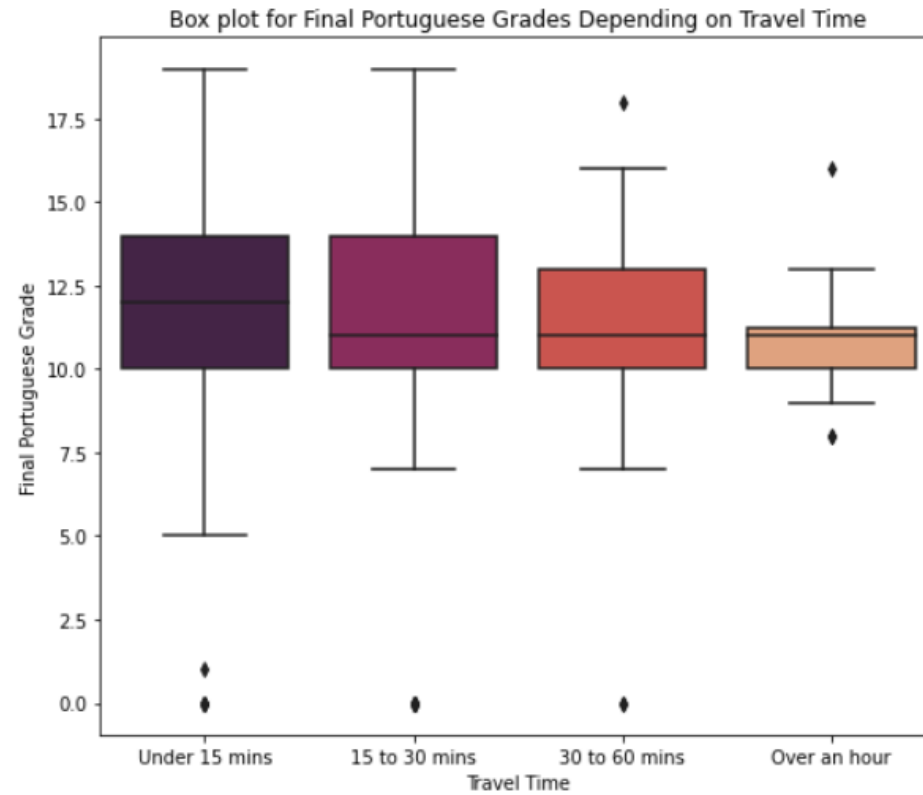
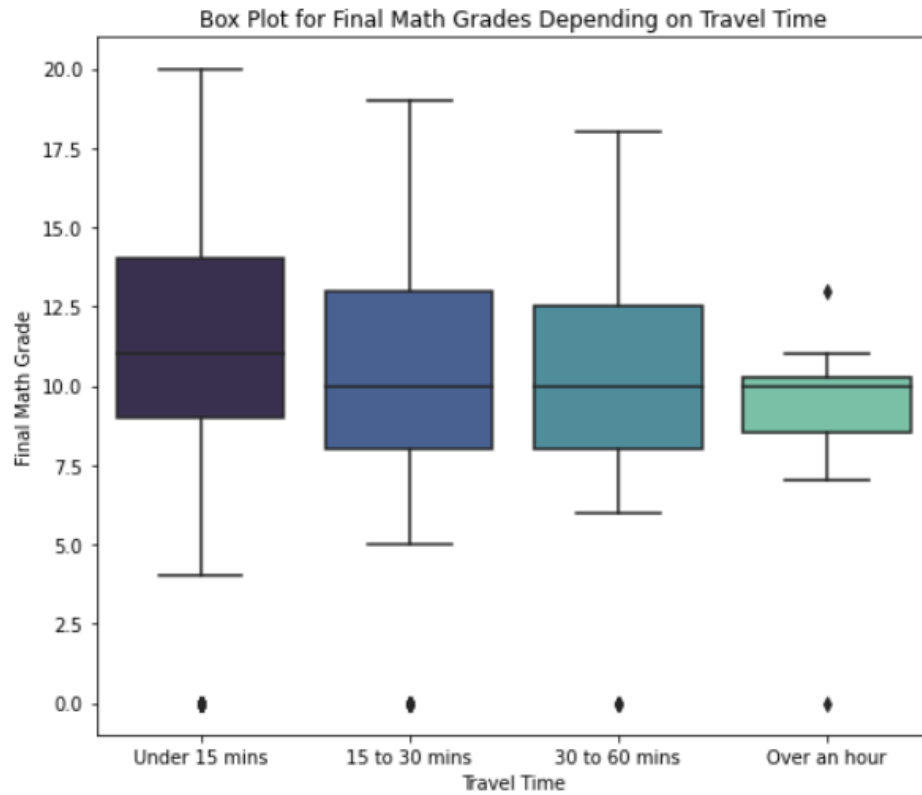
These students study more than those who do not.



# What motivates study time?

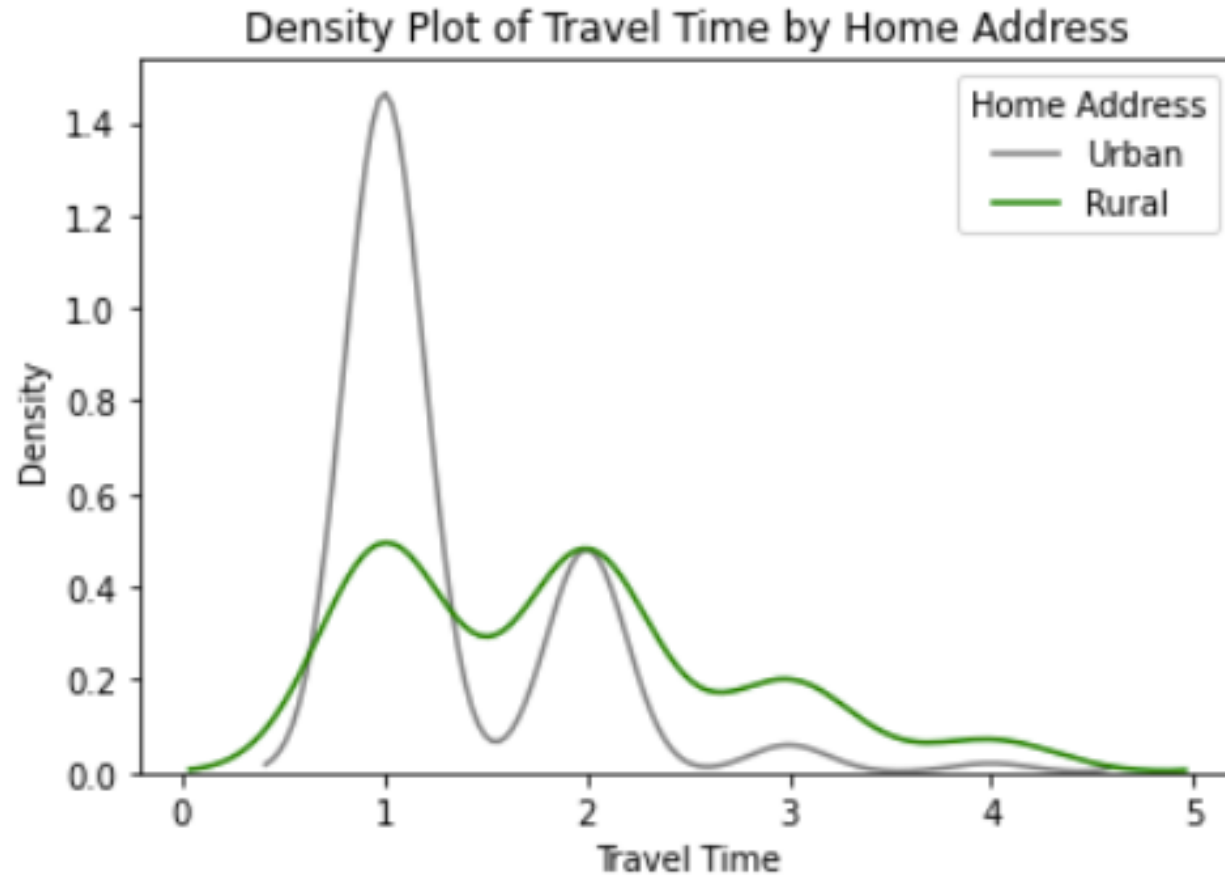


The completion of post-secondary education is on the rise in Portugal

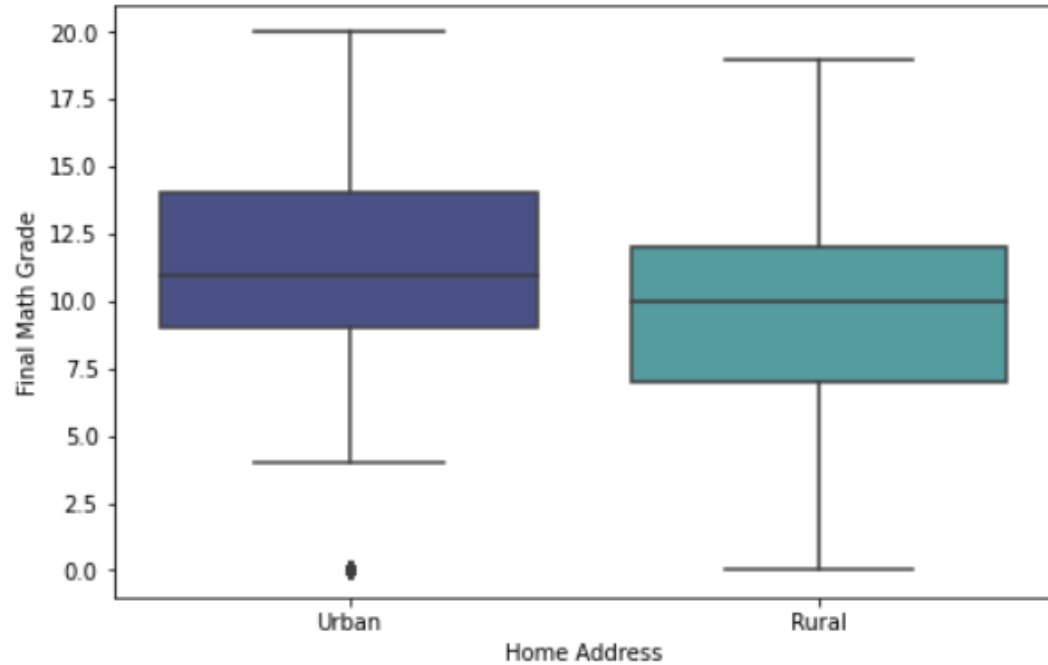


The longer a student must spend travelling to and from school, the lower their final grades are.

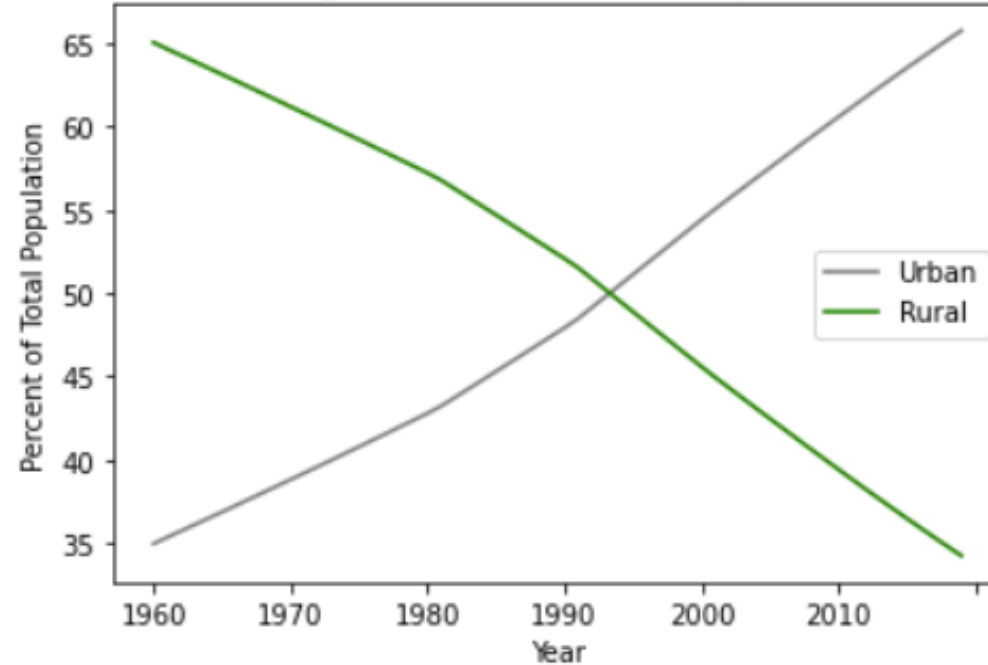
Students living in rural areas must travel longer to get to and from school.



Distribution of Final Math Grades by Home Address

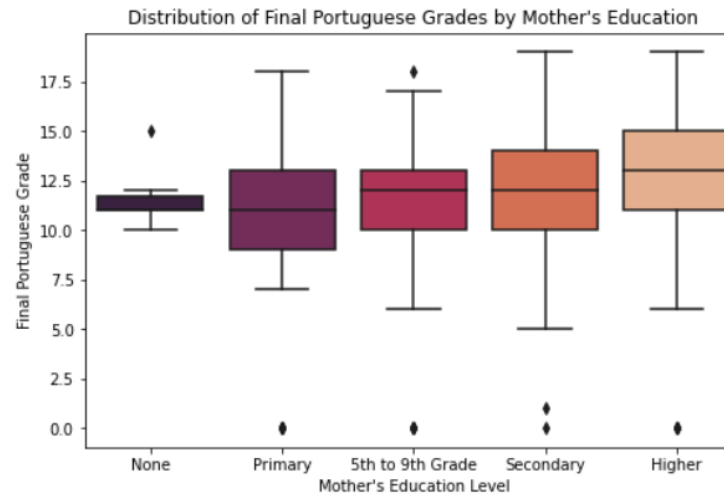
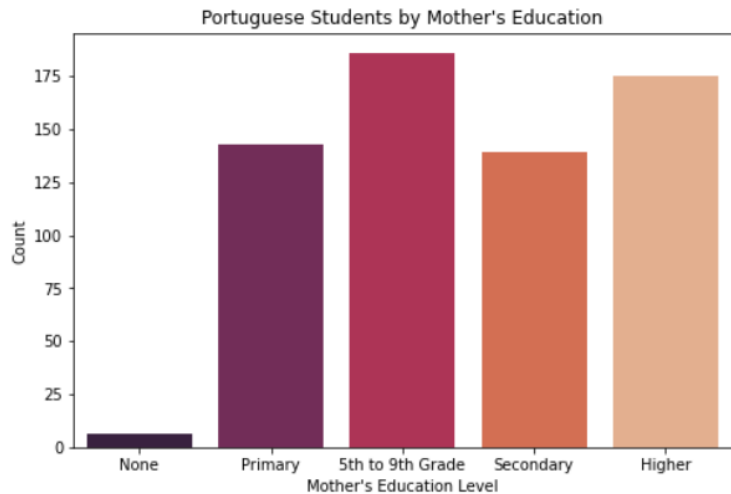
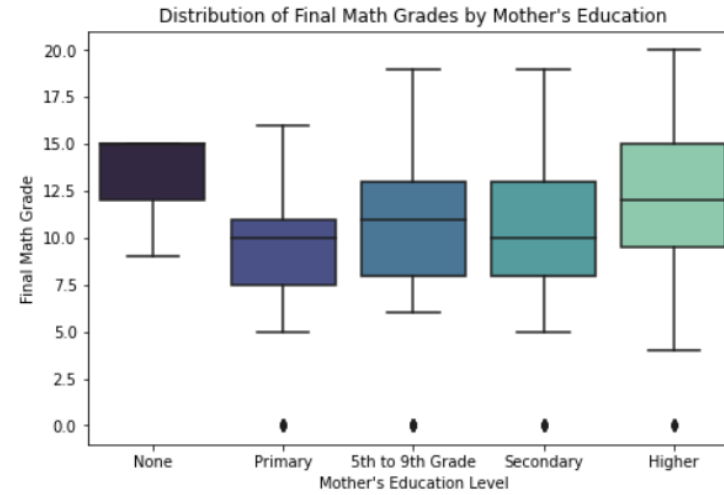
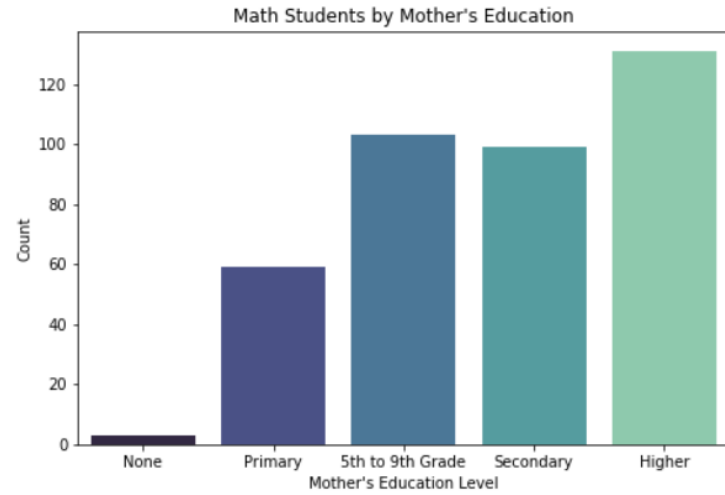


Portuguese Urban and Rural Populations



These students achieve lower grades than those who live in urban centres.

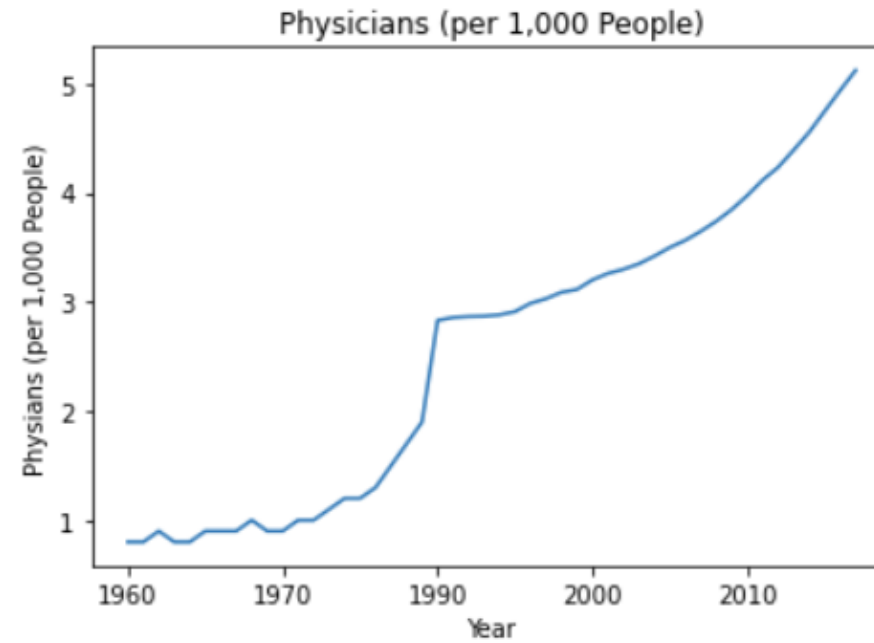
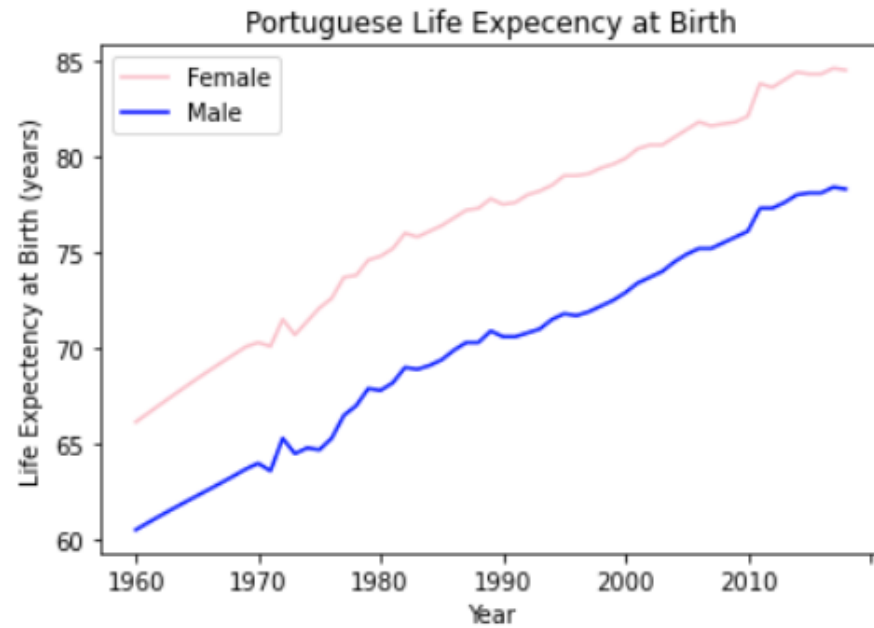
Portugal's rural population has been steadily decreasing since 1960.



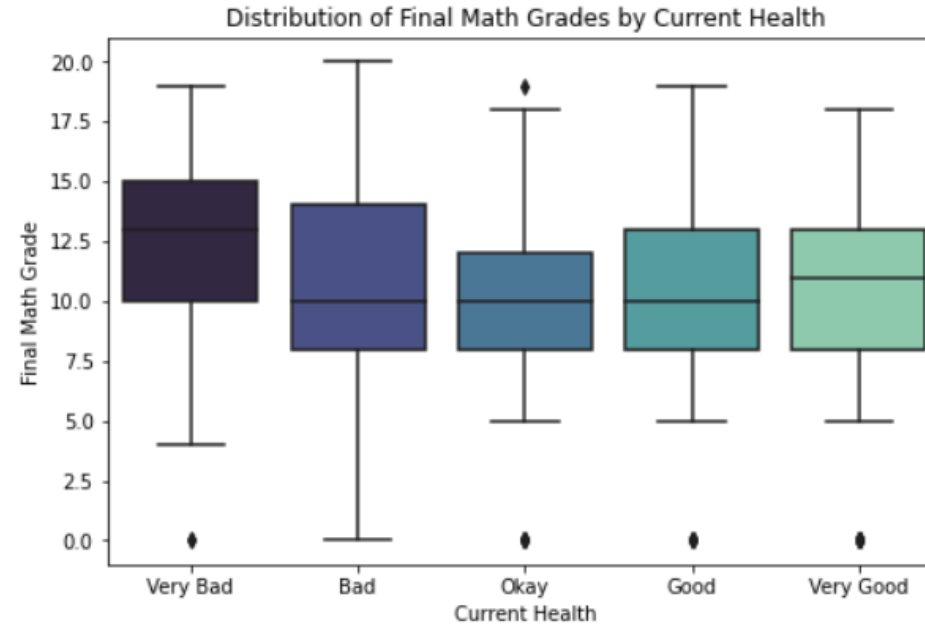
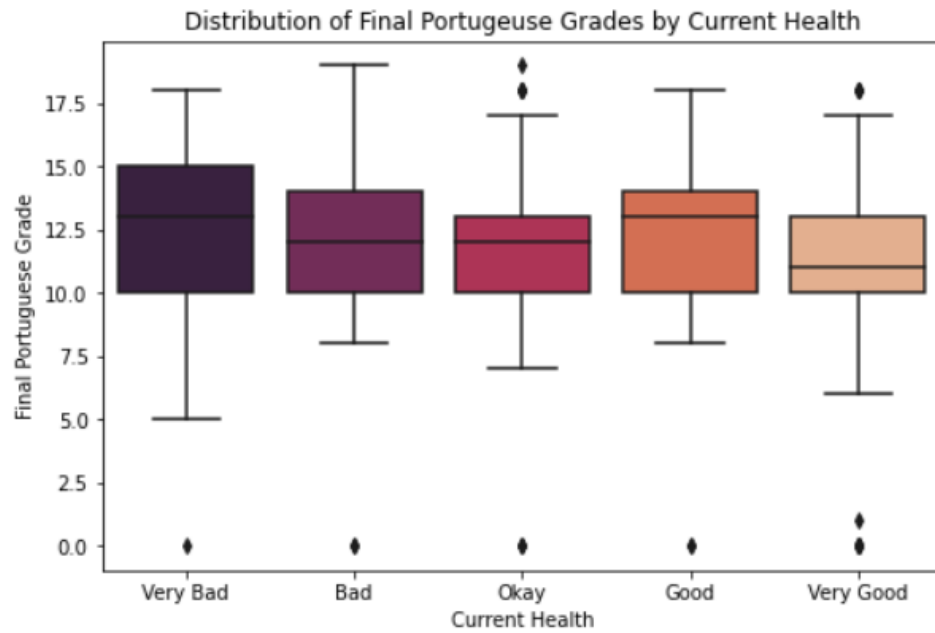
# The Impact of Educated Parents

The higher the education of the parents, the better the student performs in school.

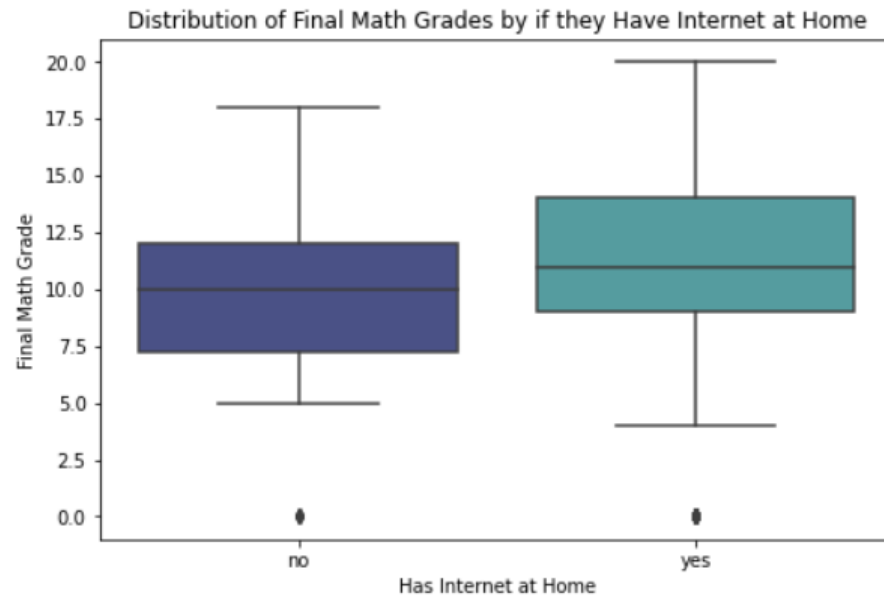
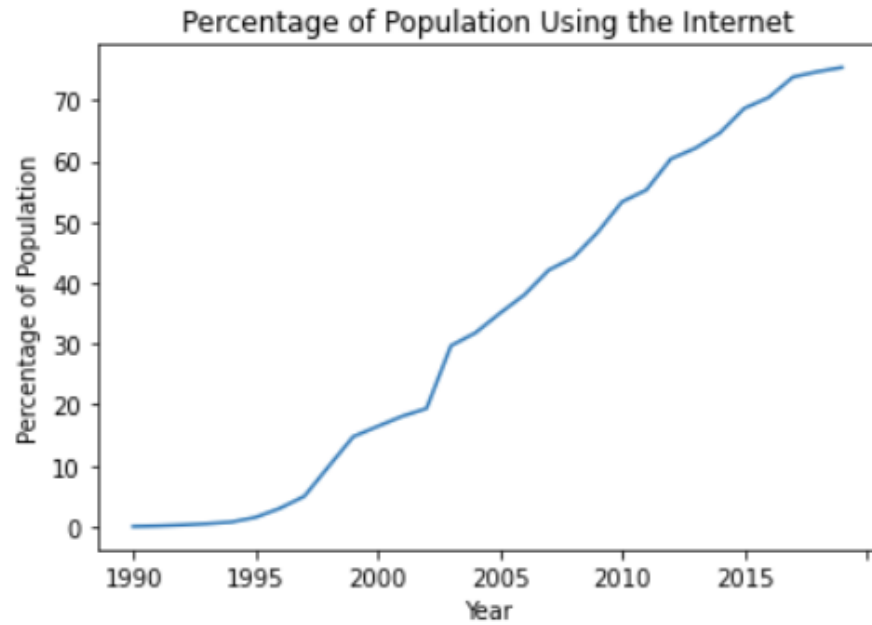




A healthier population ...



... does not show an impact on a student's final grades.



But  
increased  
access to  
the internet  
at home  
does.

# Conclusions

- ▶ A variety of factors influence the success of a secondary school student
- ▶ Their previous grades, course successes, and the amount of time they spend studying are major indicators of academic success
- ▶ Students who aspire to higher education do better
- ▶ Educated parents motivate their children to achieve higher grades

