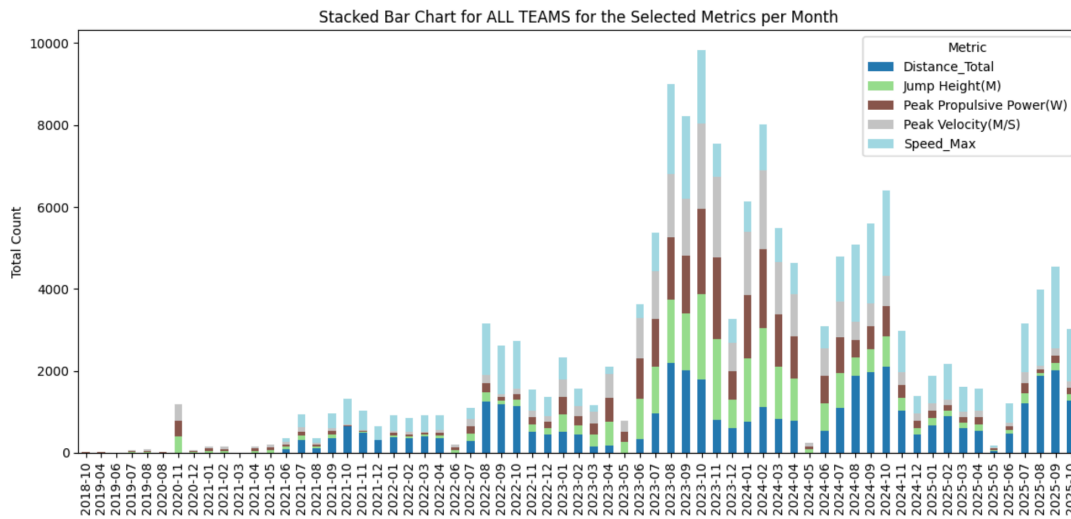


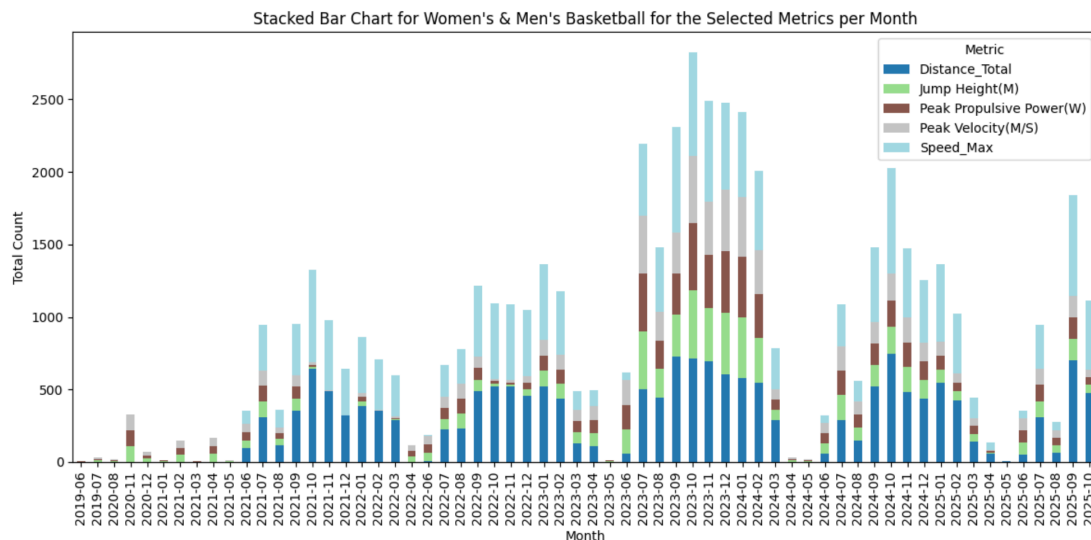
## Observations & Limitations

### Limitations

- Metric names are not cleaned much to make them look prettier. Used what we got from the dataset
- Every metric name could include the unit of measure for better metric identification. Unit of measurement is very important to know.
- Analysis done only of long-form data. Used wide-form for only part 2.2.
- To derive output for different players and metrics, under 2.2 in .py file change the “playername” and “metric” under example usage to generate specific output
- Data from 2023-24 shows many more tests done; the limitation of using test data for only 2025 test data, could have been a major limitation imposed on this project.



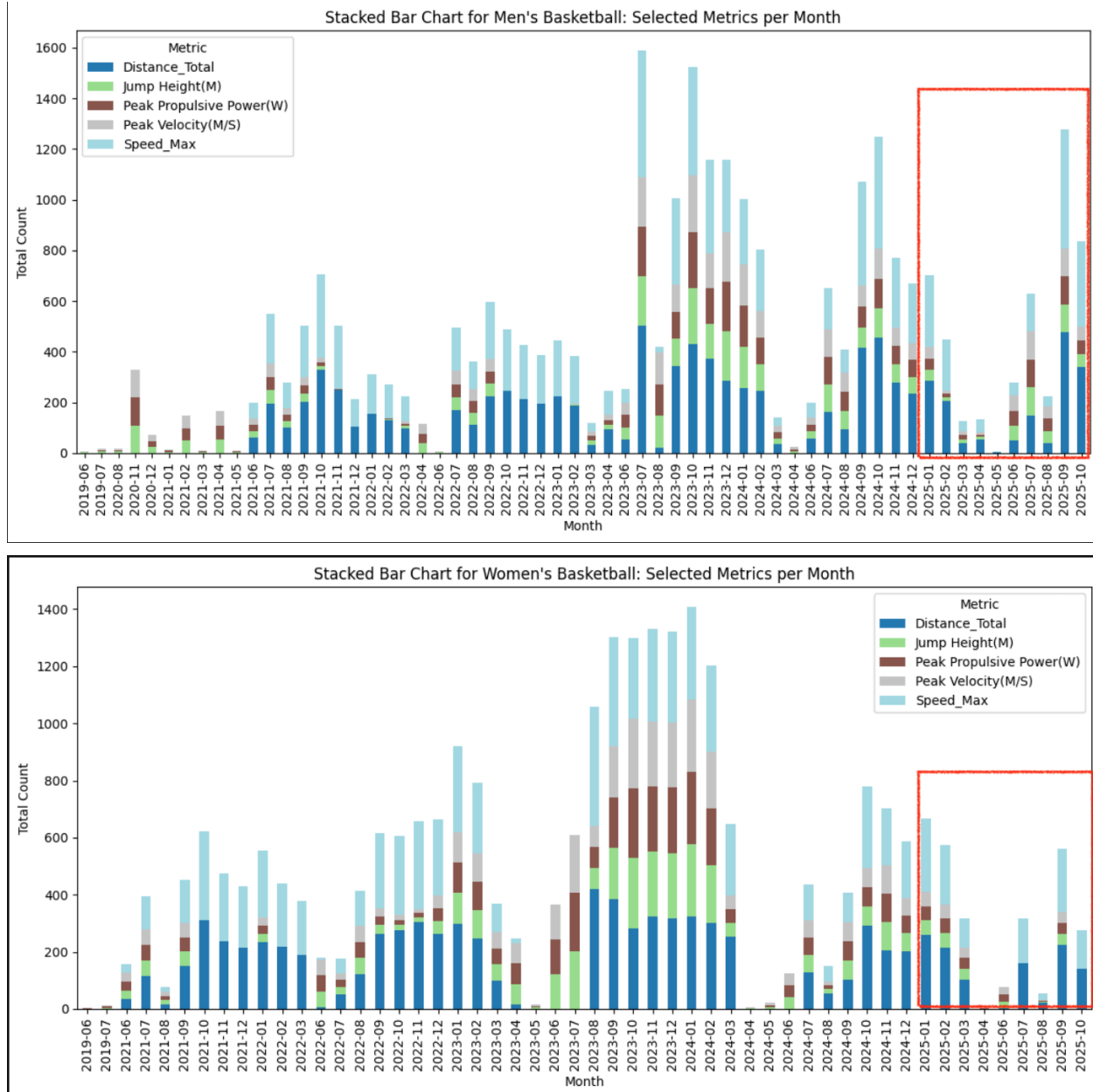
- The point above is validated WBB and MBB had more data in 2023-24 compared to 2025 data.



## Observations & Limitations

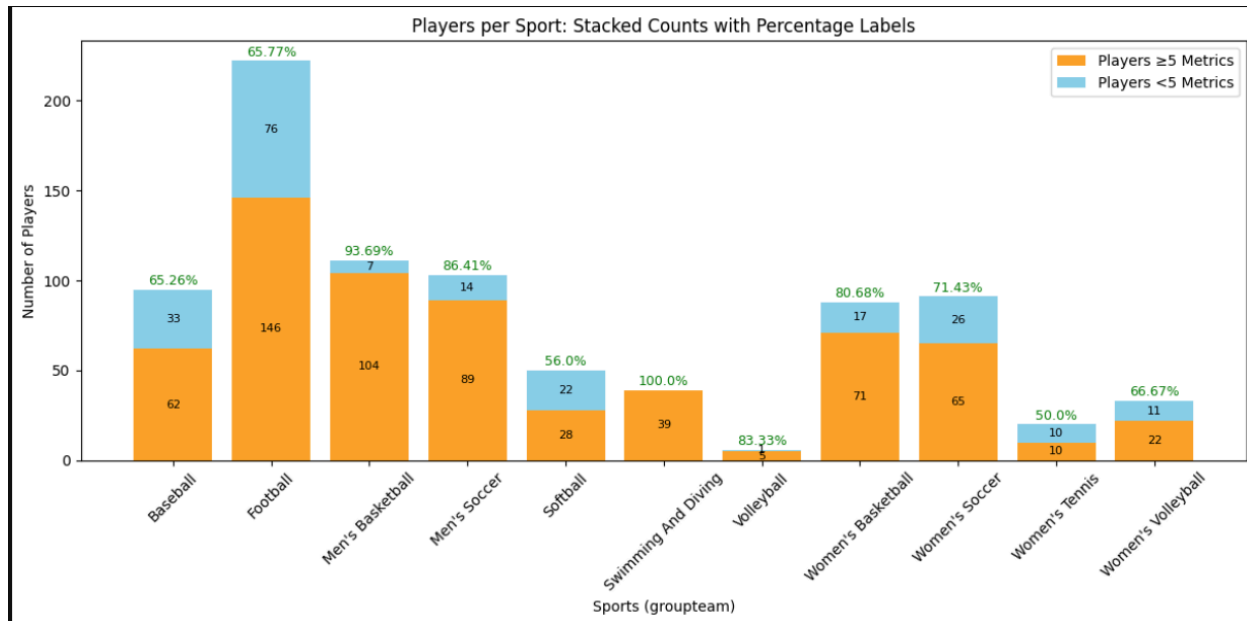
### Observations: Gender Gap

- Gender testing gap Basketball: Women players had many less tests done as can be seen in the plots below



- Gender based number of tests gap: The plot below shows women's basketball players have many less players who have >5 metrics measured in the last 6 months compared to men's basketball players. We can also see this trend for other sports like soccer and volleyball.

## Observations & Limitations



Code and quality audit revealed some interesting facts:

### Inferential stats

- Interpreting various statistical measures and significance has been tricky for this project because of:
  - poor data quality,
  - lack of longitudinal data capture,
  - inconsistent data and standards, and
  - statistical tests on granular data leading to mostly irrelevant results
- The plots we have created from the dataset demonstrate the usage for statistical inference but there may not be actual practicality in using this kind of data (for reasons listed in the previous bullet).
- For trend analysis, the graphs could be a little crowded (we could beautify them a little more and make them less crowded); This is especially true for individual and team comparison plots. The others look pretty enough!
- For individual trend analysis, with minor tweaks in the code, different use cases for players can be shown with their actual data for trend analysis for the 12 month lookback period.
- The plot for all data does not have enough longitudinal data (gaps, data quality and inconsistent data-capture) to get meaningful insights or projections into the future.
- in "part3\_viz\_comparison.ipynb", Violin plots seem to be more insightful in learning from data as they show better visualization of the data; for example when comparing violin plots for jump heights for WBB players vs MBB players (part 3.2A) violin plots give a snapshot of ranges, while box plots show the interquartile range, means and outliers.
- in "part3\_viz\_comparison.ipynb" the box and violin plots do not show mean, n and other relevant values; when reproducing the code such values can be added to the code easily for better visualization and to get insights.
- As referenced in the flag justification document, the code uses linear interpolation to help maintain natural performance trends; and in doing so changes some test values. The count of such values can be displayed by small tweaks in the code. In fact. The statistical impact from this

## Observations & Limitations

linear interpolation would have been minimal as test values lower from the threshold were not many. This is a possible loose-end that we identified in the code.

—x—