Exploratory data analysis of age, gender, and potential violent tendencies from YRBSS data

Author List: Tabias Farrison & Jalyn Perry
Department, University of South Carolina Beaufort, Bluffton, SC 29909

Introduction

This project aims to explore the correlations between age, gender, and potential violent tendencies. Moreover, we aim, to find any correlations between violent behaviors (frequently carrying a weapon to school, and getting into frequent fights), and rather or not these violent behaviors correlate to a specific gender, in the age range 12 to 18+.

Data Source

- We used data from the cdc website
  - https://www.cdc.gov/yrbs/files/2023/XXH2023_YRBS_Data.zip

Data Winnowing

- We used the following process to winnow our data
  - Download msdb file from CDC website
  - Open msdb file in Microsoft access
  - Create new query (available on github)
  - Export as excel sheet
    - while this process modeled our most focused on questions, we utilized pandas built in methods in python to drop unnecessary columns

Demographic info used

- questions
  A step by step process can be found In our project documentation

Hypothesis

H1: Someone who has been involved in a school fight has a higher chance of carrying a weapon to school.
H2: Someone who has been involved in a school fight has a lower chance of carrying a weapon to school.
Null-H: There is no correlation between school fights and carrying a weapon to school

Finding 1

-Our findings suggest that the correlation between questions 12 and 17 is very loose in the positive direction. This correlation is not necessarily proof of anything significant.
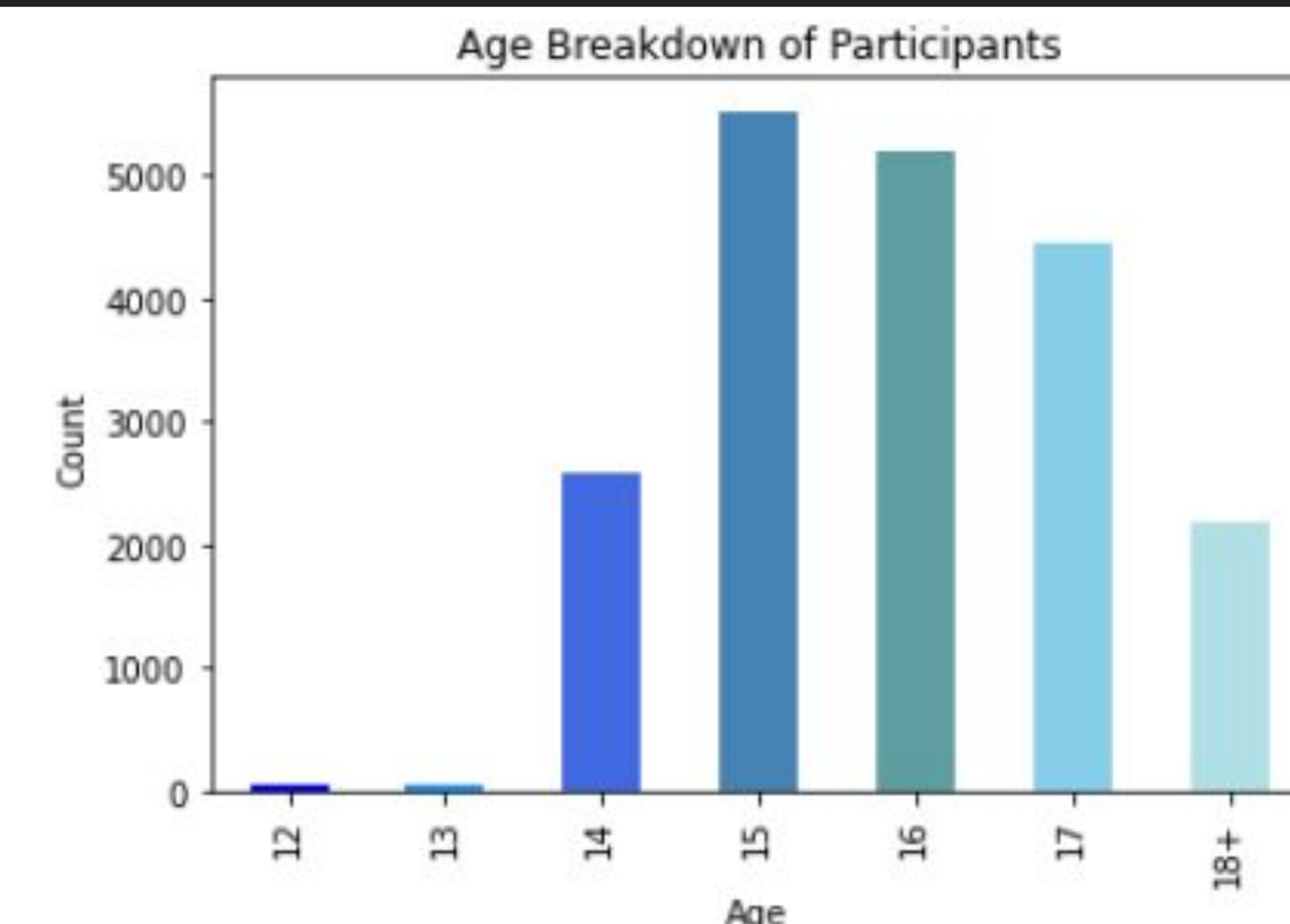
Finding 2

-Out of the 149 male students who brought weapons 4 or more days , 13 of them got into frequent fights. 8.7%
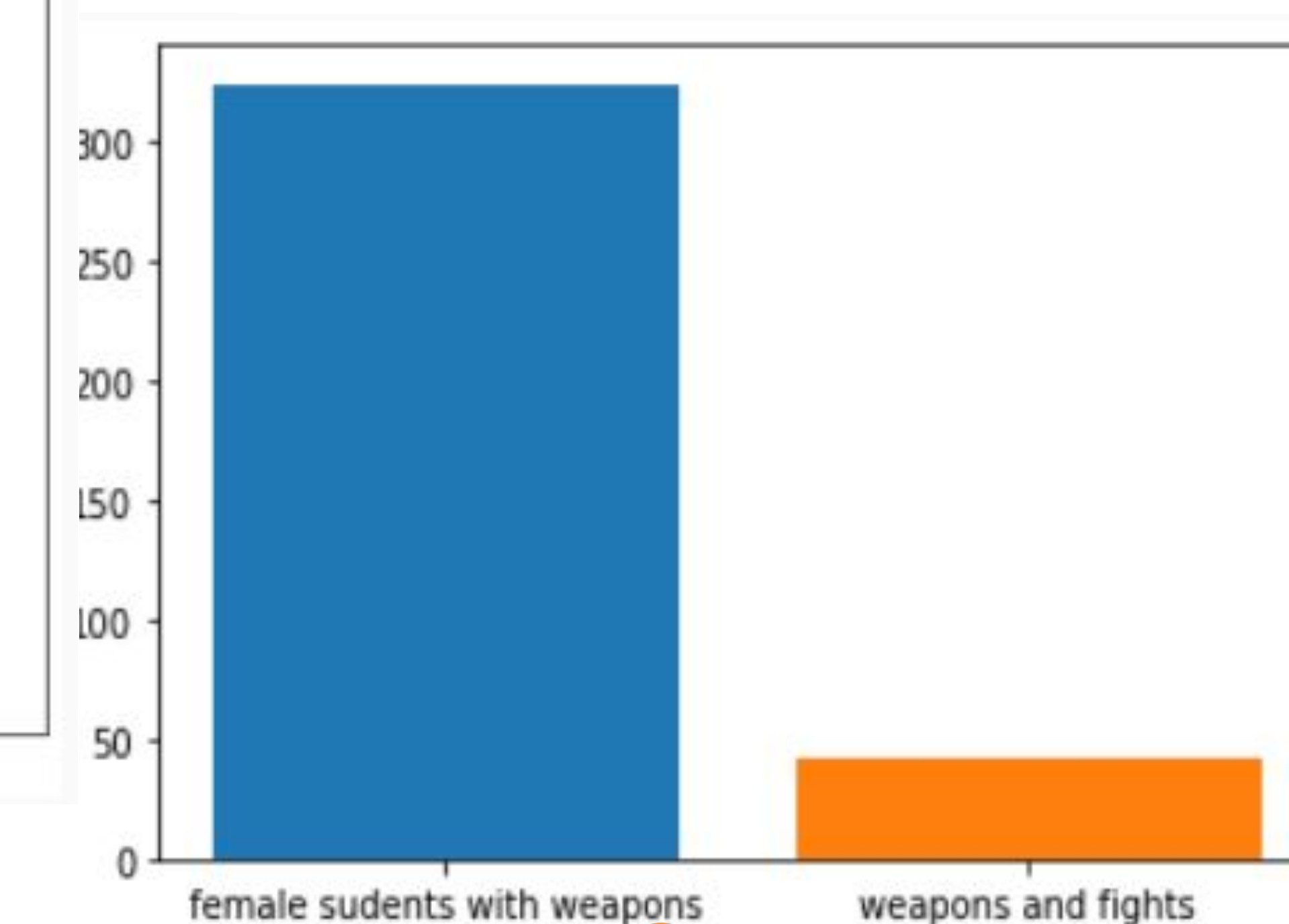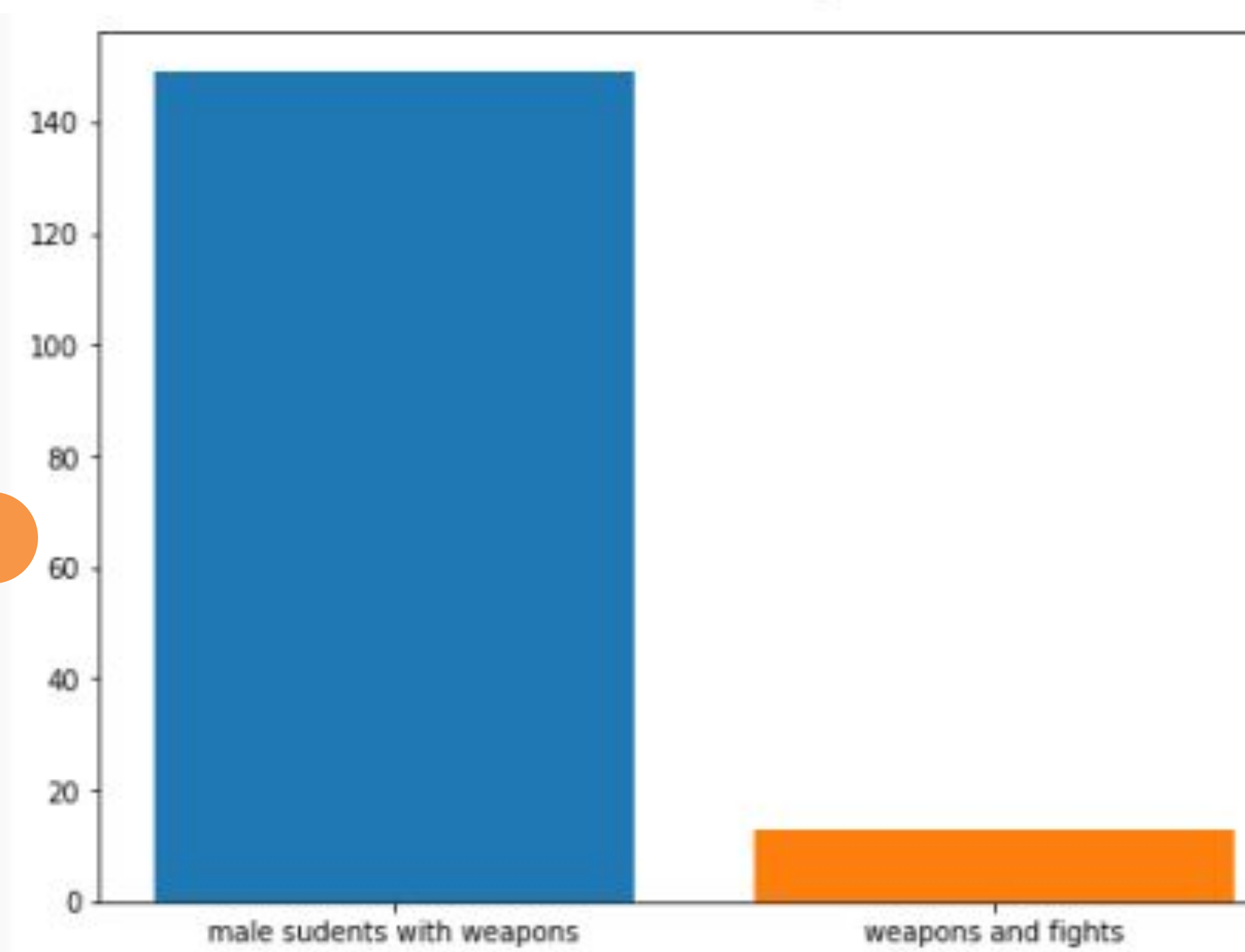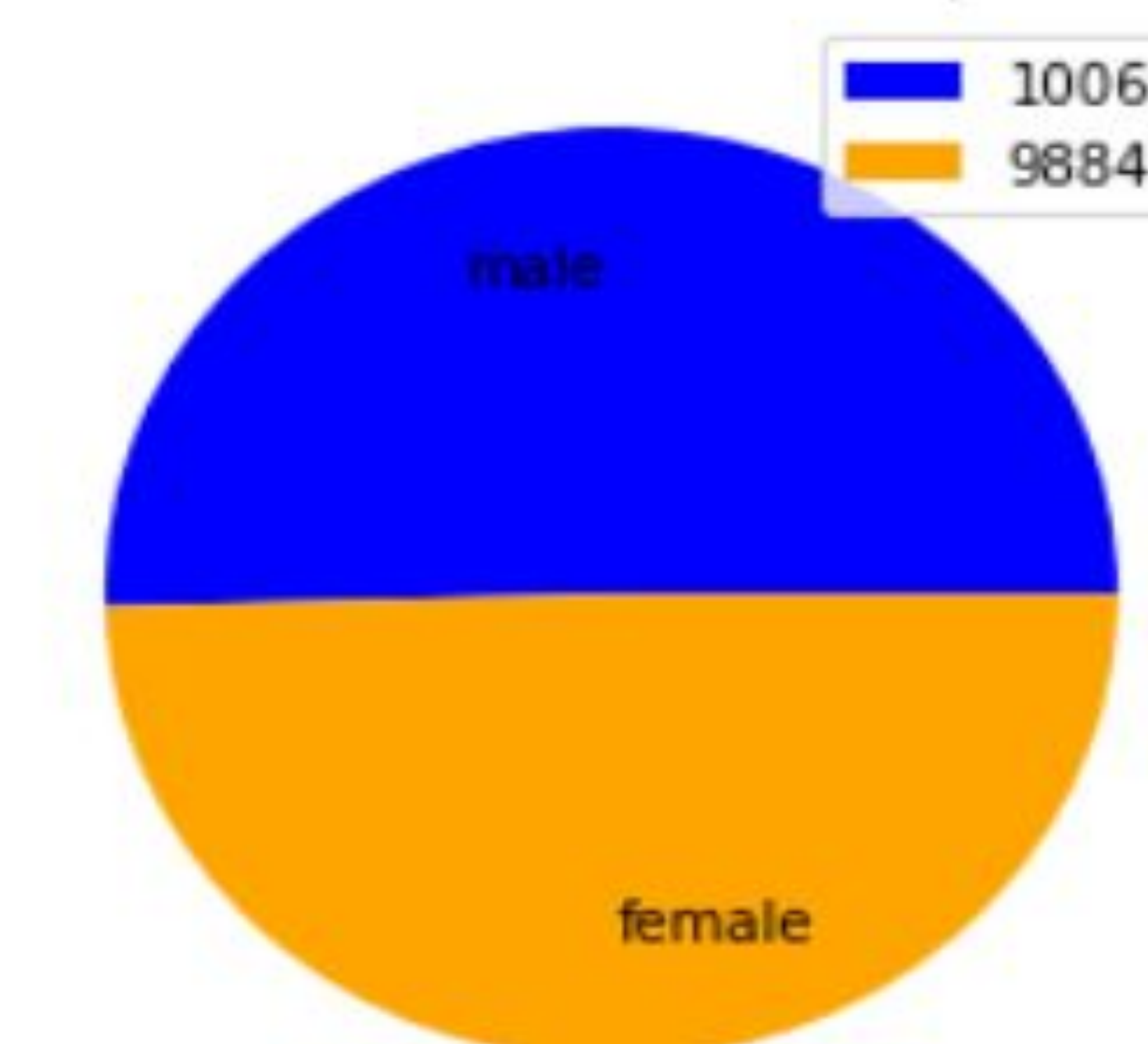-Out of the 324 female students who brought weapons 4 or more days, 42 got into frequent fights.12.3%

Conclusion & Future Work

Our research concludes that females who frequently fight at school have a slightly higher chance of bringing a weapon to school, with a higher percentage than males. However, it does not prove that one causes the other. Other factors like mental health, bad days, and bullying also contribute to violent behaviors. We recommend that anyone interested in further research should explore these other factors as well.
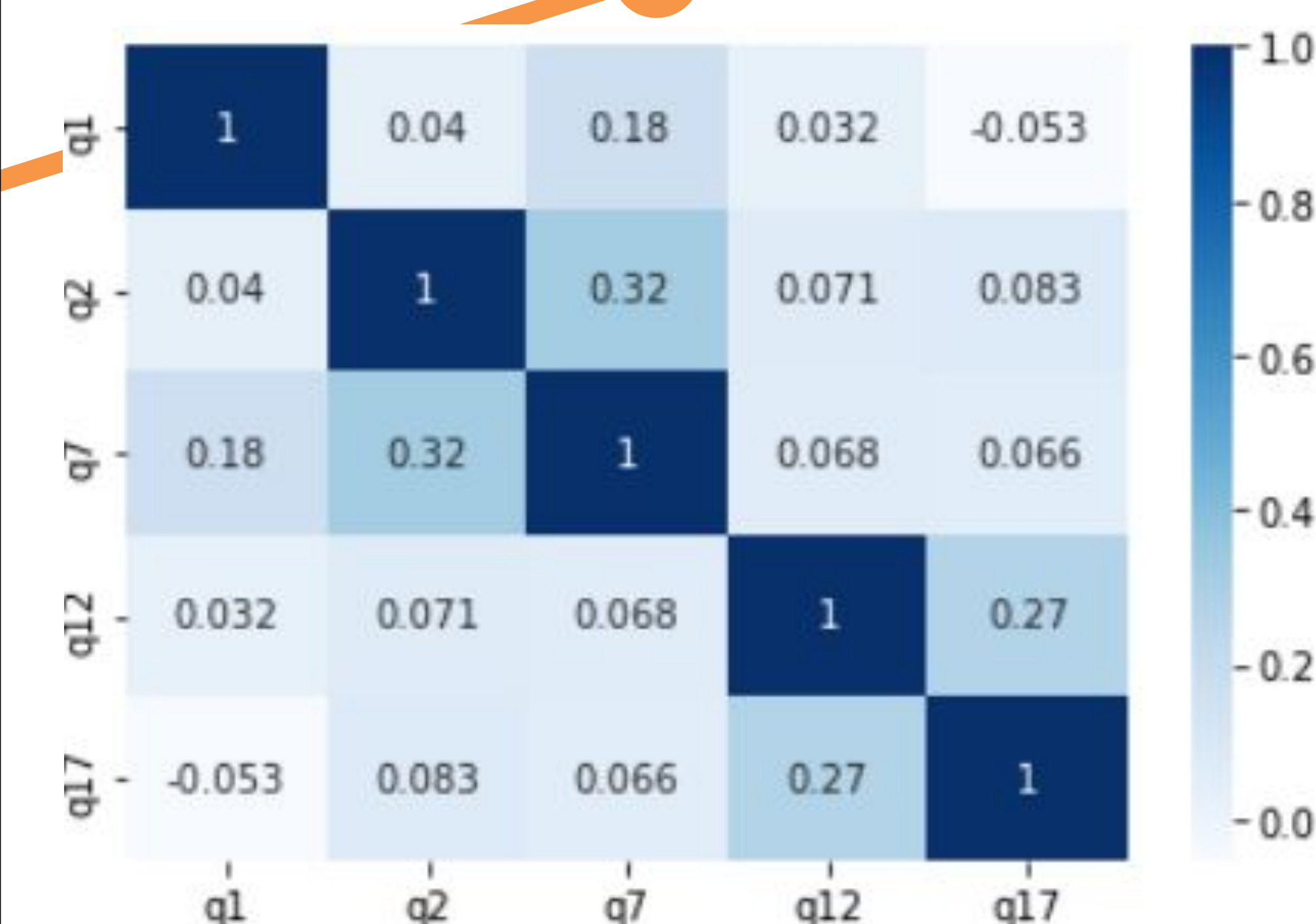

q12-> during the past 30 days, oon how many days did you carry a weapon such as a gun/knife on school property

q17-> during the past 12 months, how many times were you in a physical fight on school property

q1-> age

q2-> gender

q7-> how much do you weigh without shoes on

References

The Youth Risk Behavior Survey 2021 Data Set from the CDC avallable at:https://www.odc.gov/healthyyouth/data/yrbs/data.htm
Anaconda Python Package download avallable at https://www.anaconda.com/download
Matplotlib Documentation available at: https://matp.at/b.org/stable/
Pandas Documentation avallable at: http://pandas.pydata.org/does/

SOURCES