PST107Rowe_Ruben_Assessment2

Assignment II - Data Analysis Project

Ruben Rowe

Deadline

- Today 11.59pm

Weighting

- 30%

Total Marks

- 100 marks

Assessment Task

Source Code:

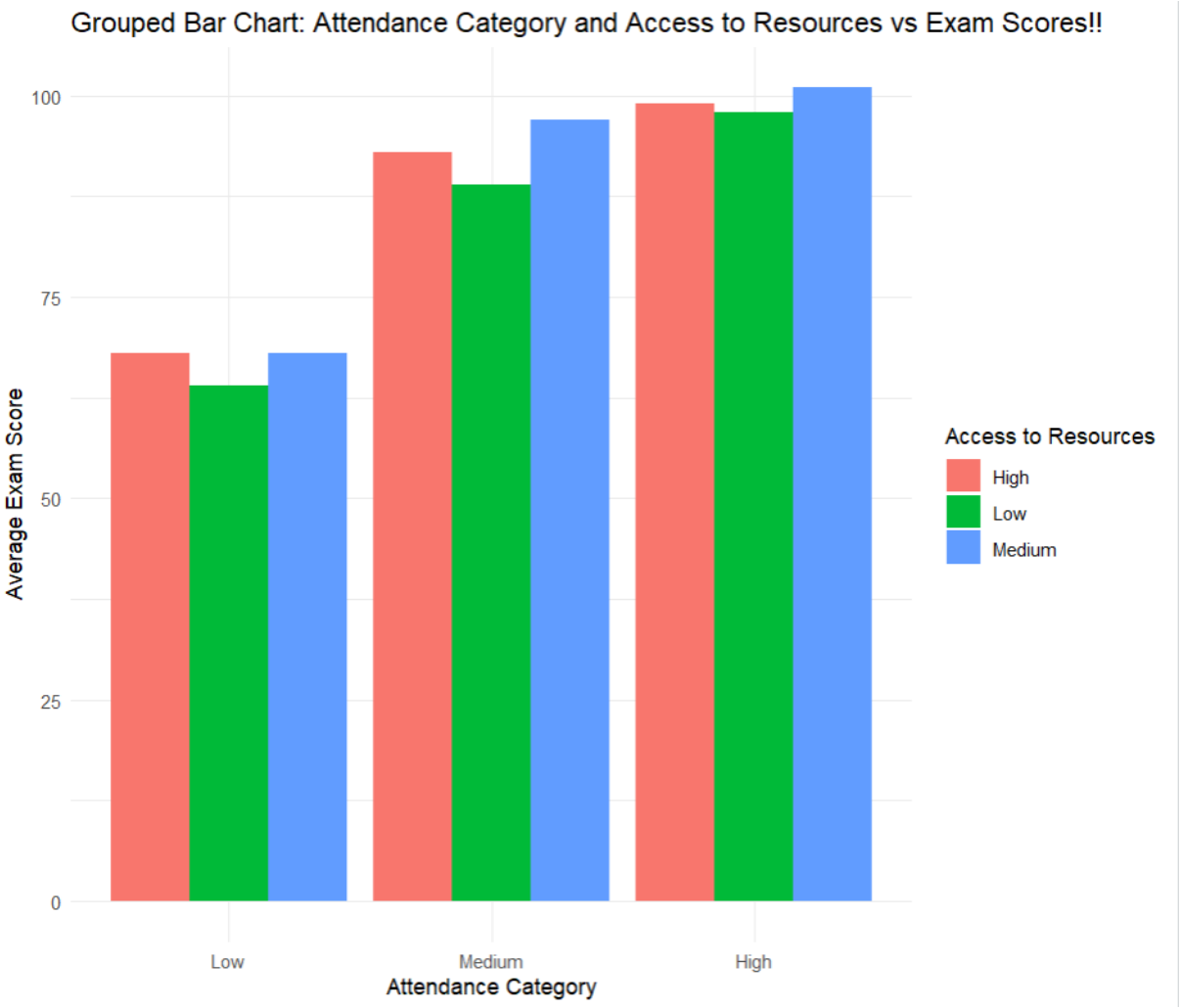
```
library(readxl)
data <- read.csv("C:\\rubensC++folder\\PST_107\\StudentPerformance
Factors.csv",
                 header = TRUE, sep = ",")
head(data)
str(data)

# Grouped bar chart
ggplot(data, aes(x = Attendance_Category, y = Exam_Score, fill = A
ccess_to_Resources)) +
     geom_bar(stat = "identity", position = "dodge")
     labs(
         title = "Grouped Bar Chart: Attendance Category and Acces
s to Resources vs Exam Scores!!",
         x = "Attendance Category",
         y = "Average Exam Score",
         fill = "Access to Resources")
     theme_minimal()
```

Findings:

The grouped bar chart illustrates the relationship between **attendance categories**, **access to resources**, and **average exam scores**.

1. **Attendance Categories**:
    - Students with **higher attendance rates** consistently achieve better average exam scores compared to those with lower attendance rates.
2. **Impact of Access to Resources**:
    - Within each attendance category, the level of **access to resources** also plays a role:
        - Students with **high access to resources** tend to score slightly better on exams across all attendance categories.
        - Interestingly, even for students with **low attendance**, access to resources appears to provide a noticeable boost to exam performance.
3. **Combined Insights**:
    - The combination of **high attendance and high access to resources** leads to the **highest average exam scores**.
    - Conversely, students in the **low attendance and low resource category** show the **lowest performance** overall.
4. **How the Data was Measured:**
    - The **Attendance Category** was measured using the basic example that all schools use a “Roll”!!
    - The **Access to Resources** was measured by getting students to fill out a feedback form that uses its feedback from students as data points (What’s your level of access to high end resources like, etc..)
    - The **Exam Results** was measured by..... well EXAM RESULTS!!!

The grouped bar chart highlights the relationship between attendance categories, access to resources, and average exam scores. Students with higher attendance rates consistently achieve better average exam scores compared to those with lower attendance rates. Within each attendance category, access to resources further impacts performance, as students with high access to resources tend to score slightly better on exams. This trend is observed across all attendance levels. One of my main findings, even for students with low attendance, better access to resources provides a noticeable boost to exam performance. The combination of high attendance and high access to resources leads to the highest average exam scores without a doubt, while students with low attendance and low access to resources perform the poorest. This Grouped bar chart visualization underscores the importance of both regular attendance and resource availability in driving student success.



Summary:

In this data analysis project, I examined the relationship between **attendance categories**, **access to resources**, and **average exam scores**. My findings revealed that students with higher attendance rate tend to perform better on exams. Access to resources also really plays a heavy part in this analysis, with students who have better access to resources scoring without a doubt higher, even if their attendance is low. The combination of **high attendance** and **high access to resources** definatly leads to the highest average exam scores, while **low attendance** and low resources result in the worst performance. This analysis highlights the importance of both **consistent attendance** and **having access to resources** in achieving student success.

Conclusion:

In conclusion, it is clear that both **access to resources** and **attendance** play a very large role in a student's academic success. I was very interested by the impact that having the right resources can have on a students performance. While it's true that some students are motivated and content with learning regardless of their circumstances, the data

reveals that, in reality, proper equipment and resources are absolutely essential for students to truly reach their full potential and achieve their academic goals.

Future Ideas:

In the future i would defiantly use a series of data points instead of 3 i would use a visualization that could represent a large visual change in a students exam results.