**ATP Tennis Dashboard Project Report**

**1. Introduction**

The ATP Tennis Dashboard project provides a comprehensive visual analysis of ATP tennis matches, focusing on player performance across different court surfaces. The analysis aims to offer insights into players' dominance, performance trends over time, and head-to-head comparisons. The dashboard was created using Tableau, utilizing historical match data to extract meaningful patterns and trends.

**2. Objectives**

The primary objectives of the project include:

* Identifying the top-performing players based on total wins.
* Analyzing trends in player performance over time.
* Understanding how different surfaces (Clay, Grass, Hard) impact player success.
* Evaluating head-to-head matchups between players.
* Presenting an overall distribution of wins across surfaces.

**3. Dataset Overview**

**3.1 Data Source**

The dataset used in this project consists of ATP tennis match results, which include details such as:

* **Match Date:** The date of the match.
* **Winner:** The name of the player who won the match.
* **Loser:** The name of the player who lost the match.
* **Surface:** The type of court surface (Clay, Grass, Hard).
* **Tournament:** The event where the match took place.

**3.2 Data Cleaning and Preparation**

Before analysis, the dataset was cleaned and prepared by:

* Removing duplicate entries.
* Handling missing values by replacing them with appropriate defaults.
* Formatting date fields for accurate trend analysis.
* Standardizing player names for consistency.

**4. Dashboard Features**

The ATP Tennis Dashboard includes the following key visualizations:

**4.1 Top 10 Players by Total Wins**

* A bar chart that displays the top 10 players with the highest number of wins.
* The chart is further categorized by surface type (Clay, Grass, Hard).

**4.2 Player Wins Over Time**

* A line chart that tracks the number of player wins across different months.
* Identifies seasonal trends and potential performance slumps.

**4.3 Wins by Player & Surface**

* A vertical bar chart that shows the number of wins on each surface type.
* Highlights which surfaces players are most successful on.

**4.4 Head-to-Head Performance**

* A horizontal bar chart showcasing key matchups between players.
* Provides insights into which players consistently dominate their opponents.

**4.5 Surface Distribution**

* A pie chart illustrating the proportion of total wins on Clay, Grass, and Hard courts.
* Helps in understanding the distribution of matches across surfaces.

**5. Key Insights**

**5.1 Surface Dominance**

* Hard courts have the highest number of wins, suggesting they are the most frequently played surface.
* Clay courts follow, with grass courts having the lowest win count, indicating their limited availability.

**5.2 Top Performing Players**

* **Djokovic N., Federer R., and Nadal R.** have consistently high win rates across all surfaces.
* Some players specialize in certain surfaces, such as Nadal's dominance on clay.

**5.3 Performance Trends Over Time**

* Certain players show consistent performance throughout the year, while others experience fluctuations.
* Peak performance periods can be observed, often aligning with major ATP tournaments.

**5.4 Head-to-Head Matchups**

* Some players have clear dominance over others, while a few matchups show fierce competition.
* Understanding these dynamics can offer strategic insights for future tournaments.

**5.5 Surface Impact**

* Players perform differently on various surfaces due to differences in playing styles.
* Hard courts see the most diverse range of successful players.

**6. Challenges Faced**

* **Data Consistency:** Ensuring player names were standardized across different tournaments.
* **Handling Missing Values:** Some matches lacked surface data, which had to be inferred or excluded.
* **Performance Optimization:** Large datasets required careful optimization for efficient Tableau visualization.

**7. Conclusion**

The ATP Tennis Dashboard successfully provides a visual and analytical representation of player performances across different surfaces and over time. It offers valuable insights for analysts, coaches, and tennis enthusiasts to understand trends and strategic opportunities.

**Key Takeaways:**

* Hard courts dominate in terms of total wins.
* Djokovic, Federer, and Nadal are the most consistent top performers.
* Surface type significantly affects player performance trends.

**8. Future Work**

To enhance the project further, the following improvements can be made:

* **Incorporating More Metrics:** Include metrics such as aces, break points, and unforced errors.
* **Live Data Updates:** Integrating live match data for real-time analysis.
* **Machine Learning Predictions:** Using the historical data to predict match outcomes.
* **Deeper Player Analysis:** Analyzing individual performance trends with additional factors like fatigue and injuries.

**9. How to Use the Dashboard**

1. Download the ATP DASHBOARD.twb file.
2. Open it in Tableau Desktop.
3. Ensure the atp\_tennis.csv file is in the same directory.
4. Explore the dashboard to analyze different visualizations.

**10. Project Files**

* **ATP DASHBOARD.twb** - Tableau workbook file containing all visualizations.
* **atp\_tennis.csv** - Dataset used for the analysis.
* **Dashboard-Preview.png** - A snapshot of the dashboard.

**11. Acknowledgments**

* Data sourced from ATP official records.
* Visualizations created using Tableau.
* Special thanks to Tableau Community for design inspiration.

**12. References**

* Association of Tennis Professionals (ATP) official website.
* Tableau official documentation for dashboard creation.