

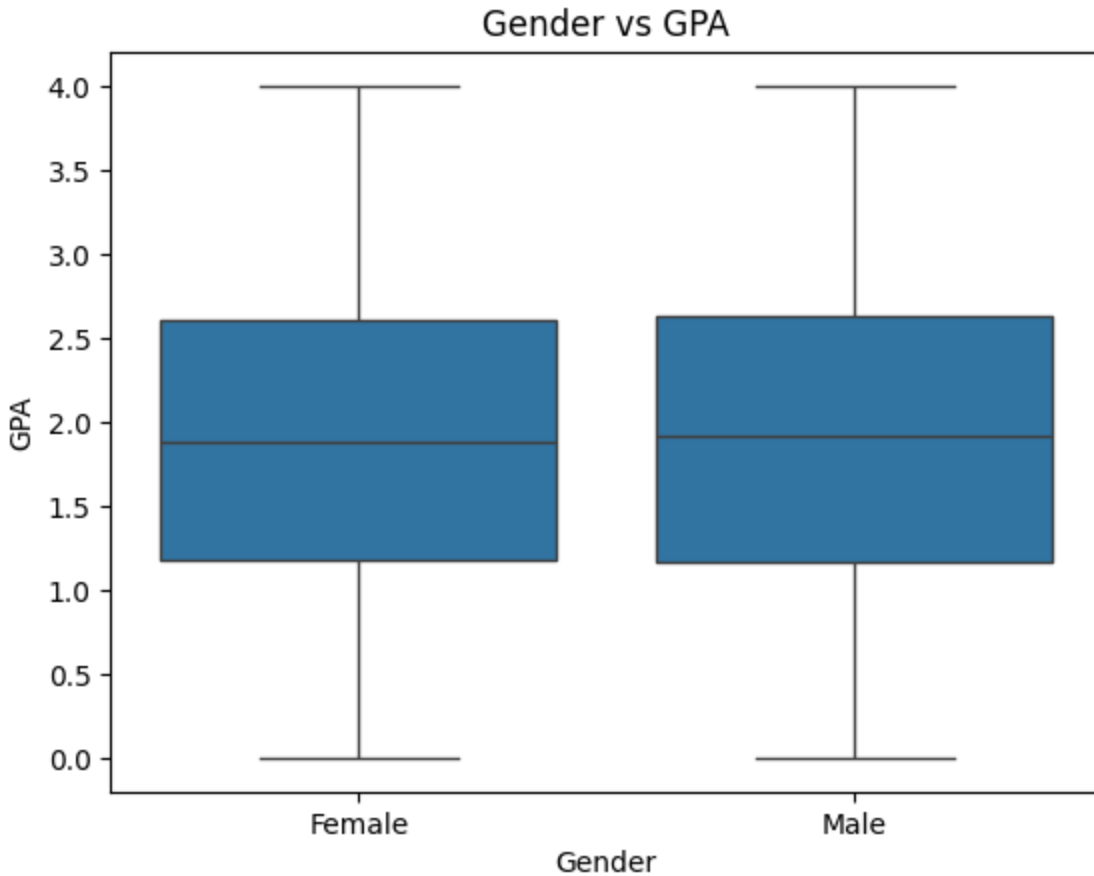
STUDENT PERFORMANCE ANALYSIS

Introduction:

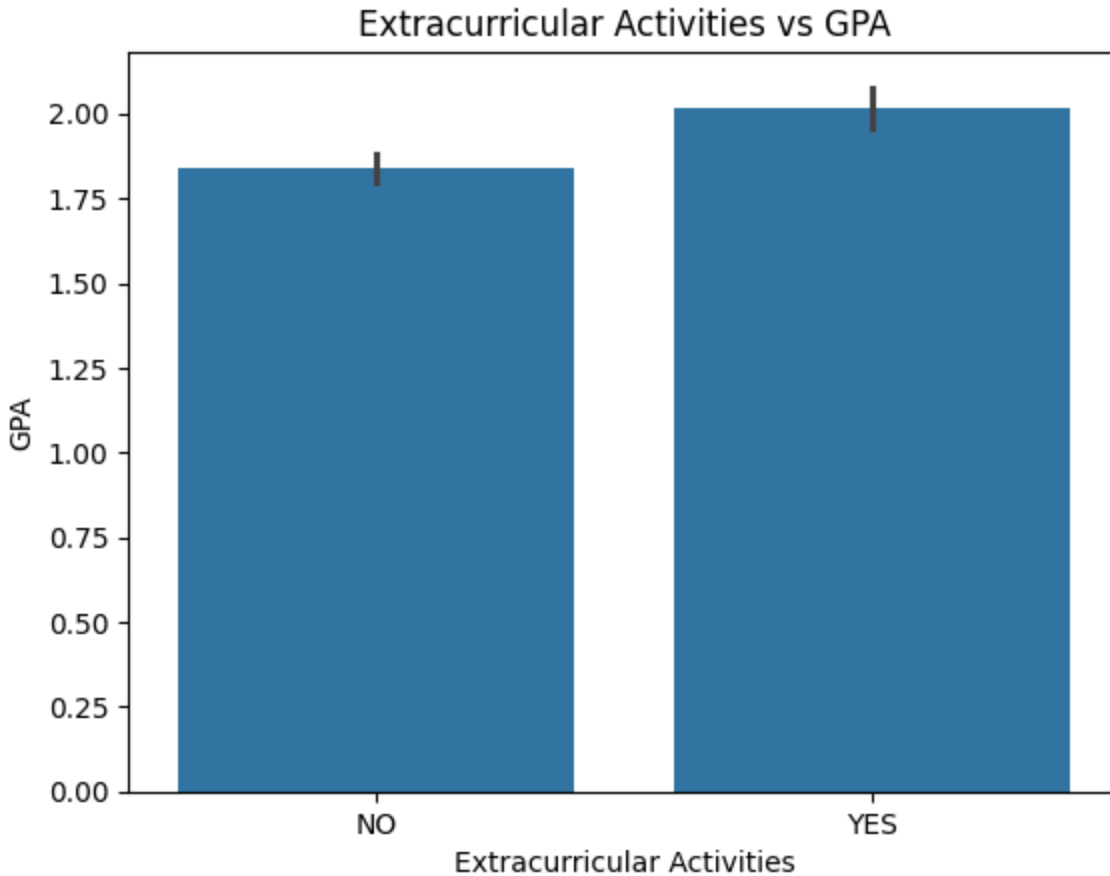
This analysis explores the relationships between various factors and student academic performance, as represented by GPA. Key variables examined include gender, extracurricular involvement, age, and study hours. By analyzing these factors, this study aims to identify potential correlations and trends that may influence student success.

Column Details:

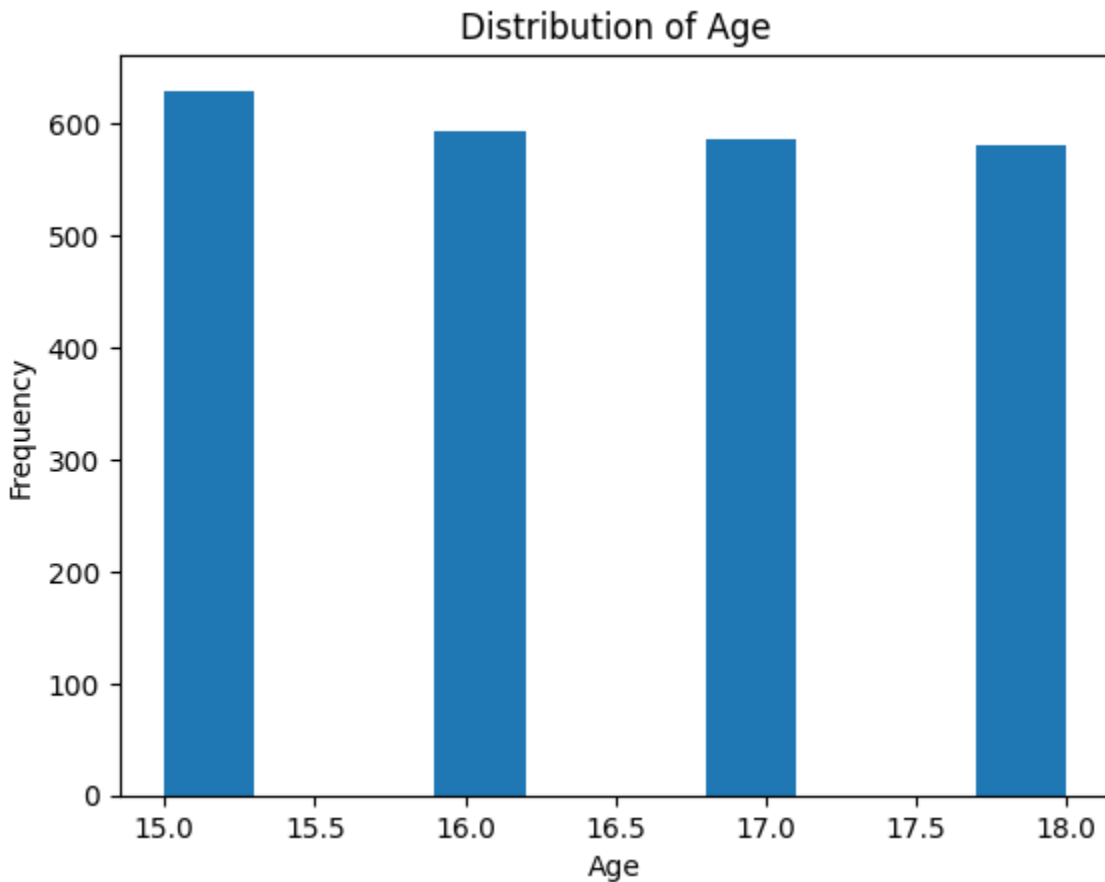
- ❖ StudentID: A unique identifier assigned to each student (1001 to 3392).
- ❖ Age: The age of the students ranges from 15 to 18 years.
- ❖ Gender: Gender of the students, where 0 represents Male and 1 represents Female.
- ❖ StudyTimeWeekly: Weekly study time in hours, ranging from 0 to 20.
- ❖ Absences: Number of absences during the school year, ranging from 0 to 30.
- ❖ Tutoring: Tutoring status, where 0 indicates No and 1 indicates Yes.
- ❖ Extracurricular: Participation in extracurricular activities, where 0 indicates No and 1 indicates Yes.
- ❖ GPA: Grade Point Average on a scale from 2.0 to 4.0, influenced by study habits, parental involvement, and extracurricular activities.
- ❖ GradeClass: Classification of students' grades based on GPA



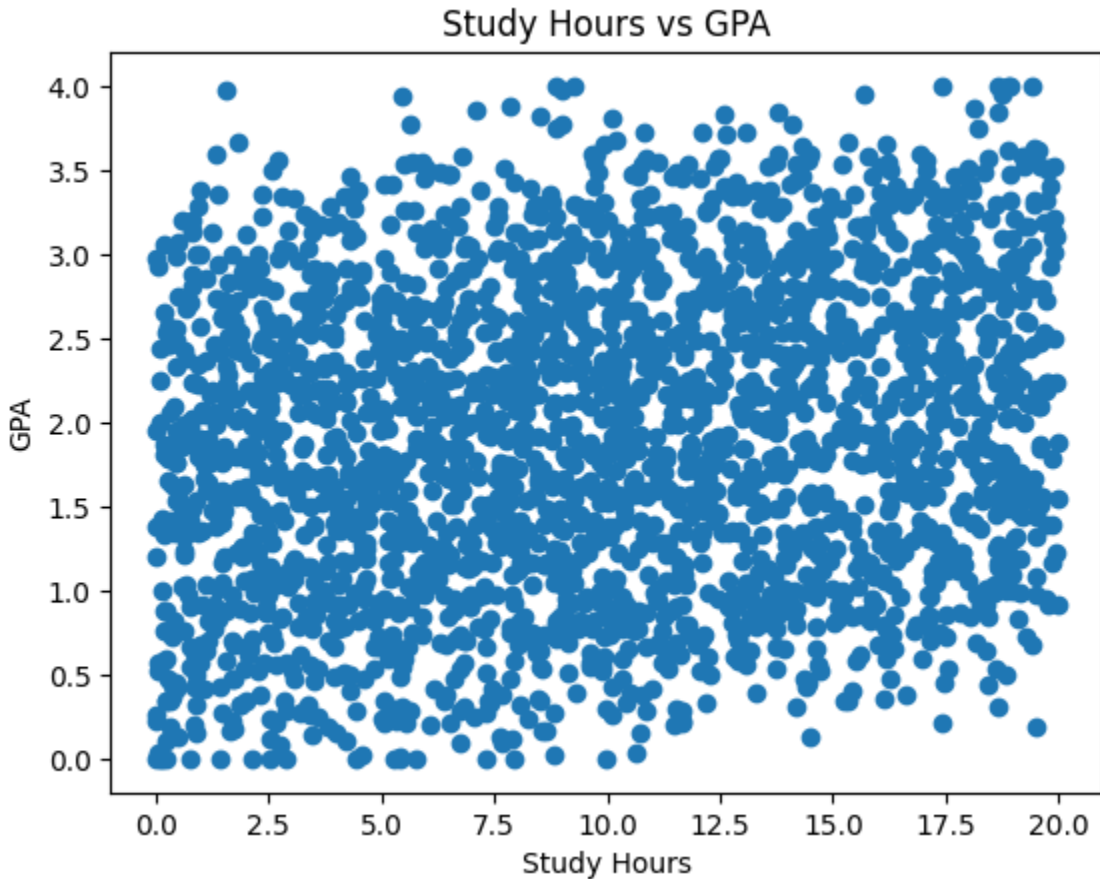
The box plot illustrates the distribution of GPAs for female and male individuals. Both genders exhibit a similar range of GPAs, with medians falling around the 2.0-2.5 range. There appears to be a slight skew towards higher GPAs for females, indicated by a longer upper whisker.



The bar plot illustrates the relationship between participation in extracurricular activities and GPA. Students involved in extracurricular activities tend to have slightly higher GPAs on average compared to those who are not involved. However, the difference in GPA between the two groups is relatively small, and there is significant overlap in the GPA distributions.



The bar graph illustrates the distribution of ages within a specific population. The data is grouped into one-year intervals, ranging from 15 to 18 years old. The frequency of individuals within each age group is represented by the height of the bars. The graph shows a relatively even distribution of ages across the four-year span, with a slight increase in frequency for the 15-year-old group.



The scatter plot visualizes the relationship between study hours and GPA. There appears to be a weak positive correlation, suggesting that as study hours increase, GPA tends to slightly increase as well. However, the relationship is not strong, and there is a significant amount of scatter in

the data, indicating that other factors besides study hours likely influence GPA.

SUMMARY

The analyses reveal mixed findings. Gender appears to have a minimal impact on GPA, with only slight differences observed. Extracurricular involvement correlates with slightly higher GPAs, but the effect is not substantial. Age distribution among the studied population is relatively uniform. Finally, while study hours and GPA show a positive relationship, the correlation is weak, indicating other factors influencing academic performance.