

03_final_product

December 10, 2025

1 How Do NBA Stars Score? Threes vs Free Throws in 2024–25

Course: DS 2023

Project: Final Infographic – NBA Scoring Styles

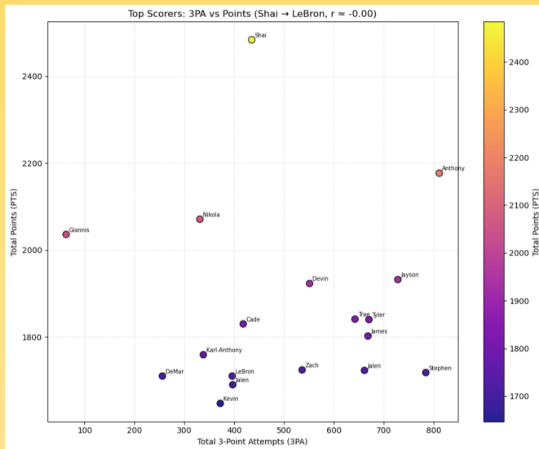
Student: Michael Know

1.1 Final Infographic

```
[3]: from IPython.display import Image  
  
Image("infographic.png", width=900)
```

[3]:

How Do NBA Stars Score? Threes vs Free Throws in 2024–25



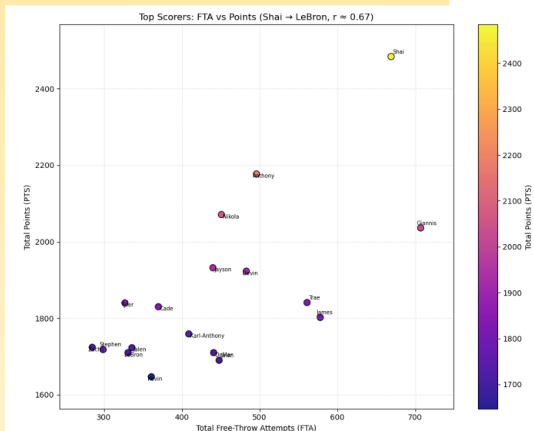
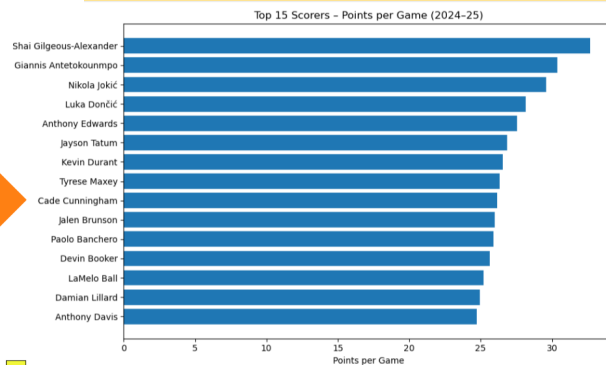
Data: 2024–25 NBA regular season player stats. Figures based on rotation players (≥ 20 MPG, ≥ 40 games).

3PA per game vs Total Season Points

- No linear correlation between volume of threes and total scoring
- Stars like Giannis and Jokic score efficiently with relatively few 3PA while others like Anthony, Jayson, and Stephen rely heavily on the three

Top 15 Scorers with the most PPG throughout the season to clear the uncertainty of time-restricted players

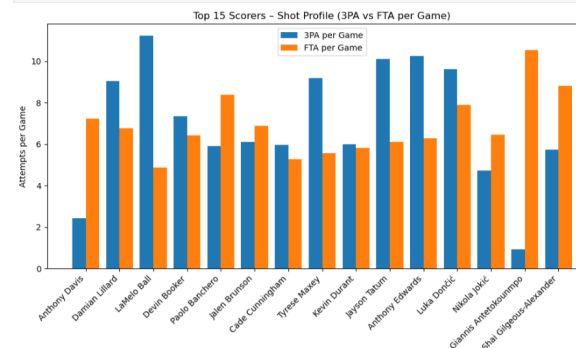
- Only regular season totals
- Rotation players ≥ 20 MPG and ≥ 40 games



FTA per game vs Total Season Points

- The highest scoring players rely heavily on the free-throw line
- Scorers like Shai and Giannis, the top 2 scoring players, have the most free-throw attempts

- ### Top 15 scorers' 3PA vs FTA per game
- Different type of scorers:**
 - Curry:** elite scoring with massive 3PA, moderate FTA
 - Giannis:** similar scoring, but driven by FTA instead of 3s



1.2 Project Question and Data

This project asks:

Among the NBA’s top scorers in the 2024–25 regular season, is high scoring more closely associated with three-point volume or with free-throw volume?

I use a dataset of **2024–25 NBA player season totals**, where each row represents one player’s season line.

After combining multi-team players into a single season total, I restrict the analysis to **rotation players**:

- At least 20 minutes per game (MPG)
- At least 40 games played

All stats used in the infographic come from this cleaned subset of players and use regular-season totals only.

1.3 Interpreting the Infographic

The infographic combines four plots to compare how NBA stars score.

1.3.1 1. Top-left: 3PA vs Total Season Points

The scatterplot in the top-left shows **total 3-point attempts** on the x-axis and **total points** on the y-axis for the highest-scoring players.

The correlation for this group is essentially zero ($r \approx 0$), which means:

- Some stars (e.g., **Giannis Antetokounmpo**, **Nikola Jokic**) reach high point totals with relatively **few threes**.
- Others (e.g., **Anthony Edwards**, **Jayson Tatum**, **Stephen Curry**) achieve similar totals while relying heavily on **high 3-point volume**.

This suggests that *taking a lot of threes is not the only path to elite scoring* among NBA stars.

1.3.2 2. Top-right: Top 15 Scorers by Points per Game

The horizontal bar chart ranks the **top 15 players by points per game**.

This establishes who counts as a “star” in the analysis and shows the size of the scoring gap between players like **Shai Gilgeous-Alexander**, **Giannis**, **Luka**, etc.

1.3.3 3. Bottom-left: FTA vs Total Season Points

The bottom-left scatterplot replaces 3PA with **free-throw attempts (FTA)** on the x-axis.

Here the relationship is much stronger ($r \approx 0.67$):

- The highest scorers, such as **Shai** and **Giannis**, also have the **most free-throw attempts**.
- In general, players who generate more free throws tend to score more points.

This indicates that **getting to the free-throw line is more consistently associated with high scoring** than simply taking more threes.

1.3.4 4. Bottom-right: Shot Profiles of the Top 15 Scorers

The grouped bar chart compares **3PA per game** and **FTA per game** for the top 15 scorers.

It highlights different scoring “profiles”:

- **Stephen Curry**: elite scoring with **very high 3PA** and only moderate FTA.
- **Giannis Antetokounmpo**: similar scoring output, but driven by **high FTA** instead of high 3PA.

Overall, the chart shows that stars can reach similar scoring levels through **very different combinations** of threes and free throws.

1.4 Uncertainty and Limitations

- The analysis uses **only one season** (2024–25 regular season), so results may not generalize to other years.
- Only **rotation players** (≥ 20 MPG and ≥ 40 games) are included, which removes bench players and some injured stars.
- I work with **season totals and per-game averages** only; I do not adjust for pace, offensive rating, or shot efficiency beyond basic attempts and points.
- Plot choices (axes scales, filters, and ordering) emphasize clarity and may hide smaller differences among lower-usage players.
- Correlations shown are **descriptive**; they do not imply that either 3PA or FTA directly causes higher scoring.

1.5 Manifest of Project Resources

Name	Type	Description	Location / Link
Basketball_Data_2024-2025_Season.csv	Data file	2024–25 NBA player season totals	data/Basketball_Data_2024-2025_Season.csv
01_data_setup.ipynb	Notebook	Loads data and documents variables	notebooks/01_data_setup.ipynb
02_exploration.ipynb	Notebook	Cleaning, filtering, and creation of all plots	notebooks/02_exploration.ipynb
03_final_product.ipynb	Notebook	Final infographic, interpretation, and this manifest	notebooks/03_final_product.ipynb
infographic.png	Image (PNG)	Final infographic	
infographic.png			
GitHub repository	External	Public repo with all files	https://github.com/mknoww/final.git

[]: