

**NHL Analysis Technical Report**

Data Visualization and Communication

Abe Archer, Jake Myers, Jacob Ronnie, Grady Smith, Chris West

# Introduction:

Our mission was to explore the intricate and exciting world of NHL players and team statistics, uncovering the stories hidden within the numbers. Recognizing that statistical analysis can often feel daunting or exclusive, we set out to create a tool that would bridge the gap. Our vision was to develop an intuitive and interactive platform that empowers users to dive into hockey data with ease, regardless of their background or experience with analytics. By simplifying complex data and presenting it in an engaging, user-friendly format, our tool opens the door to a wealth of insights. From uncovering player performance trends to comparing team strategies over seasons, we aimed to make the analytical side of hockey accessible to everyone—seasoned fans, aspiring analysts, and curious newcomers alike.

## Gathering the Data:

The data we used for our project was collected from <https://stathead.com/> , specifically the hockey section of the website. The problem with stathead is that the creators only allow you to download 300 rows of data at a time. We wanted to look at all draft and team data since the 2000-2001 NHL season, which would be over 40,000 rows of data. To combat this, we decided to scrape the data using a [python script.](#PythonScript) What this code does is essentially saves the login information for the website in a file called cookies.json, do this there is an addon that lets you copy the cookies from a website to paste into this file. Then the script basically reads column names that the user specifies and copies all the data under said columns into a data frame until there are no more. Then the script checks for a ‘next page’ button to proceed to the next 300 rows of data. It does this until it reaches the last page. In the end we had two files, one that had every player’s season total stats since the 2000-2001 season, and another that had every team’s season stats since the 2000-2001 season.

## Work Division:

To effectively divide the workload, we assigned team members to focus on specific aspects of the data for a comprehensive analysis. Jake and Jacob Ronnie concentrated on investigating team success, examining the statistical attributes that contribute to overall performance. Grady and Abe Archer undertook an in-depth exploration of individual player statistics, analyzing performance trends over time and their influence on team success throughout various seasons. Lastly, Chris conducted a detailed analysis of draft performance, evaluating how players have progressed over their careers and contributed to their teams after being selected.

# Body

## Team Overview Dashboard

The purpose of this dashboard was to give the user the ability to analyze season-wide with the ability to choose said season. To make this dashboard we combined 5 different worksheets, and among all of them was the same parameter “Select Season,” making this parameter was simple, it was just a calculated field that set the season variable in our data equal to a parameter that a list of each of the years in the dataset. Then we set the calculated field into the filters for each of the 5 worksheets. The first worksheet was a bar chart titled “Points Leaderboard,” based on the season parameter this shows the top 18 teams in points that season. In the NHL, a win is worth 2 points and an overtime loss is worth 1 point. Putting sum of points on the X axis and team on the Y axis shows all the teams. To show the top 18 teams, I just added a team filter by top 18 in points. We also added a calculated field “Stanley Cup,” (which we will explain next) onto the color card to highlight which team won the Stanley cup compared to which team got the most points that season (The Presidents Trophy). We thought it would be apt to color each team, so similar to the individual team dashboard, we individually assigned a team color to each team.

### Implementing Trophy Winners

The next two worksheets are very similar, one shows a logo of the team that won the Stanley Cup and the other shows the logo of the team that won the Presidents Trophy for the select season. To do this, similar to the colors for the bar chart, we manually selected a team logo for each team abbreviation in the dataset. To do this we downloaded a publicly available folder that had all the team logos into the ‘My Tableau Repository’ Shapes folder and manually chose a logo for each team. Then, for the Stanley Cup worksheet we did the same. To show the picture itself we created two calculated fields, one called [“Stanley Cup Winner](#StanleyCupWinner)” and “[Presidents Trophy Winner](#PresidentsTrophyWinner)” (see attached screenshots) and dragged these onto the shapes marks card for their respective worksheets. There was a tie in points in the 2007 season, so at first it would glitch and show the two team’s logos overlayed, that is why I added the if statement saying that if the season is 2007 to just show the Buffalo Sabres logo, which is an inefficient workaround, but it works for the context of this dashboard.

The next worksheet’s purpose was to show who the Art Ross winner was for the selected season (the player with the most points), this was as simple as created a calculated field “[Art Ross Winner](#ArtRossWinner),” that looks complicated but simply finds who has the most points in the selected season, and if there are more than one display: “tied”. To display it, I just dragged the calculated field to the text marks card and formatted it from there.

The final worksheet is very similar to the previous one, but instead of the most points in the season, it finds who had the most goals, which is called [the Rocket Richard](#RocketRichardWinner) trophy in the NHL. The calculated field is the exact same as the Art Ross Winner calculated field, but instead of ‘PTS’ it just uses the ‘G’ column in the data instead. Again, to display this, it was as simple as dragging the calculated field onto the text marks card. With all 5 worksheets completed it was simple to add them all together in a dashboard.

## Individual Player Overview

The goal of this dashboard was to provide users with a tool to search for specific NHL players and gain an in-depth view of their performance metrics. We began by designing placeholder sheets to house key player information, including player names, career [Points Per Game (PPG)](#PlayerPPG), and [career +/- (on-ice point differential)](#cumsum). These sheets formed the foundation of the dashboard.

Search Functionality Implementation  
To enable player-specific queries, we created a parameter called [**Player Search**](#PlayerSearch), allowing users to input a player name. We then developed a dynamic **[Player Fi](#PlayerFilter)****[lter](#PlayerFilter)** that integrates this parameter across all placeholder sheets. By applying this filter to the dashboard components, we ensured interactivity, so selecting a player dynamically updates all relevant visualizations.

Contextualized Player Performance  
To enhance user understanding, we incorporated descriptive tiers for [**PPG**](#PPGTier) and [**+/-**](#PlusMinusTier) metrics. Using calculated fields, we categorized each metric into performance tiers (e.g., "Elite") and displayed explanatory text alongside the statistics. For example, querying Mario Lemieux reveals his placement in the "Elite" tier, along with a description of his outstanding performance.

Time-Series Visualizations  
To visualize performance over time, we added:

1. **PPG Over Time**: A line chart plots the player’s PPG across seasons. For comparison, we included the league average PPG as a reference line, calculated using a [Level of Detail (LOD) expression](#LeagueAvgPPG) fixed on each season.
2. **Cumulative +/- Over Time**: Using R integration, we calculated a [cumulative sum of the player’s +/- metric](#cumsum), which provides insight into their contributions over time.

We organized the dashboard into two columns: one for PPG metrics (left) and one for +/- metrics (right), adhering to the Gestalt Principle of Proximity to improve readability and focus.

Team Branding  
To enhance the dashboard’s design, we integrated the drafted team’s logo and colors. We downloaded team logos and assigned them as Tableau shapes, linking them to each player via the [**Player Filter**](#PlayerFilter). Additionally, we used team-specific colors to unify the dashboard’s visual aesthetic, leveraging preattentive attributes and the Gestalt Principle of Similarity.

Significance  
This dashboard empowers users to search for any player and receive instantaneous, comprehensive results. By incorporating advanced interactivity, it offers a seamless and engaging user experience. With these features, fans can effortlessly access detailed information about any player they want, enhancing their understanding and enjoyment of the game.

## Individual Team Dashboard Overview

The goal of this dashboard is to analyze each team’s performance over the past century, providing an in-depth view of their success across various metrics. This tool serves as an informational supplement to our draft position analysis in other dashboards, allowing users to explore the historical performance of teams . This dashboard offers useful supplemental insights that helps to frame the broader context of team success over time. By including draft-related insights, the dashboard adds a layer of depth to our understanding of how teams perform relative to their draft success.

### Key Metrics

To evaluate team success, we decided to focus on three key metrics:

* **Points**
* **Power Play % vs.** [**Win %**](#Bookmark3)
* **Draft Round by Points**

The **Points** metric is a primary statistic reflecting a team’s success in any given season, combining wins, ties, and overtime losses. The higher the points, the more successful the team was. We also recognize that the Power Play is a key component of the game. We wanted to show how important the power play is to a team winning. **Draft Round by Points** analyzes what round of the draft a team’s points come from. The individual dots are players that you can hover over for more information.

### Graphs

This dashboard includes 3 graphs. To start, this dashboard plots the points since 2000 for each team, allowing for a broad scope of analysis on team success. This is a simple line graph. Our next 2 graphs plots Power Play % compared to Win %. The graph is a simple scatterplot comparing the two variables. For the Power Play % graph, we added an [R integrated LOESS regression line](#Bookmark1). This line better fits the regression of this data. For the Draft Round vs Points graph, we used a basic scatterplot with emphasis on the tooltip to show what rounds of the draft teams get their production from.

### Interactivity and Aesthetics

For this dashboard, we added [a parameter](#Bookmark2) and dynamic text and logos. The parameter allows you to choose a team to look at. Notice how the colors, text, and logo changes when you change the team. The colors are filtered by team on every visualization using the official color schemes for each team found online. To change the logos, we created a shape visualization and added the NHL Logo pictures into our tableau repository under shapes. Finally, to provide a team overview with the dynamic text, we asked ChatGPT to make us a csv file that included teams’ Stanley Cups, Playoff Appearances, Division Titles, Top Players, and Years Active. We joined this with our initial dataset in tableau and added these factors to the text mark. The parameter works to change all of these factors when selecting a team.

### Insights

Upon analyzing this dashboard, several key insights emerged:

* **Power Play % vs. Win %**: We found a generally strong positive correlation between Power Play Success % and Win %, suggesting that teams that excel on the power play tend to perform better overall. However, this correlation varied by team, indicating that some teams prioritize the power play more than others. This provides insights into team strategies and success.
* **Draft Round by Points**: Users can explore this feature to see where teams get most of their production from.
* **Overall Trends**: By examining the points data since 2000, we can identify teams that have maintained consistent success and those that have struggled. These trends can be used to assess a team’s performance trajectory and to predict future success based on historical patterns.

## Hart Trophy Winners Dashboard:

### Dashboard Purpose:

The goal of this Tableau dashboard was to perform an in-depth analysis of the statistics and career trends of the last ten winners of the NHL Hart Memorial Trophy. This prestigious award, given annually to the player judged most valuable to their team, serves as a benchmark for identifying impactful players in professional hockey. The central focus of this dashboard was to explore whether a relationship exists between a player’s draft position and their likelihood of becoming a transformative figure for their team, as evidenced by winning the Hart Memorial Trophy.

### Data Collection and Preparation:

The first step in the project was to gather comprehensive data on the last ten Hart Memorial Trophy winners. This included identifying the players, their draft positions, and their career statistics such as points scored per season[, time on ice](#TimeOnIceHart), and plus/minus ratings. After compiling this information, it was formatted for compatibility with Tableau to enable efficient visualization and analysis.

### Interactive Player Selection and Career Analysis:

To enhance usability, we created a parameter within Tableau to provide a [dropdown menu](#MatchedPlayer) of the players’ names. This allowed users to filter the data by individual players and perform targeted analyses. By selecting a player's name, users could immediately see a detailed view of their career statistics, including year-over-year performance trends.

We designed a sheet containing visualizations of three key metrics:

1. Plus/Minus Over Seasons: This metric highlights a player's on-ice effectiveness in contributing to their team’s scoring compared to opponents’ scoring.
2. Points Per Season: A critical measure of offensive productivity, indicating the player’s ability to generate goals and assists.
3. Time on Ice Per Season: This illustrates the player’s reliability and role within the team, reflecting the coaching staff’s trust in the player and the amount of play they are getting within each season

These statistics were plotted to reveal trends and patterns throughout each player's career, helping to illustrate their impact on the game. They help us to see how they have developed over time and become the major stars that are deserving of winning the Hart Memorial Trophy. Career Summaries and Visual Enhancements:

To provide additional context, we included a brief [text summary](#TextforPlayer) for each player on the dashboard. This summary offered an overview of the player’s career achievements, their contributions to their teams, and their overall impact on the game of hockey. This feature was designed to give users a quick yet informative grasp of each player’s career.

To make the data more relatable, we also added an image of each player to the dashboard. This was done by creating a sheet that held the “shape” value for a players image which was filtered by the select player parameter. This personalized the statistics, helping users connect the numbers with the players themselves. Visualizing the players alongside their data added a tangible element to the analysis, making the dashboard more engaging and accessible.

While our analysis included nearly all Hart Memorial Trophy winners from the past ten years, we made the decision to exclude Carey Price, a goaltender, from the dataset. As a goaltender, his role and contributions to his team are significantly different from those of the other winners, who were all skaters. Additionally, his key performance metrics, such as save percentage and goals-against average, are not directly comparable to the statistics of forwards and defensemen, making it challenging to evaluate his impact within the same framework.

### Insights:

The most compelling insight discovered within this dashboard pertains to the draft positions of the Hart Memorial Trophy winners. Among the analyzed winners, all but one were selected in the first round of the NHL draft, underscoring the importance of early draft picks in identifying future stars. The sole exception to this trend was a player selected in the second round, further highlighting the rarity of finding Hart-caliber talent outside the first round. Even more intriguing is the distribution of first-round selections among these winners. Of the first-round picks, nearly all were chosen first overall in their respective draft years. This pattern reinforces the notion that securing the first overall pick provides a significant advantage when building a franchise. The data reveals that first overall selections have an outsized likelihood of becoming transformative players capable of earning the league's most valuable player award.

From this analysis, we can draw a clear conclusion: NHL teams should prioritize obtaining the first overall pick, particularly if they are in dire need of a boost to their roster. Whether through strategic trades, rebuilding efforts, or other means, securing this coveted draft position can yield substantial long-term benefits. As demonstrated by the career trajectories of these Hart Memorial Trophy winners, first overall picks often become vital and impactful cornerstones of their teams, driving success on and off the ice. This finding not only emphasizes the strategic importance of draft position but also serves as a testament to the value of careful scouting and development. Teams that make the most of their high draft picks are better positioned to secure the elite talent necessary for sustained competitiveness and championship contention.   
  
Average Draft Pick Number for Teams

For the draft performance and league statistics dashboard we started by creating a bar graph to represent the average draft pick position. This required creating a calculated field to remove duplicate player entries by filtering to only include rows where the draft year matched the starting season. To do this, we had to create a supporting calculated field, “Remove Duplicate Player Entries” that pulled the year the season started from out of the “Season” column. Then we added the Draft teams to the columns section and the Average of “Pick” to the row’s column. Finally, we added a filter that removes any team that was founded less than 30 years ago, this selection was done by manually filtering out the teams. In addition, to support aesthetics, a label was added to each bar that shows the average pick position for each team to avoid the need to display the y-axis.

### Player Draft Value

The player draft value sheet uses the “Player” field with the name of each player and the average from a custom field called “Real Draft Value” which uses a custom calculation which is documented below. The purpose of this dashboard was to provide a quick overview of some of the best and worst picks of all time. To support this purpose, we created another calculated field called “Filter Players” that utilizes the “Filter Mode Parameter” that the end user can select in the dashboard to select whether they are viewing the top 5 players by real draft value or the bottom 5 players by real draft value.

### Year Drafted vs Average Points Per Game

This sheet is the simplest technically but offers vital insight into the general trends of the league since its’ inception. “Draft Year” is used for the columns of this visualization and filtered to start at 1970. Then the Average number of Points Per Game for each player is averaged to create a line graph as the end-product that shows the average number of points scored by each player based on the year they were drafted.

### Draft Position vs Points Per Game

This was the final sheet created and by far the most technical. The idea was to show the relative value of having a draft pick position based on the average number of points per game a player drafted at that pick position scored over the course of their career. This data was quite noisy, so a trendline indicating the expected number of points per game was created by integration R into Tableau. To support this idea, the first thing we did was create a calculated field to remove any null pick values. Then, another calculated field was added called “Clean Career Average PPG” that removed any null values from the PPG field by setting them to 0. Then, “Clean Pick Field” and the average of the “Clean Career Average PPG” field was added to rows. This forms the base of the noisy portion of the graph. Then, the trendline is created with the “Expected PPG” field which is the calculated field that was created by integrating R with Tableau. This creates a trendline which is colored blue, and the axis is merged with the draft pick position graph axis.

# Takeaways

We believe we’ve created a valuable resource for general fans and hockey gurus alike to analyze hockey data. We’ve assembled all of the impactful and meaningful tools someone would need to form either surface level or deeper level analysis to create their own insights. Furthermore, from the analysis that we’ve done we have found that the data highlights the broader value of first-round draft picks. While securing the first overall pick is ideal, even other top-tier first-round selections have proven to be instrumental in shaping a team's success. This suggests that teams should consider leveraging their resources and draft capital to acquire as many high-value draft positions as possible, particularly in the first round.

Finally, the dashboards emphasize the importance of player development. While high draft positions correlate strongly with success, a team’s ability to nurture and guide these players through their early careers is equally critical. The career trajectories of the analyzed players illustrate how proper development, consistent playing opportunities, and favorable team environments are key factors in translating draft potential into on-ice dominance. The analysis of the last decade of Hart Memorial Trophy winners highlights the strong correlation between draft position and player success. Nearly all winners were selected in the first round, with many being first overall picks. This underscores the strategic importance of securing high draft positions, as teams significantly increase their chances of acquiring transformative talent by targeting the top of the draft. However, draft position alone is not enough; the development of these players is equally crucial. Teams must invest in robust organizational support and player development programs to help top prospects reach their full potential and deliver impactful performances at the highest level.

# Appendix

## References

* Data from Stathead.com
* Supplemental help from ChatGPT

## Team Overview Dashboard

*Calculated Fields*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Field | Formula | Where it is used | Purpose of the field |
| Stanley Cup Winner | IF [Stanley Cup] = 1 THEN [Team] ELSE NULL END | This was used in the Stanley Cup Worksheet, just applying it to shapes | This field’s purpose was to be able to show each year’s Stanley Cup winner with a filter |
| Presidents Trophy Winner | IF [Select Season] = "2006-07" THEN  "BUF" // Return BUF for the 2006-07 season  ELSE  IF [PTS] = [Max Points] THEN [Team]  END  END | This was used in the Stanley Cup Worksheet, just applying it to shapes | This field’s purpose was to be able to show the selected year’s Presidents Trophy Winner |
| Art Ross Winner | IF [Season] = [Select Season] THEN  // Get the maximum points in the selected season  IF [PTS (draft data.csv)] = { FIXED [Season]: MAX([PTS (draft data.csv)]) } THEN  // Check how many players have the same maximum points  IF { FIXED [Season], [PTS (draft data.csv)]: COUNTD([Player]) } > 1 THEN  "Tied: " + STR([PTS (draft data.csv)]) + " points" // Concatenate "Tied" with the points and " points"  ELSE  [Player] + ": " + STR([PTS (draft data.csv)]) + " points" // Concatenate player name with points and " points"  END  END  END | This field was applied to the text marks card in the “Art Ross Winner” worksheet | This field’s purpose was to be able to show the selected year’s Art Ross Trophy Winner. |
| Rocket Richard Winner | IF [Season] = [Select Season] THEN  // Get the maximum points in the selected season  IF [G (draft data.csv)] = { FIXED [Season]: MAX([G (draft data.csv)]) } THEN  // Check how many players have the same maximum points  IF { FIXED [Season], [G (draft data.csv)]: COUNTD([Player]) } > 1 THEN  "Tied: " + STR([G (draft data.csv)]) + " goals" // Concatenate "Tied" with the points and " points"  ELSE  [Player] + ": " + STR([G (draft data.csv)]) + " goals" // Concatenate player name with points and " points"  END  END  END | This field was applied to the text marks card in the “Rocket Richard” worksheet | This field’s purpose was to be able to show the selected year’s Rocket Richard Trophy Winner |
| Maximum Points | { FIXED : MAX([Most Points (Select Season)]) }]) | This was used to calculate Art Ross Winner | Maximum Points was just needed to calculate who won the Art Ross Trophy, but it was confusing to read the code for Art Ross without this, it made it simpler and more organized |
| Maximum Goals | { FIXED : MAX([Most Goals (Select Season)]) } | This was used to calculate Rocket Richard | Similar to Maximum Points, this fields purpose was to organize the Rocket Richard calculation |

*Parameter*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Parameter | Type | Where it is used | Purpose of the Parameter |
| Select Season | String | It is in the top right of the dashboard, it is used in every worksheet | The purpose was to give the user the ability to select the season they want to look at, and analyze all of the trophy winners |

## Individual Player Dashboard

*Calculated Fields*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Field | Formula | Where it is used | Purpose of the field |
| Player PPG | SUM([PTS])/SUM([GP]) | It is used in the line graph in the bottom left of the Individual Player dashboard and the Points Per Game metric displayed at the top of the Individual Player dashboard. Additionally, it was used in the PPG\_Tier calculated field. | The original calculation for Points Per Game in our data was incorrect, so this field was used to make the correct Points Per Game for a given player. |
| PPG\_Tier | IF [Player PPG] > 1 THEN "Elite"  ELSEIF [Player PPG] >= 0.75 THEN "Good"  ELSEIF [Player PPG] >= 0.50 THEN "Decent"  ELSE "Bad"  END | This field is used in the text in the dashboard, incorporated in the text that describes the selected player’s scoring ability. | The purpose of this field was to provide information about how good the player was at scoring over their career, as the dynamic text of “Elite”, “Good”, etc. would give the user an idea of the player’s talent. |
| PlusMinus\_Tier | IF SUM([+/-])>= 75 THEN "Elite"  ELSEIF SUM([+/-]) >= 25 THEN "Good"  ELSEIF SUM([+/-]) >= 0 THEN "Decent"  ELSE "Poor"  END | This field was used similarly to the PPG\_Tier field, as it was used as text to be incorporated into the description of the selected player’s impact measured by the +/- metric. | The purpose of this field was to provide information about how good the selected player’s impact was. With the dynamic use of text here, the user is informed about the player’s impact instantaneously. |
| League Average PPG | {FIXED [Season] : SUM([PTS])/SUM([GP])} | This Level of Detail calculation was used in the grey line presented in the Player Points Per Game graph in the dashboard. | The purpose of this Level of Detail calculation was to visualize the league average Points Per Game over the seasons, while keeping the season fixed. By visualizing this, we were able to create a basis of comparison for the Selected player’s Points Per Game. |
| Player Filter | CONTAINS([Player], [Player Search]) | This calculated field filter was used in essentially every visualization in this dashboard. | The purpose of this calculated field filter was to make a connection between all the pieces of the dashboard and the player search parameter that the user could use. |

*Parameter*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Parameter | Type | Where it is used | Purpose of the Parameter |
| Player Search | String | It is used at the top left of the dashboard. | This parameter allows the user to enter the player they want to search, and in turn, returns a new dashboard dependent upon the player. |

*R Integration*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Field | Code | Where it is used | Purpose of integration |
| CumulativeSum\_+/- | SCRIPT\_REAL("  cumsum(.arg1)  ", SUM([+/-])) | This integration was used when creating the line for the graph displaying the cumulative sum of the selected player’s +/- metric over time. | This integration allows the user to get an idea of how the player evolved over time with respect to their cumulative +/- metric. |

## Hart Memorial Trophy Winner

*Calculated Fields*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Field | Formula | Where it is used | Purpose of the field |
| Matched Player | [Player] = [Select Player] | It is used in the Hart memorial Trophy Dashboard where they want to select the player they want to inspect | The purpose is to filter the dashboard by the Trophy winner that the user selects. |
| Time on Ice | INT(LEFT([TOI], FIND([TOI], ":") - 1)) +  (INT(RIGHT([TOI], LEN([TOI]) - FIND([TOI], ":"))) / 60) | This is used for the Time on Ice Sheet used in the Hart Memorial Dashboard | The purpose of this field was to provide format the string variable of the time on ice variable into a number value so it can be formatted into a line graph |
| Text for player | CASE [Select Player]  WHEN "Nathan MacKinnon" THEN  "Nathan MacKinnon won the Hart Trophy as the NHL's MVP in 2024, after leading the Colorado Avalanche to a playoff berth. His explosive speed, skill, and leadership helped establish him as one of the top players of his generation. MacKinnon is known for changing the pace of the game with his intensity and playmaking abilities, revolutionizing how power forwards can dominate the ice."    WHEN "Connor McDavid" THEN …    … ELSE "Select a player to see their bio."  END | It is used on the text description sheet and the hart memorial trophy winners sheet | The purpose of this field is to give the audience a brief description of what the career of these trophy winners have looked like. |

*Parameter*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Parameter | Type | Where it is used | Purpose of the Parameter |
| Select Player | String | It is used in the Hart memorial trophy winners dashboard | This parameter allows the user select which player they want the data to be filtered by and to change the text and images based on what player they are inspecting |

## Individual Teams Overview Dashboard

R Integration

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of Field** | **Code** | **Where it is used** | **Purpose of integration** |
| PP% Trend Line using R | SCRIPT\_REAL("  # Create a data frame with the input arguments  df <- data.frame(ft = .arg1, ht = .arg2)    # Check if there are enough unique points for LOESS  if (nrow(df) < 5 || length(unique(df$ht)) < 3) {  # Return a flat prediction if insufficient data  rep(mean(df$ft, na.rm = TRUE), nrow(df))  } else {  # Fit a LOESS model with an adjusted span value  fit <- loess(ft ~ ht, data = df, span = 0.75)  # Predict smoothed values based on the model  predict(fit)  }  ",  SUM([PP%]),  SUM([W] / [GP])  ) | Individual Teams Dashboard in the PP % vs Win % scatterplot | To provide a more accurate trend line for the audience |

Select Team Parameter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of Parameter** | **Type** | **Values** | **Where it is used** | **Purpose of the field** |
| Select Team | String | From list Team Abbreviations | Individual Teams Dashboard | To allow the user to interact with the dashboard and investigate specific teams |

Calculated Field

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Field | Formula | Where it is used | Purpose of the field |
| Win Percentage | SUM([W])/SUM([GP]) | Used in the PP% vs Win % graph | To build a calculation to show the Win Percentage of a team |

## Chris Dashboard

*Calculated Fields*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Field | Formula | Where it is used | Purpose of the field |
| Remove Duplicate Player Entries | IF [Stanley Cup] = 1 THEN [Team] ELSE NULL END | This was used in the Stanley Cup Worksheet, just applying it to shapes | This field’s purpose was to be able to show each year’s Stanley Cup winner with a filter |
| Presidents Trophy Winner | IF [Select Season] = "2006-07" THEN  "BUF" // Return BUF for the 2006-07 season  ELSE  IF [PTS] = [Max Points] THEN [Team]  END  END | This was used in the Stanley Cup Worksheet, just applying it to shapes | This field’s purpose was to be able to show the selected year’s Presidents Trophy Winner |
| Art Ross Winner | IF [Season] = [Select Season] THEN  // Get the maximum points in the selected season  IF [PTS (draft data.csv)] = { FIXED [Season]: MAX([PTS (draft data.csv)]) } THEN  // Check how many players have the same maximum points  IF { FIXED [Season], [PTS (draft data.csv)]: COUNTD([Player]) } > 1 THEN  "Tied: " + STR([PTS (draft data.csv)]) + " points" // Concatenate "Tied" with the points and " points"  ELSE  [Player] + ": " + STR([PTS (draft data.csv)]) + " points" // Concatenate player name with points and " points"  END  END  END | This field was applied to the text marks card in the “Art Ross Winner” worksheet | This field’s purpose was to be able to show the selected year’s Art Ross Trophy Winner. |
| Rocket Richard Winner | IF [Season] = [Select Season] THEN  // Get the maximum points in the selected season  IF [G (draft data.csv)] = { FIXED [Season]: MAX([G (draft data.csv)]) } THEN  // Check how many players have the same maximum points  IF { FIXED [Season], [G (draft data.csv)]: COUNTD([Player]) } > 1 THEN  "Tied: " + STR([G (draft data.csv)]) + " goals" // Concatenate "Tied" with the points and " points"  ELSE  [Player] + ": " + STR([G (draft data.csv)]) + " goals" // Concatenate player name with points and " points"  END  END  END | This field was applied to the text marks card in the “Rocket Richard” worksheet | This field’s purpose was to be able to show the selected year’s Rocket Richard Trophy Winner |
| Maximum Points | { FIXED : MAX([Most Points (Select Season)]) }]) | This was used to calculate Art Ross Winner | Maximum Points was just needed to calculate who won the Art Ross Trophy, but it was confusing to read the code for Art Ross without this, it made it simpler and more organized |
| Maximum Goals | { FIXED : MAX([Most Goals (Select Season)]) } | This was used to calculate Rocket Richard | Similar to Maximum Points, this fields purpose was to organize the Rocket Richard calculation |

R Integration

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of Field** | **Code** | **Where it is used** | **Purpose of integration** |
| PP% Trend Line using R | SCRIPT\_REAL("  # Create a data frame with the input arguments  df <- data.frame(ft = .arg1, ht = .arg2)    # Check if there are enough unique points for LOESS  if (nrow(df) < 5 || length(unique(df$ht)) < 3) {  # Return a flat prediction if insufficient data  rep(mean(df$ft, na.rm = TRUE), nrow(df))  } else {  # Fit a LOESS model with an adjusted span value  fit <- loess(ft ~ ht, data = df, span = 0.75)  # Predict smoothed values based on the model  predict(fit)  }  ",  SUM([PP%]),  SUM([W] / [GP])  ) | Individual Teams Dashboard in the PP % vs Win % scatterplot | To provide a more accurate trend line for the audience |

Parameter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of Parameter** | **Type** | **Values** | **Where it is used** | **Purpose of the field** |
| Select Team | String | From list Team Abbreviations | Individual Teams Dashboard | To allow the user to interact with the dashboard and investigate specific teams |

## A screen shot of a computer program Description automatically generatedPython Script