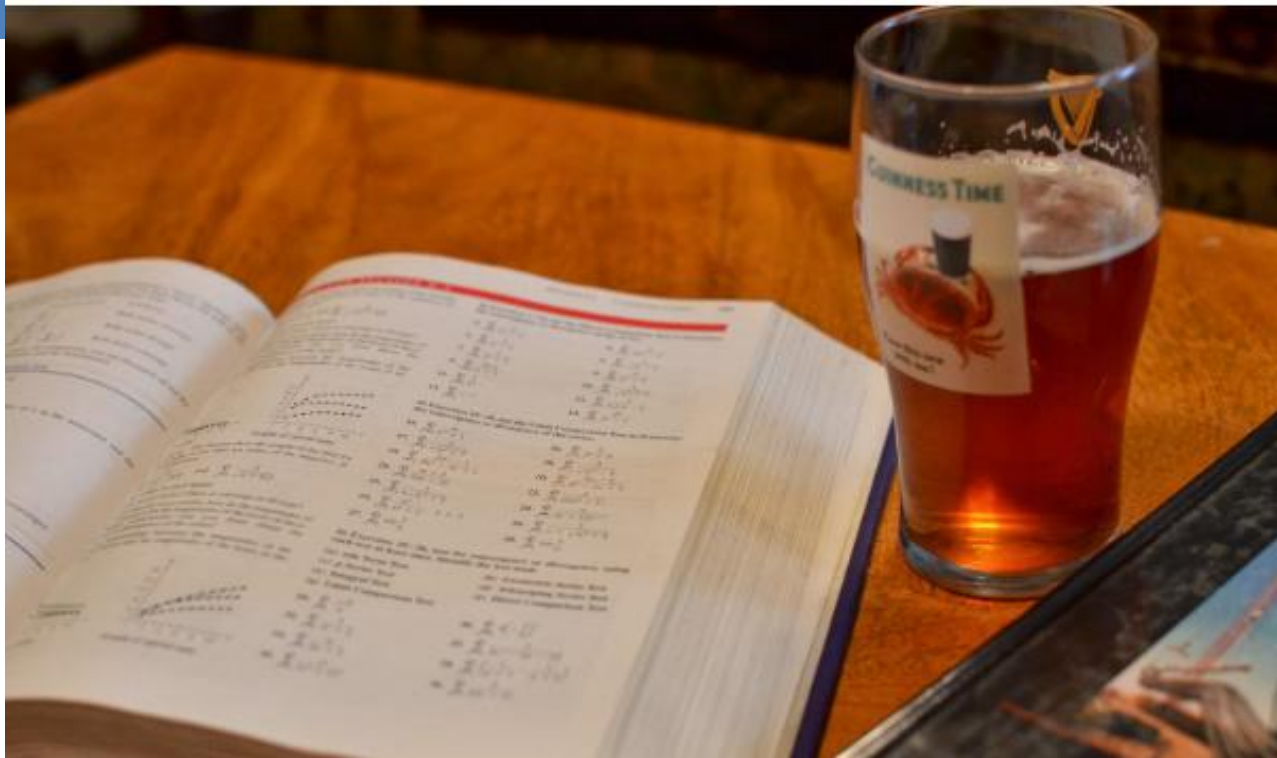


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Effect of Alcohol on Study



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Tanishqa 21csu434 Aryan 21csu429

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Report on:

Effect of Alcohol on Study

Business Intelligence and Data Visualisation

Mid term project

Team members:

Aryan Kumar - 21CSU429

Tanishqa Garg - 21CSU434

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING,
SCHOOL OF ENGINEERING AND TECHNOLOGY

THE NORTHCAP UNIVERSITY
GURUGRAM, HARYANA

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INTRODUCTION

The impact of alcohol consumption on the academic performance of students is a subject of great concern in today's educational landscape. It is well recognized that alcohol can influence various aspects of a student's life, and one crucial domain is their ability to excel in their studies.

This project investigates this dynamic by utilizing a rich and diverse dataset and visualizes using Tableau. Tableau is powerful data visualization software which is mainly responsible for business intelligence. Tableau helps us carry out visualization using it's vast directory of graphs and user friendly.

There are 4 main dashboards in our visualization: Overview , academic performance , parental factor and sources. We believe these 4 dashboards can be essential to analyze and understand about the effect of alcohol on studies. Using combinations of various charts like doughnut chart, line chart, bar chart, bubble chart and many more, we have made our dashboards rich on information.

The knowledge gained from this project may serve as a crucial resource for fostering a nurturing educational environment that enables students to thrive academically while making responsible choices regarding alcohol consumption.

INSIGHTS

Dataset

Columns	Description
school	student's school (binary: 'GP' - Gabriel Pereira or 'MS' - Mousinho da Silveira)
sex	student's sex (binary: 'F' - female or 'M' - male)
age	student's age (numeric: from 15 to 22)
address	student's home address type (binary: 'U' - urban or 'R' - rural)
famsize	family size (binary: 'LE3' - less or equal to 3 or 'GT3' - greater than 3)
Pstatus	parent's cohabitation status (binary: 'T' - living together or 'A' - apart)
Medu	mother's education (numeric: 0 - none, 1 - primary education (4th grade), 2 &C" 5th to 9th grade, 3 &C" secondary education or 4 &C" higher education)
Fedu	father's education (numeric: 0 - none, 1 - primary education (4th grade), 2 &C" 5th to 9th grade, 3 &C" secondary education or 4 &C" higher education)
Mjob	mother's job (nominal: 'teacher', 'health' care related, civil 'services' (e.g. administrative or police), 'at_home' or 'other')
Fjob	father's job (nominal: 'teacher', 'health' care related, civil 'services' (e.g. administrative or police), 'at_home' or 'other')
reason	reason to choose this school (nominal: close to 'home', school 'reputation', 'course' preference or 'other')
guardian	student's guardian (nominal: 'mother', 'father' or 'other')
traveltim e	home to school travel time (numeric: 1 - <15 min., 2 - 15 to 30 min., 3 - 30 min. to 1 hour, or 4 - >1 hour)
studytim e	weekly study time (numeric: 1 - <2 hours, 2 - 2 to 5 hours, 3 - 5 to 10 hours, or 4 - >10 hours)
failures	number of past class failures (numeric: n if 1<=n<3, else 4)
schools up	extra educational support (binary: yes or no)
famsup	family educational support (binary: yes or no)

paid	extra paid classes within the course subject (Math or Portuguese) (binary: yes or no)
activities	extra-curricular activities (binary: yes or no)
nursery	attended nursery school (binary: yes or no)
higher	wants to take higher education (binary: yes or no)
internet	Internet access at home (binary: yes or no)
romantic	with a romantic relationship (binary: yes or no)
family	quality of family relationships (numeric: from 1 - very bad to 5 - excellent)
freetime	free time after school (numeric: from 1 - very low to 5 - very high)
goout	going out with friends (numeric: from 1 - very low to 5 - very high)
Dalc	workday alcohol consumption (numeric: from 1 - very low to 5 - very high)
Walc	weekend alcohol consumption (numeric: from 1 - very low to 5 - very high)
health	current health status (numeric: from 1 - very bad to 5 - very good)
absences	number of school absences (numeric: from 0 to 93)

These grades are related with the course subject, Math or Portuguese:

Grade	Description
G1	first period grade (numeric: from 0 to 20)
G2	second period grade (numeric: from 0 to 20)
G3	final grade (numeric: from 0 to 20, output target)

DASHBOARD 1: Overview of dataset

Mother Education

Type of chart : Pie chart

It categorizes education levels from none to higher education, allowing viewers to see the proportion of students with mothers at various educational levels. we used calculated field in this to divide into category and found out that 5th-9th educated mother are the highest with 103 count and 3 mother never gone to school

Father Education

Type of chart : Pie chart

Similar to the mother's education chart, this visualization presents the distribution of fathers' education levels among the students. Here also 5th-9th education is highest with 115 and 2 father with no education at all.

Rural vs Urban

Type of chart : Pie chart

This chart sheet presents a clear breakdown of students' home address types, categorizing them into 'Rural' and 'Urban'. Here 307 belong to urban area while 88 students belong to rural area.

Gender count

Type of chart : Shape chart

It offers a simple yet essential perspective on the gender distribution among the students. 208 are female while 187 are male.

Age Bin

Type of chart : line chart

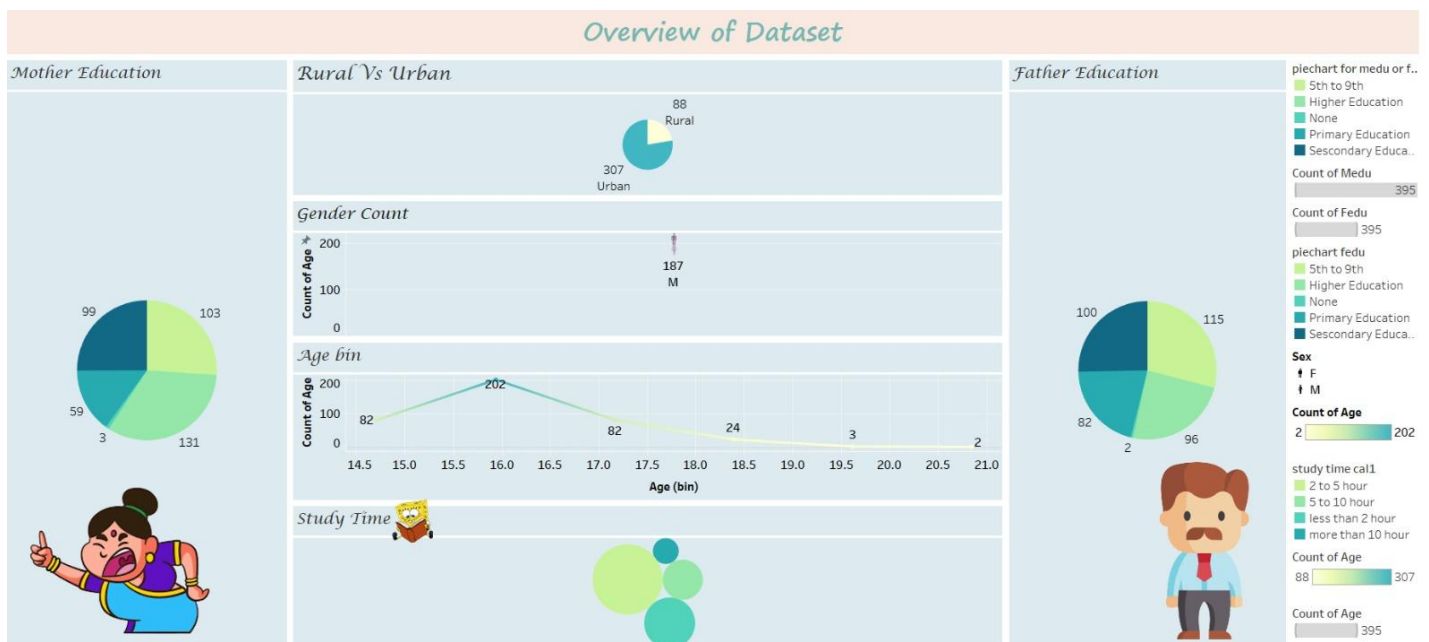
This chart likely represents students fall into each age group. 202 students belong to 16 age bracket and 2 students belong to 21 years age

Study Time

Type of chart : Packed Bubble

By using a packed bubble chart to depict study time, you can visually assess the concentration of students who fall into various study time categories, and whether there are any noticeable relationships between study time and academic performance. We found out that 198 students study for about 2 to 5 hour and 27 students .

Figure 1 overview of dataset



Why this Dashboard ?

This helps in gaining the insight of the dataset in a more visualized and clean manner .This simply tells about the dataset and what factors are considered the most important in our project .

It provides an immediate grasp of demographic, educational, and behavioral aspects, such as parents' education, urban-rural distribution,

gender, age distribution, and study time, allowing users to identify potential correlations and trends.

In essence, the overview dashboard simplifies data exploration, facilitating more focused and informed inquiries into the dataset's intricacies.



DASHBOARD 2:Academic performance

Address vs Age

Type of chart : Stacked bar chart

This visualization highlights the varying age groups within urban and rural communities, setting the stage for further exploration. 16 years students and from them 164 belong to urban area and 38 belong to rural

Failure in each school due to weekday alcohol

Type of chart : Packed Bubble

Chart depicting failures in each school due to weekday alcohol consumption reveals an innovative way to understand the relationship between alcohol use and academic setbacks. After analyzing we found that GP has the highest no of female alcohol having low avg grade then GP male students that has aveq of grades

Failure in each school due to weekend alcohol

Type of chart : Packed Bubble

Similarly, the packed bubble chart for failures in each school due to weekend alcohol adds another layer of comprehension by showing how weekend drinking habits might impact students' academic performance differently from weekday habits. _

Reason vs Students

Type of chart : Bar chart

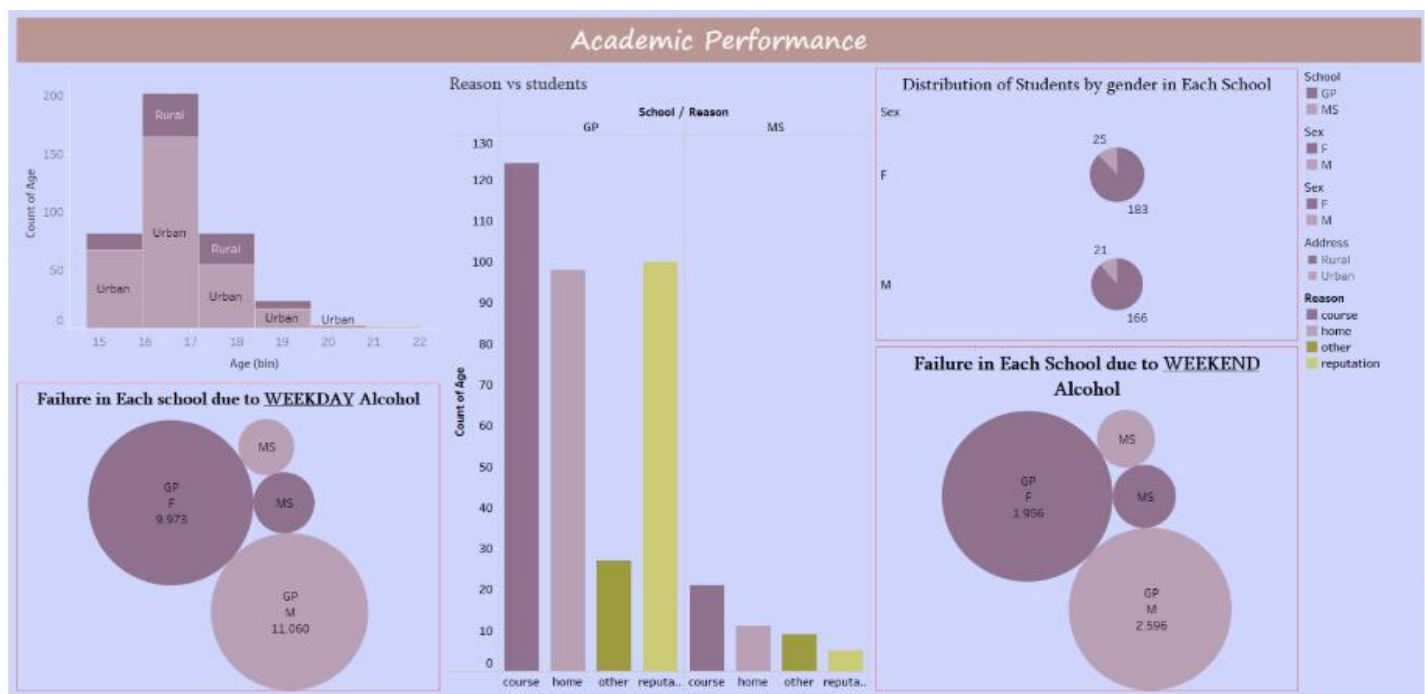
This can provide insights into their motivations, which could impact their academic success and alcohol consumption patterns. For the Gp school highest reason is Course and similarly for the Ms school reputation is the least reason to choose it

Distribution of students by gender in each school

Type of chart :Pie chart

*This chart sheet is essential for showcasing the gender distribution within each school (GP and MS). In Gp female count is 183 and 166 male
in MS 21 are Male and 25 are female*

Figure 2 Academic performance



Why this Dashboard ?

Overall, this academic performance dashboard serves to uncover patterns and relationships between students' attributes and their educational achievements. It can help educators and policymakers identify areas where interventions may be needed to enhance academic outcomes, as well as provide valuable insights for parents and students in making informed choices related to their education.

DASHBOARD 3: Parental Factors

Number of Family members

Type of chart : Donut chart

It helps to identify whether most students come from smaller or larger families, offering insights into the family structures within the sample. 281 students has family member more than 3 and 114 has less than 3 .

Famsize vs alcohol vs Grade

Type of chart : bar chart

It allows for a visual exploration of how family size may relate to both alcohol consumption patterns and academic performance, highlighting any potential correlations or differences..

Alcohol consumption vs parents status

Type of chart : Donut chart

Parental cohabitation status (living together or apart) and their alcohol consumption habits. It helps in understanding whether students' living arrangements are linked to their alcohol consumption patterns. 354 Together and 41 are away .

Guardian vs alcohol

Type of chart :Heat Map

The heat map reveals the associations between students' guardians (mother, father, or other) and their alcohol consumption levels. We saw that the mother guardian has the highest alcohol consumption students .

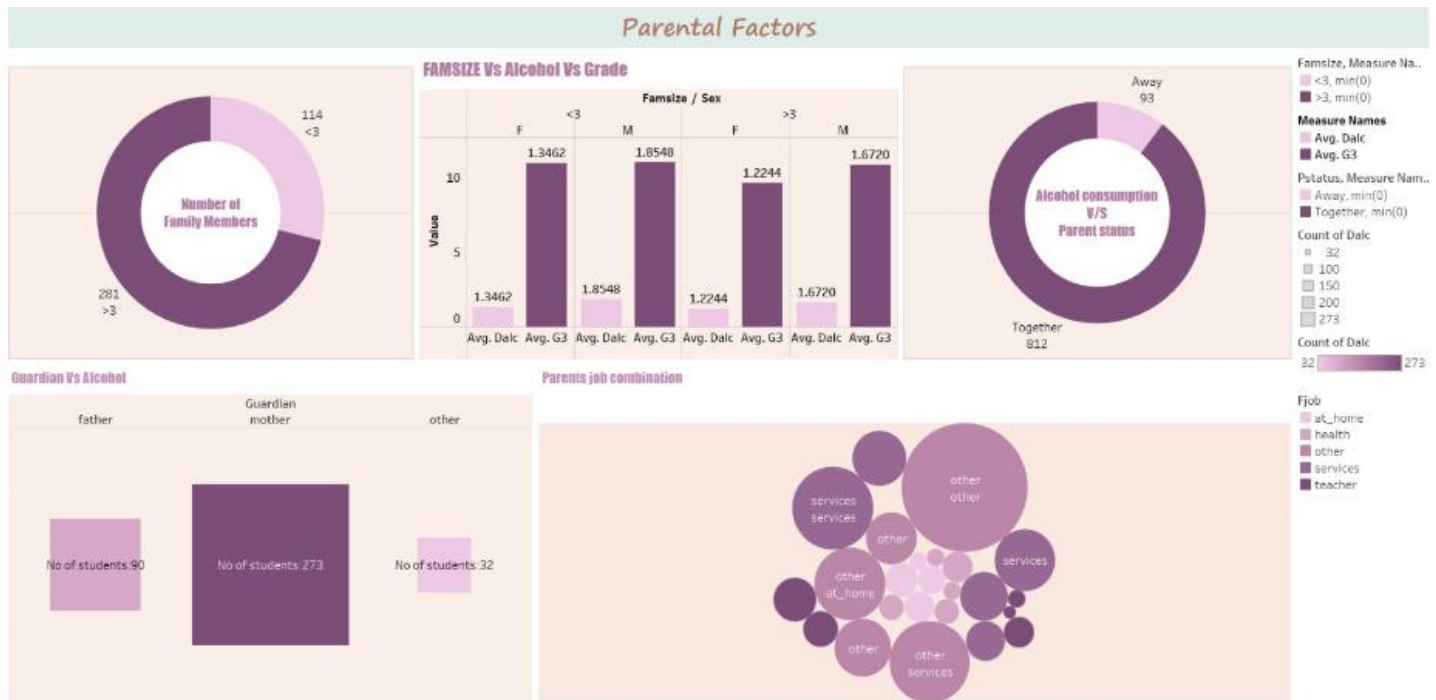
Parents job combination

Type of chart :Packed Bubble

The packed bubble chart visually represents combinations of mother's and father's occupations, offering a comprehensive look at the diversity of parental job

combinations among students. This shows that others and others combination is the most popular in chart.

Figure 3 Parental Factors



Why this Dashboard ?

The choice of the "Parental Factors" dashboard theme stems from the pivotal role that family and parents play in a student's life. It serves as a lens through which we can gain insights into how family-related factors, such as family size, parental cohabitation status, and parental occupations, may influence a student's choices, including their alcohol consumption habits and academic performance.

DASHBOARD 4: External Factors

Alcohol Consumption Based on Family Support:

Type of chart : Pie chart

It enables an examination of how students' family support systems impact their decisions regarding alcohol consumption. Almost no much difference was found in consumption if family supports or not .

Effect of Study and Alcohol Consumption Due to Internet

Type of chart : Label chart

Alcohol consumption habits in the context of internet access ('yes' or 'no'). It helps to discern whether the presence of internet access influences the correlation between study habits and alcohol consumption. If internet was accessible then avg grades are more and average study time is also greater

Activity vs. Alcohol Consumption

Type of chart : Donut chart

It sheds light on whether students who engage in. This shows that others and others combination is the most popular in chart. Through our visualization , we found out that there was not much change in the consumption irrespective they do activity or not

Figure 4 external factor



Why this Dashboard ?

The "External Factors" dashboard is vital because it delves into external influences that can significantly affect students' lives and choices, particularly in relation to alcohol consumption. These factors include family support, internet access, and extracurricular activities, which can either serve as protective or risk factors for students. It's a valuable resource for educators and policymakers as they work to create supportive and nurturing educational environments for students.

CONCLUSION

The four dashboards collectively provide a comprehensive exploration of the intricate relationship between student attributes, external factors, parental influences, and academic performance, all within the context of alcohol consumption. The insights garnered from these visualizations offer valuable implications for various stakeholders in the education sector, as well as policymakers and parents.

Collectively, these dashboards emphasize the significance of a holistic approach to education and student well-being. In conclusion, alcohol consumption is a complex issue with far-reaching consequences for students' lives and academic success. The students should limit their consumption as their grades are definitely being affected by consumption alcohol .