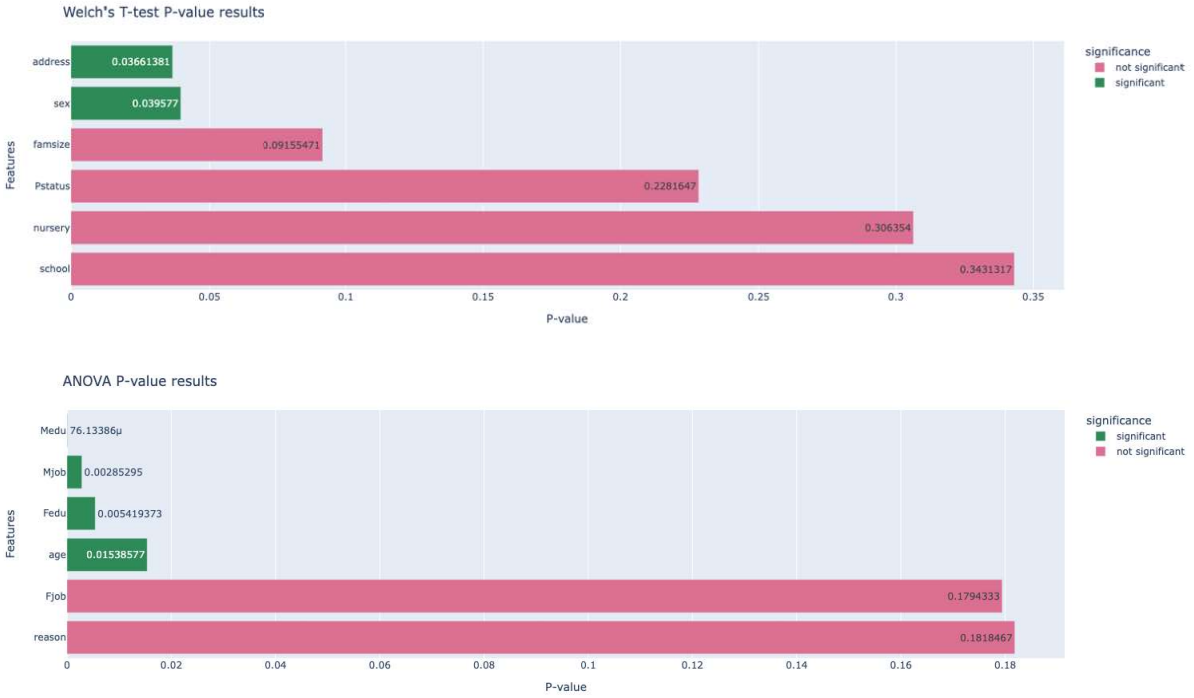
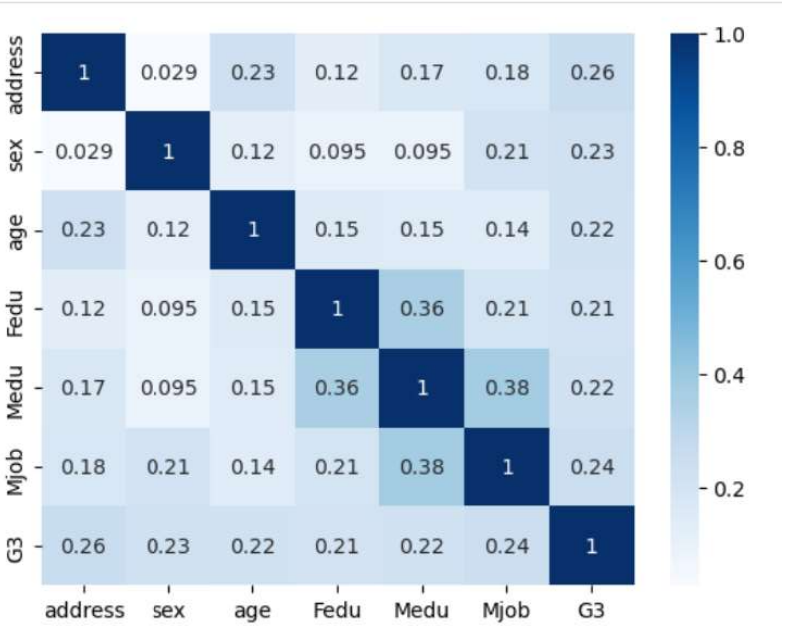
Hypothesis 1 Confirmed:

Student's address, gender, age, father's education, mother's education, mother's job are background attributes that have statistical differences to a student's grades.



Further Correlation between Independent Variables:

- Mother's and father's education level (Medu & Fedu) are moderately correlated to each other.
- Mother's Job and Mother's education level are moderately correlated.



Hypothesis 2 Debunked:

Providing extra educational support to students does not result in them scoring better than their peers (T-Test).

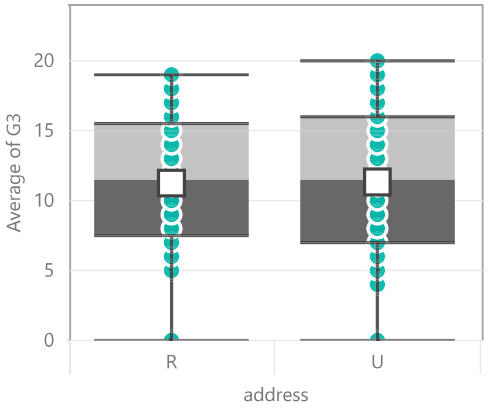
Students with Different Background have Varying Levels of Mathematics Grades

Address, Gender, Age, Parent's education, Mother's job are background attributes that have statistical differences to student's mathematics grades (Outliers are indicated due to low count)

Address Type
All
Gender
All
Mother's Educ...
All
Father's Educ...
All
Mother's Job
All
Father's Job
All
School Support
All
G3
All

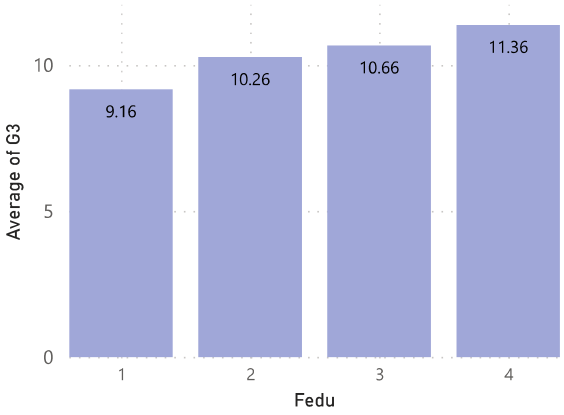
Address Type Against Mean Grades

Urban Area (Mean: 11.25, Median: 11.50) perform slightly better than those in Rural Areas (Mean: 11.33, Median: 11.50)



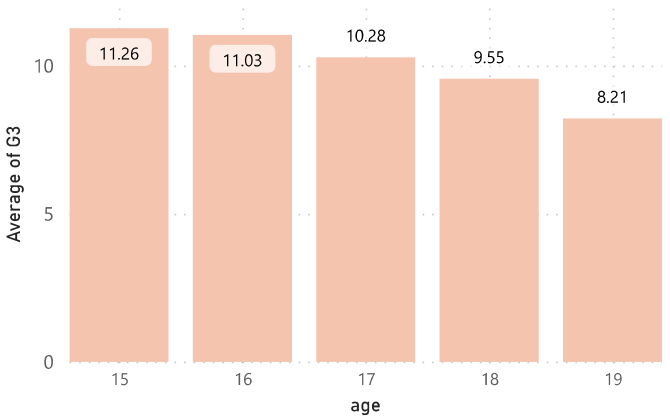
Father's Education Against Mean Grades

Overall ascending trend with increasing Father's education level (excluding outliers for Fedu = 0)



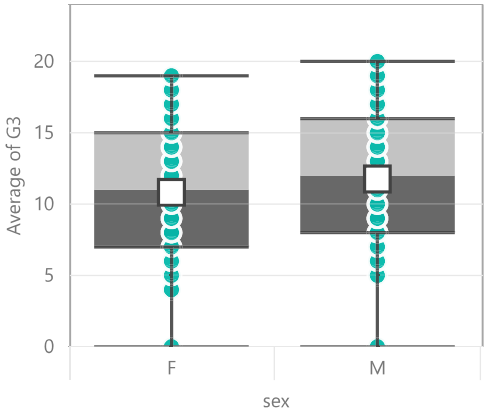
Age of Students Against Mean Grades

Overall descending trend in average grades from 15 to 19 year old students (excluding outliers from age 20 onwards)



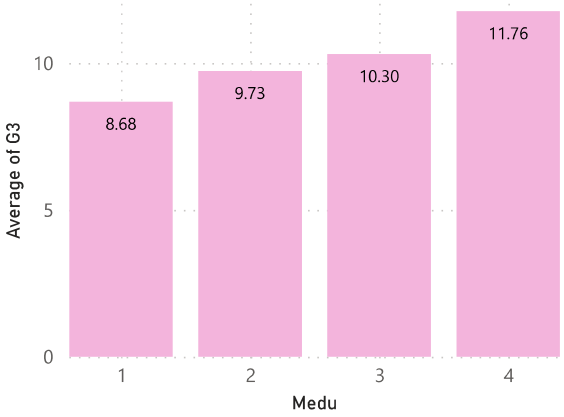
Gender Against Mean Grades

Males (Mean: 11.76, Median: 12) score better than Females (Mean: 10.82, Median: 11.00)



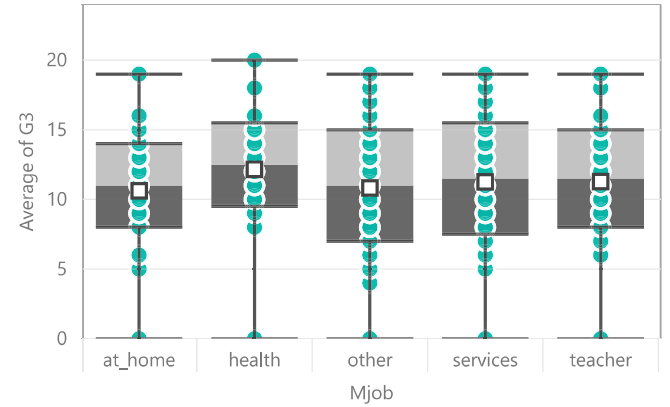
Mother's Education Against Mean Grades

Overall ascending trend with increasing Mother's education level (excluding outliers for Medu = 0)



Mother's Job Against Mean Grades

Students whose mother work in healthcare score better than their peers (followed by teacher, services, others), while mothers who work at home perform the worst



Students who received current additional school education support did not score better in Mathematics compared to their peers

Existing school support program will require reformations

Address Type
All

Gender
All

Mother's Educ...
All

Father's Educ...
All

Mother's Job
All

Father's Job
All

School Support
All

G3
All

Additional School Support Received Against Mean Grades

Students who received supplementary school support (Mean: 9.77, Median: 10.00) scored poorer than students who did not receive supplementary school support (Mean: 11.33, Median:11.50)