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NBA Player Shooting Proficiency Visualization: Interactive Design Report

Dataset Compilation and Rationale

I compiled and cleaned various NBA data reports, including:

- Common stats
- Advanced shooting stats
- Individual player contract details

This dataset provided a comprehensive look at player performance, combining traditional statistics with deeper insights into shooting tendencies and financial factors. The goal was to highlight efficiency in basketball: who takes the best shots, from where, and how successful they are.

Key Capabilities of the Visualization

- Analyze shooting accuracy across different shot ranges
- Filter data based on team, position, and shot attempts
- Compare players using interactive charts
- Search for specific players and dynamically highlight them

Given the dataset's complexity, a static visualization wouldn't suffice; interactive elements were essential for deeper exploration.

Visualization Design and Interactivity

To ensure an intuitive experience, I implemented several interactive features:

- Filters for Team & Position - Narrow down results to focus on specific players.
- Line Chart - Displays field goal percentage by shot range, allowing trend analysis.
- Radar Chart - Provides a breakdown of a player's shooting tendencies at different distances.
- Search Bar - Quickly find any player by name.
- Field Goals Attempted (FGA) Slider - Ensures players with too few attempts don't skew the insights.
- Hover & Click Interactions - Highlight and lock players for more focused comparisons.

- Dynamic Legends - Clearly differentiate between field goal percentage and field goals made using distinct colors.

These interactions make it easy to compare and explore player performance without overwhelming the user.

Challenges and Limitations

What Worked Well

- The interactive nature of the visualizations made it easy to compare multiple players at a glance.
- Filters helped reduce clutter, making insights more digestible.

What Didn't Work

- Salary data integration was a significant challenge. I had originally hoped to analyze player cost-effectiveness—determining which players, positions, and playstyles yielded the best financial value. However, incorporating salary figures meaningfully within the charts proved difficult within this iteration. This remains an area for future exploration.

Ehhhhh???

- Data wrangling and cleaning was a bit of a pain. I spent too much time trying to mold a perfect singular dataset when I could've used multiple smaller datasets and something akin to foreign keys to make my life easier. Ultimately, I'm happy I put in the work because this "perfect" dataset will have good future use.
- Putting together the radar chart was tricky too! Trying to smoothen the area bounds would've been a much briefer task if I spent some more time reading d3 docs.

Exploring Alternative Visualizations

I experimented with multiple visualization techniques to organize players effectively:

- Clustered Bubble Chart
    - Grouped players by team, position, or salary range
    - Bubble size represented salary, color indicated efficiency
    - Issue: Became cluttered when displaying too many players
- Treemap
    - Displayed salary distributions hierarchically

    - Issue: Lacked clarity in conveying shooting efficiency alongside salary data
- Scatter Plot with Color Coding
    - Mapped salary vs. efficiency
    - Issue: Failed to effectively communicate multi-faceted relationships like position-based trends

While these approaches had potential, they didn't seamlessly integrate with the shooting proficiency analysis. Future iterations could refine these techniques to better balance clarity and complexity.

Evolution of the Design

The project went through several key changes during development:

- Initially considered bar charts for shot efficiency but switched to radar charts, which allowed clearer multi-range comparisons.
- Realized that lacking a search function made navigation cumbersome, so I added a search bar for quick access.
- Experimented with different ways to incorporate salary data, but couldn't effectively integrate it into the current visualizations.

Conclusion

This project successfully created an interactive NBA shooting visualization, allowing users to explore player performance across shot ranges. The combination of filters, charts, and interactivity makes it an engaging tool for deeper basketball analysis.

Future iterations could incorporate salary efficiency analysis using more sophisticated visual models, such as optimized clustered bubble charts or interactive cost-efficiency models. For now, this visualization provides a compelling way to analyze NBA shooting trends and assess which players excel from different areas on the court.

Final Draft Picture