

Portfolio: Powerlifting Dataset

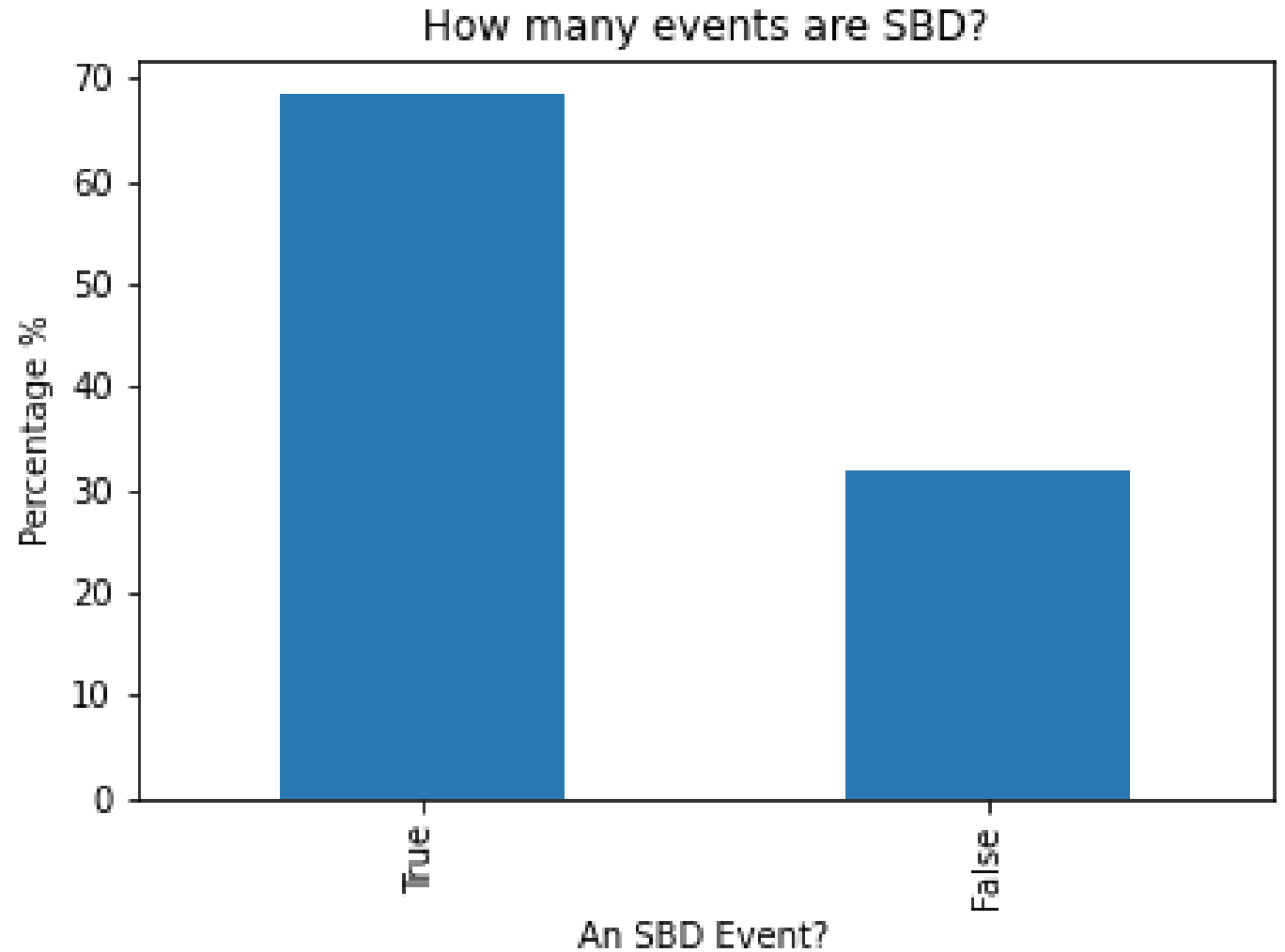
George Wilkinson

Aims / Defining terms

- To look at the different aspects of powerlifters and to see what contributes to greater lifts.
 - Key areas to investigate:
 - **Age of lifters**
 - **Gender of lifters**
 - **A lifter's bodyweight**
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- Definitions:
 - SBD event – Powerlifting event where a participant will Squat, Bench and Deadlift.
 - Wilks score – calculation from a persons lifts used to determine 'Best Lifter' certain at events.

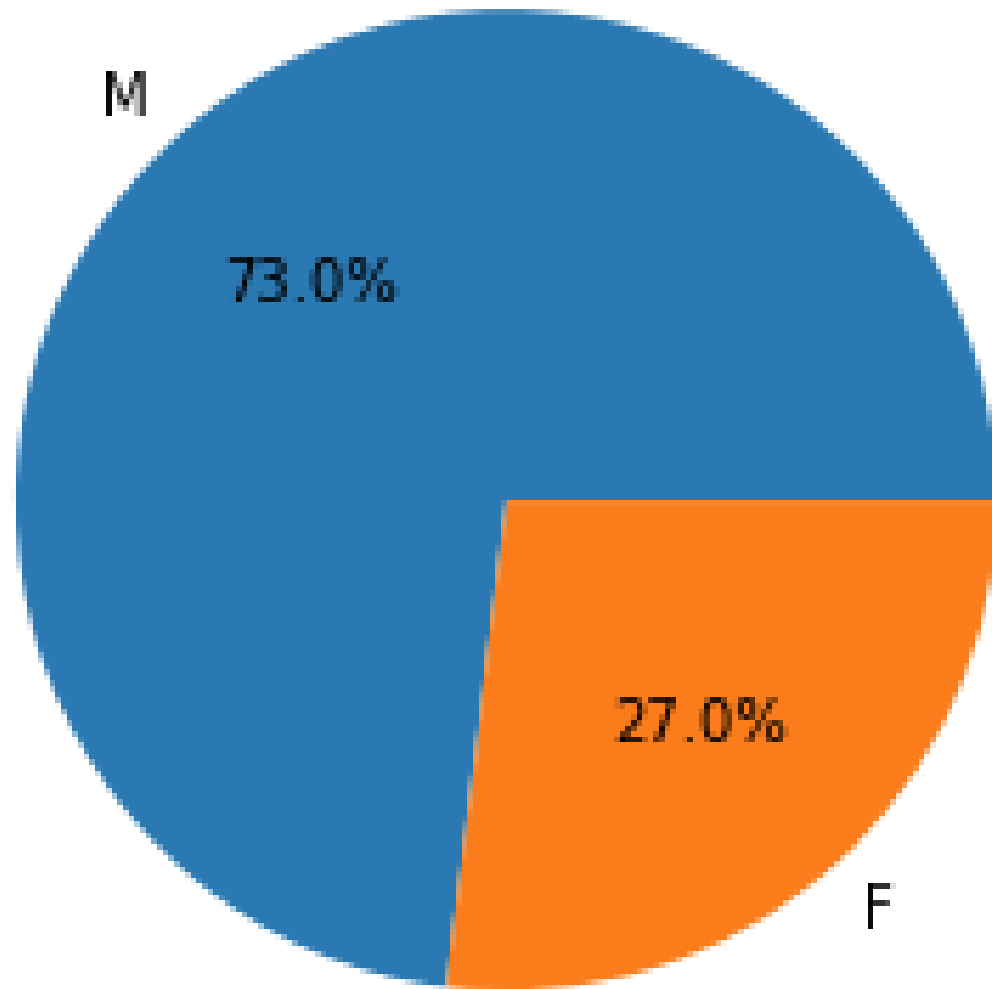
Why only SBD events?

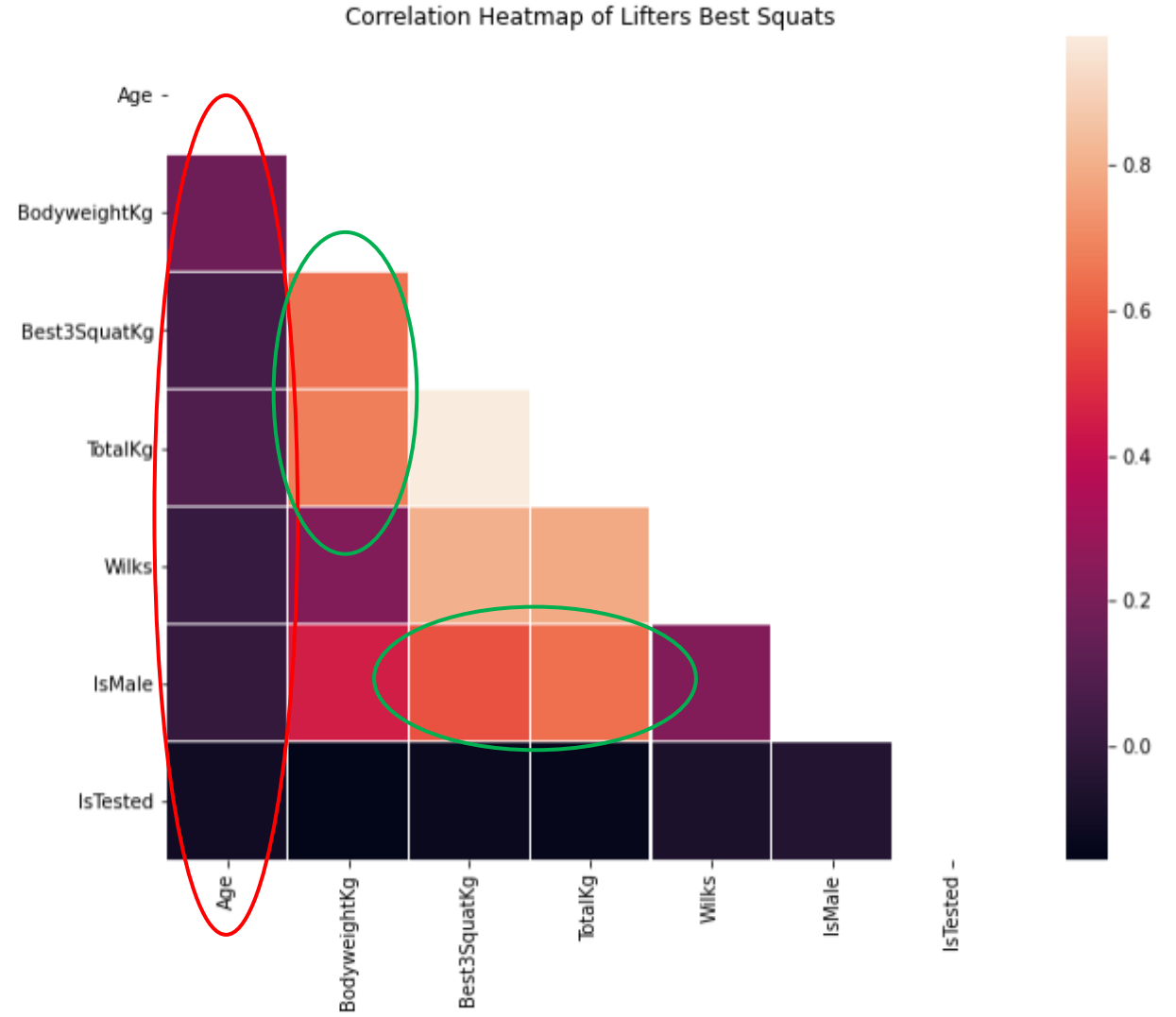
- They are the most common event.
- Would be biased to compare people who do 1 or 2 lifts, to those who do all 3.
- 68% SBD events.
- Reduces dataset sample to ~1.7million



What is the gender split?

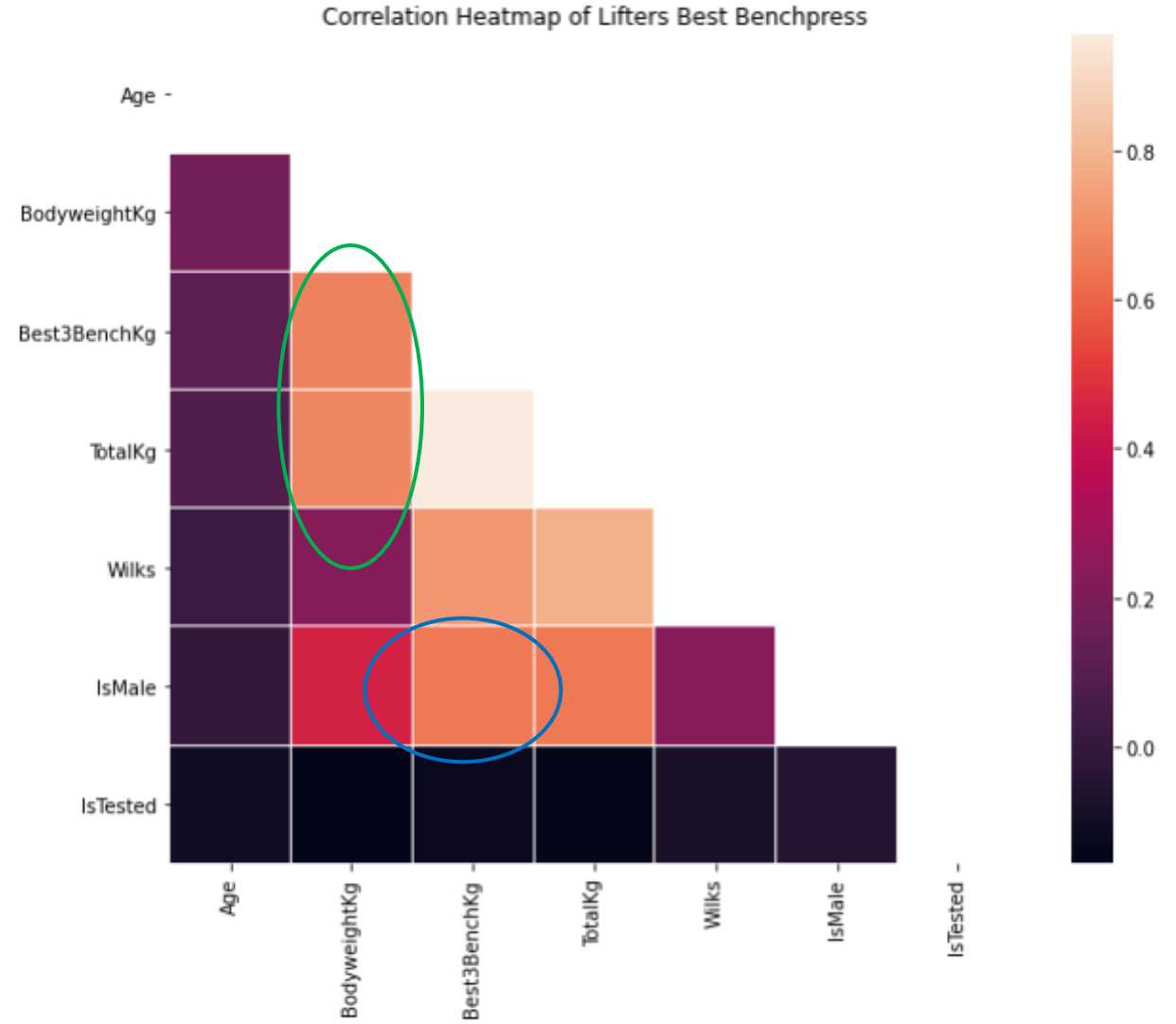
- Predominantly male lifters.
- ~1.2million male lifters compared to 1/2million females.
- Splitting them up will allow trends to be related.





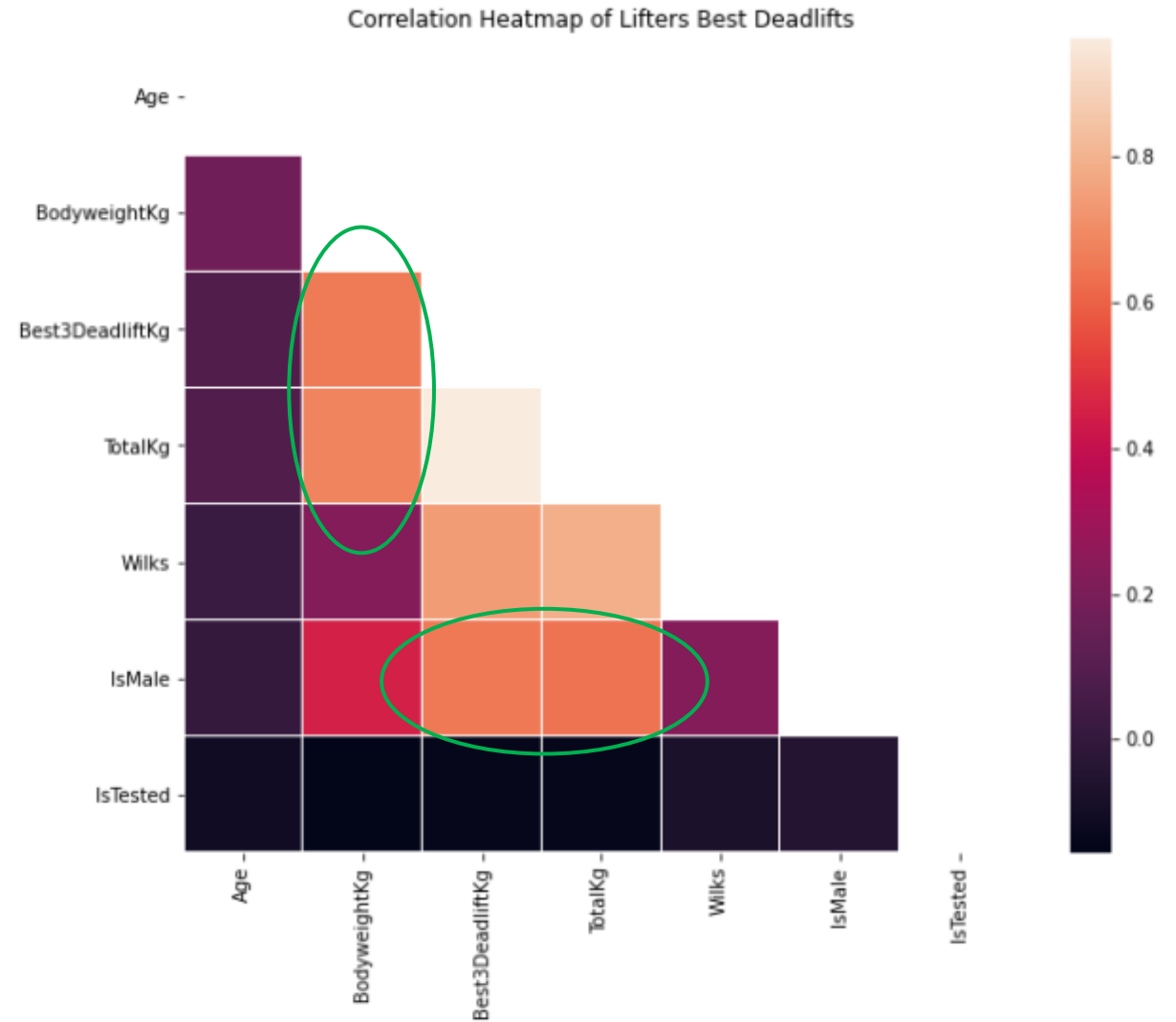
Correlations within each lift – Bench press

- Similarly, there is the low correlation between the age of lifters and the other factors.
- Like with squats, there is a connection between a participant's bodyweight, and their greatest lift and overall total.
- However, there is a **weaker** correlation between gender and a lifters best bench.



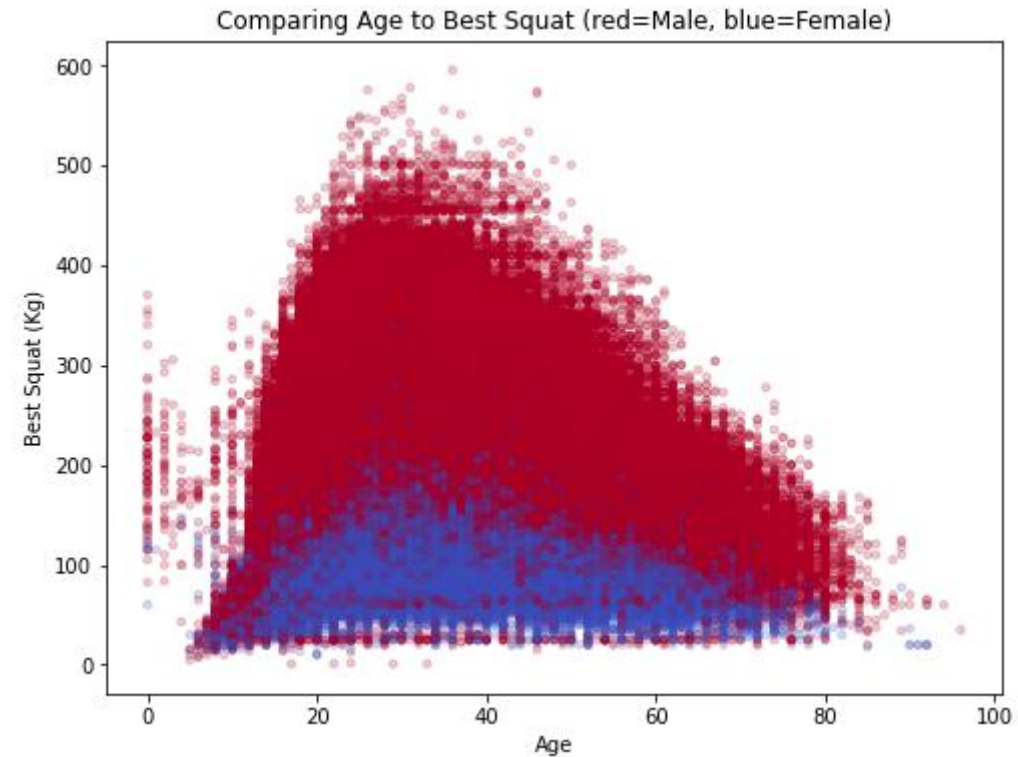
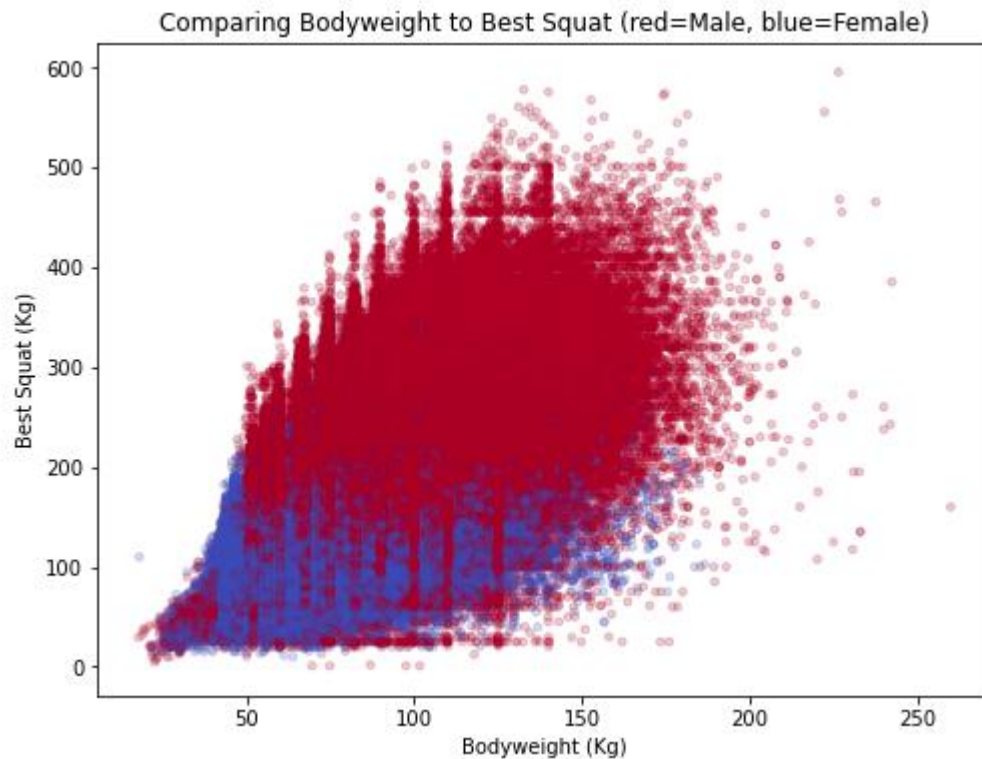
Correlations within each lift - Deadlift

- The correlations between these numerical factors are much like those for the bench press.
- Being:
 - Bodyweight – weight of the lift(s).
 - Being male – weight of the lift(s).
- For all 3 lifts there is a link between the Wilks score and weight lifted, but this is because the Wilks score is calculated from these factors.



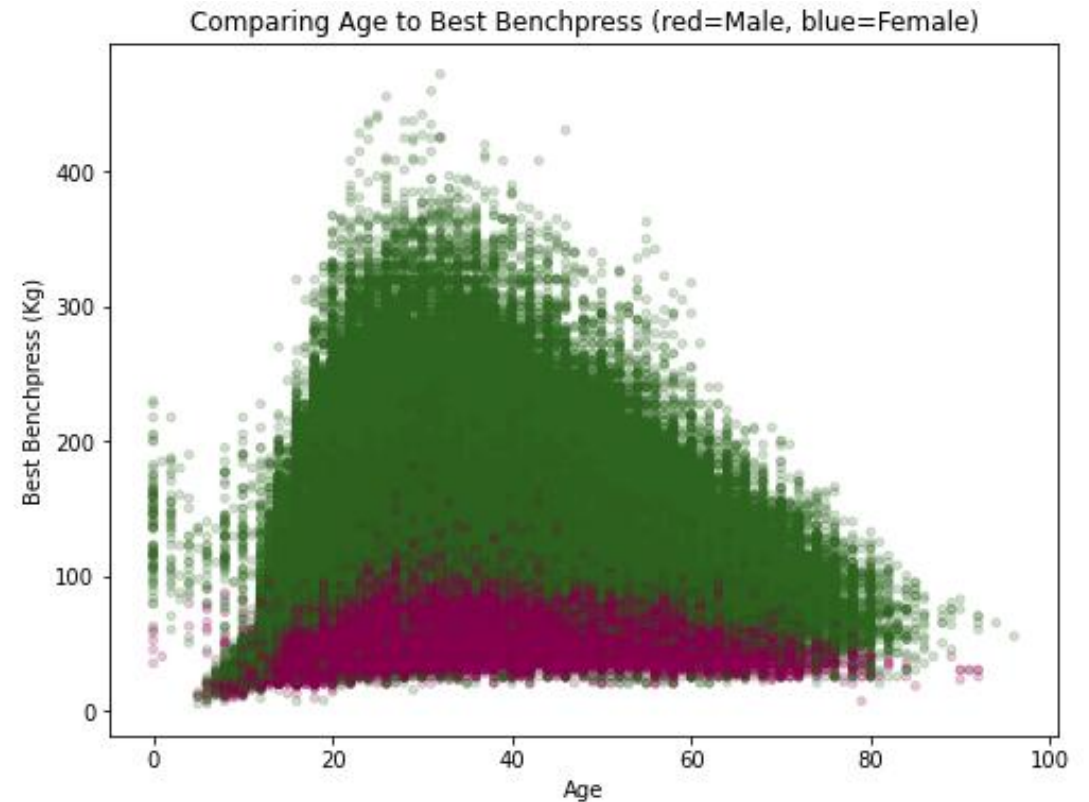
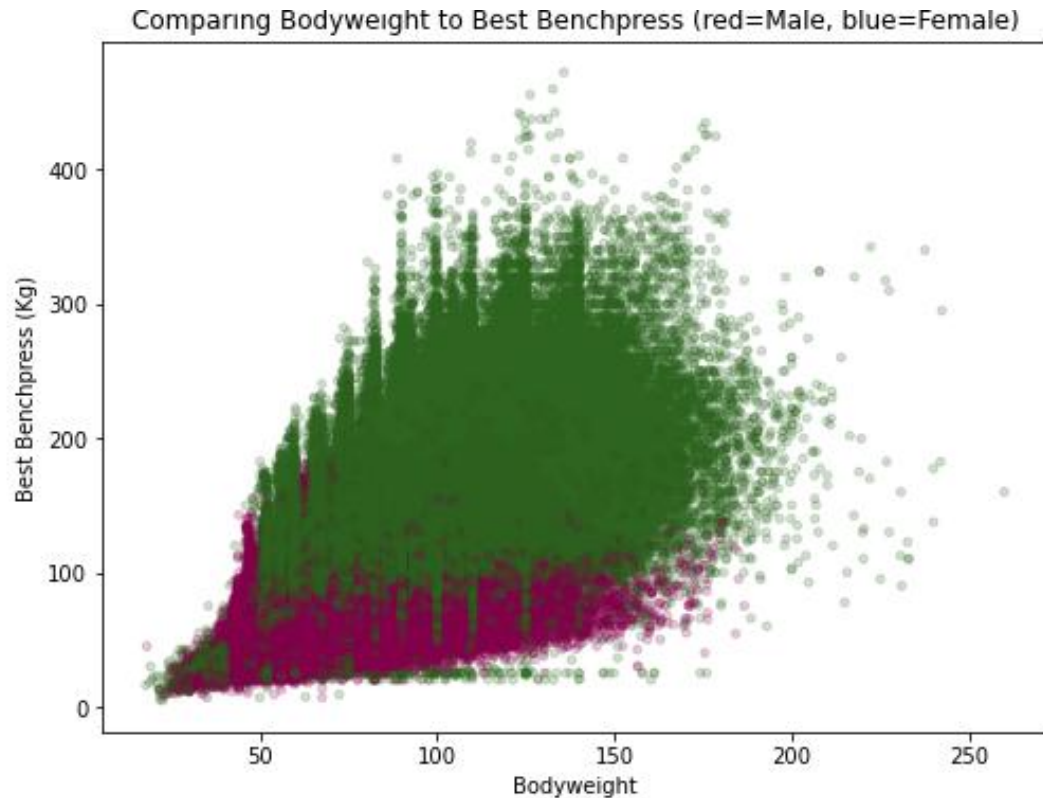
Looking closer at the correlations - Squat

- These scatter graphs look closer at the bodyweight and age of all lifters, compared to their best squat.
- A positive trend with bodyweight and squat. Also showing that men lift more than women.
- The age graph looks like a normal distribution with a slight positive skew.



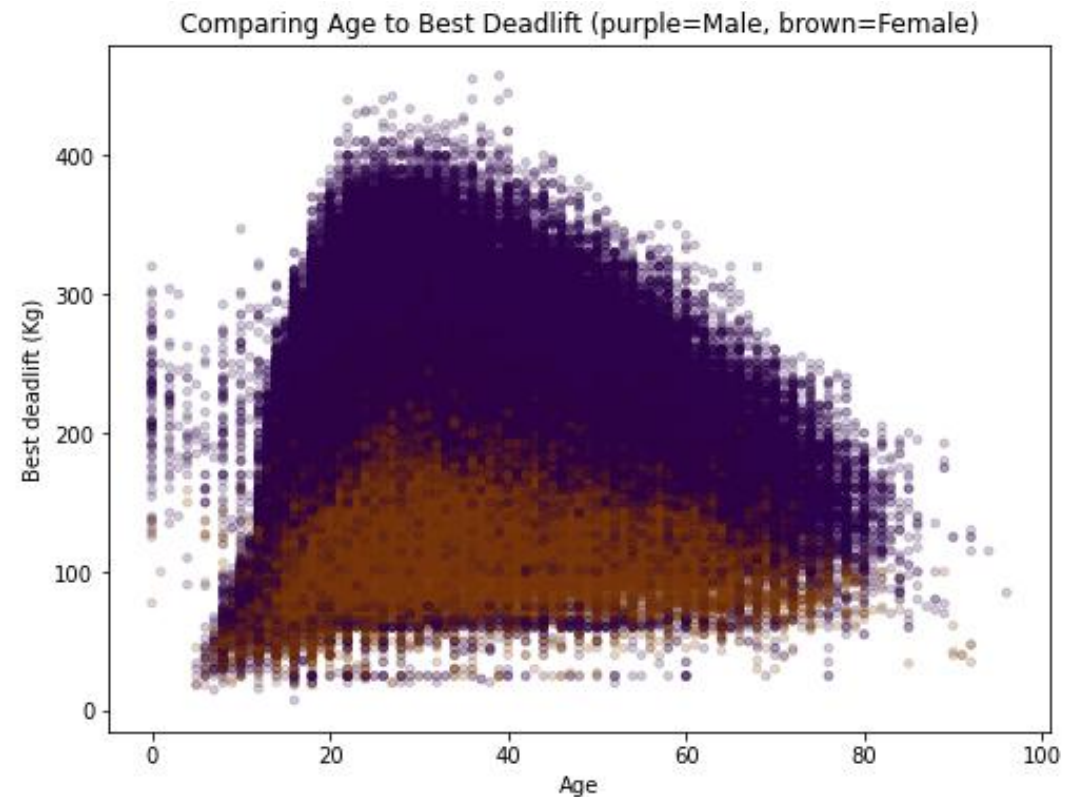
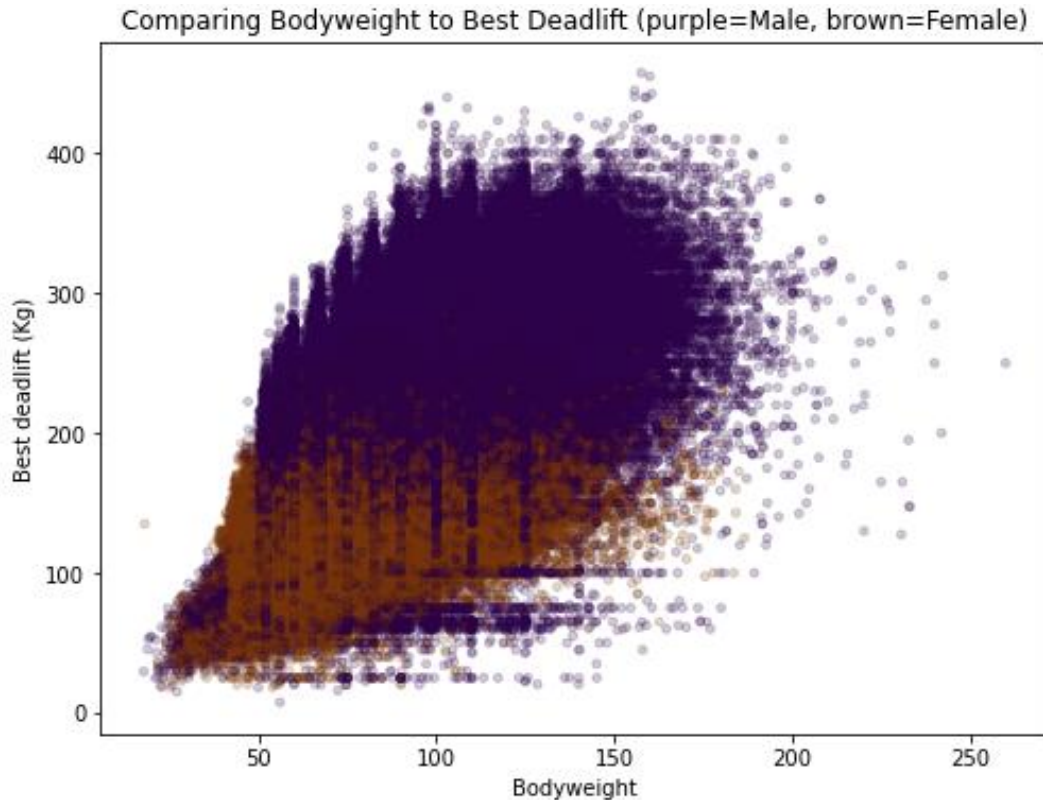
Looking closer at the correlations – Bench press

- The same as before but for bench press.
- A very similar bench/age graph.
- There is a slightly wider spread for bodyweight graph which is synonymous with what the heatmap showed.



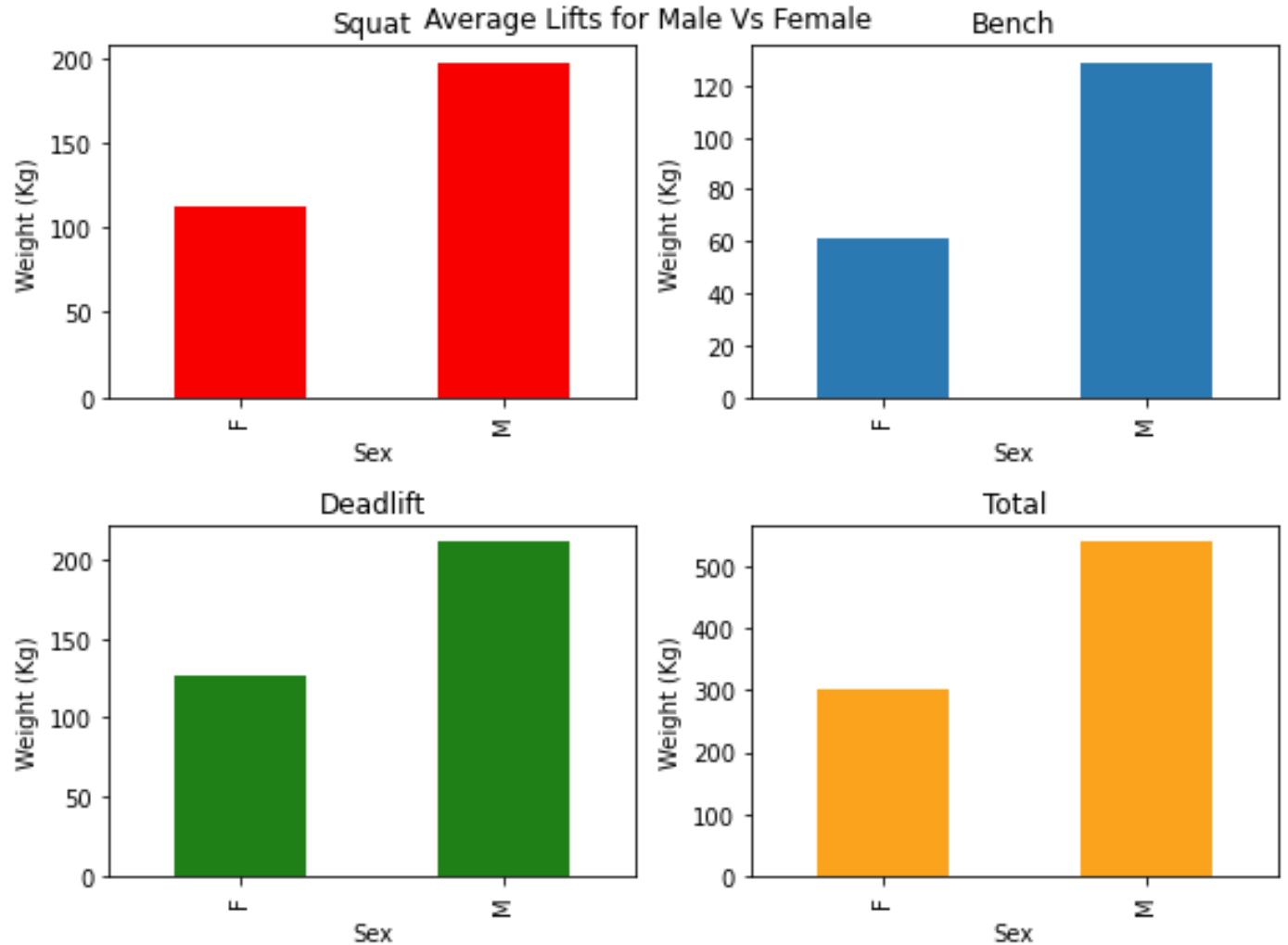
Looking closer at the correlations – Deadlift

- The deadlift/bodyweight graph looks quite similar to the squat graph in terms of spread.
- For both graphs, the 'Female' datapoints are spread upwards, showing that they lift more comparative to the other 2 lifts.
- For all 3 'Age' graphs, there are anomalous results in the 0-5yrs region.



Directly comparing Male vs Female

- Bar charts showing the averages for each lift for men and women.
- Throughout you can see that men lift more than women on average.
- Around 2x more.
- Except for squats where its is only 1.7x more.



Evaluation



- From analysing the graphs, some conclusions can be made for the key areas investigated.
- Age is not a factor that effects how much a person will lift in an SBD event.
- Bodyweight has shown to be a positive factor when related to max lifts. Showing stronger relationships with squatting and deadlifts, than bench press.
- When lifter's sex were compared, it showed that it was the most defining factor in leading to a greater lift in SBD.
- However, this is not a variable that one can change and so is why they compete separately.