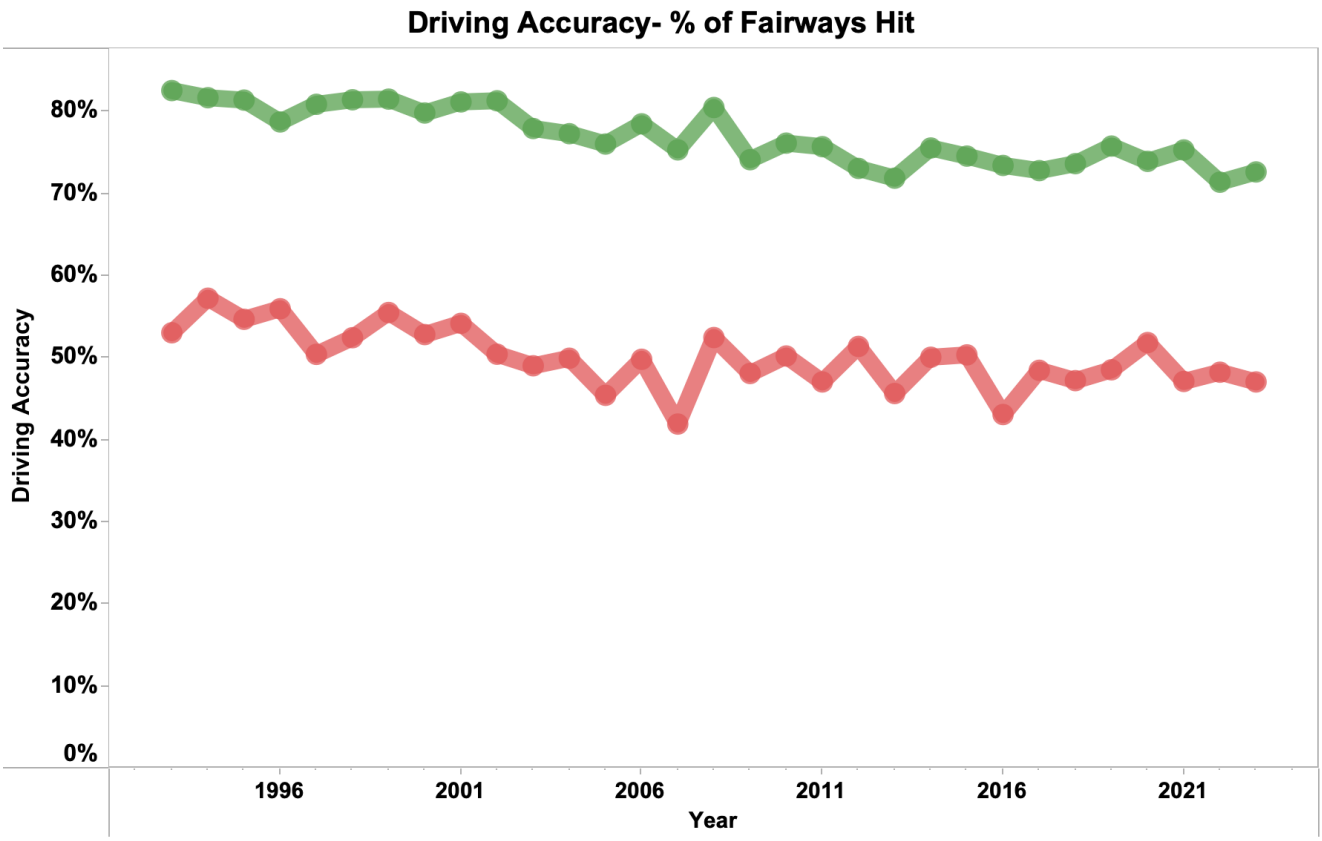
Teeing Up Change: Analyzing the Evolution of Golf



The trends of Top- Driver Accuracy (Fairways Hit) and Worst- Driver Accuracy (Fairways Hit) for Year Year. Color shows details about Top- Driver Accuracy (Fairways Hit) and Worst- Driver Accuracy (Fairways Hit).

Measure Names

Top- Driver Accuracy (Fairways Hit)

Worst- Driver Accuracy (Fairways Hit)

Project URL: https://www.coltonvanoverberghe.com/cgt-275-final-project

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Title & Abstract

Abstract

This project explores the dynamic game of golf and how analyzing the data recorded over the last 30 years can lead to key insights about how the game has progressed. The data encompasses diverse aspects of the sport, including individual performance metrics, tournament score, etc. This study aims to decipher if technology has had an impact on these statistics and how each correlate to overall performance.

Utilizing statistical analysis and data visualization techniques, this research aims to discover trends and patterns that have emerged over time. More specifically I seek to see how innovation in equipment technology ranging from club materials to ball design have influenced player performance.

This study will help average golfers understand crucial aspect of the game. By gaining a greater understanding of what goes into a successful golf round will allow individuals to better understand how to improve their own performance. It is extremely difficult to become better at something if you are practicing the wrong things. From this analysis I aim to learn which metrics are the most impactful for performance.

Introduction

Golf was created in 1457 in Scottland. Since then, not much has changed about the way the game is played. Different than most sports we know today, the game is played on courses that are all designed in their own unique way. All composed of 18 total holes, with different combinations of Par 3,4,5's generally equating to an overall Par score of 72 strokes. The objective of golf is simple yet challenging: to complete each hole in as few strokes as possible. Players use a variety of clubs to navigate the course's terrain, selecting from drivers for distance shots, irons for precision, and putters for short-range strokes on the greens.

The objective of this study is to determine which aspect of golf is the most critical for overall performance. As well as to assess the connection between technological advancements in equipment have had on different performance metrics. By defining trends and patterns found in the data, players will gain insight on which areas are impactful for improvement and if different equipment technology effects performance. Golf is a sport of precision which results in a common inconsistency of performance for the average player. For this reason the study focuses on PGA Tour players average results over the course of a season.

By gaining an understanding of the data associated with successful results players will be better able to improve. In a game with such variation shot-to-shot it is crucial to have a full understanding of how you are going to approach a hole. Data has profoundly impacted golf by revolutionizing player performance analysis, equipment design, course management strategies, and fan engagement. Through the collection and analysis of vast amounts of data on player statistics through various categories. Individuals can make informed decisions to optimize performance and enhance the overall experience of the game.

In the dynamic world of golf, success is defined by a delicate balance of power, precision, and finesse across various aspects of the game. Driving, approach shots, putting, and overall score stand as pillars upon which a player's performance is measured. The drive off the tee sets the stage for each hole, demanding accuracy and distance to navigate the fairway. Approach shots, crafted with strategic precision, aim to land the ball on the green, setting up scoring opportunities for the crucial final putt. It is on the putting green where matches are won or lost, where the delicate touch and unwavering focus of each putt determine a player's fate. Ultimately, these come together to achieve the overarching goal: obtaining the lowest possible score. In this exploration of golf's progression over the previous three decades, we dive into the data of driving, approach shots, putting, and their collective impact on a player's success on the course.

Background

This study sets out to apply my knowledge of data analysis and visualization techniques to the world of sports. By looking at golf data I set out to determine which aspects of the game are most crucial to success and how technology has impacted the data being produced by PGA Tour players. I also investigated significant points of innovation in the equipment used in order to analyze their impact on the metrics. In doing so highlight which aspect of the game if any are the most correlated with opverall success.

Terminology

- **Par**: Par refers to the standard number of strokes a skilled golfer is expected to take to complete a hole. It represents the benchmark for scoring on each individual hole and is typically determined based on the length and difficulty of the hole.
- **Birdie**: A birdie occurs when a golfer completes a hole in one stroke less than the par score. For example, if a par-4 hole is completed in three strokes, it is scored as a birdie.
- **Bogey**: Bogey refers to completing a hole in one stroke over the par score. For instance, if a par-4 hole is completed in five strokes, it is scored as a bogey.
- **Driver**: The driver, also known as the 1-wood, is a golf club designed for hitting long-distance shots off the tee. It typically has the lowest loft angle among clubs and is used primarily for tee shots on par-4 and par-5 holes.
- **Iron**: Irons are golf clubs with a flat, angled clubface and a shorter shaft compared to woods. They are used for a variety of shots from the fairway, rough, or tee, depending on the distance and trajectory required.
- **Wedge**: Wedges are a subset of irons designed for short-distance, high-lofted shots around the green and out of hazards. They include pitching wedges, sand wedges, and lob wedges, each with varying degrees of loft.
- **Putter**: The putter is a specialized golf club designed for rolling the ball along the green into the hole. It has a flat, low-lofted clubface and is used exclusively on the putting surface for short, controlled strokes.
- **Drive**: The drive refers to the first shot played from the tee box on each hole. It is typically hit with the driver or a long iron to achieve maximum distance and set up subsequent shots.
- **Chip**: A chip shot is a short, low-trajectory shot played from around the green to loft the ball onto the putting surface and roll it towards the hole. Chips are typically played with wedges or short irons.
- **Putt**: A putt is a stroke played with a putter on the putting green to roll the ball into the hole. Putts are typically shorter and more controlled than other types of shots, requiring precision and accuracy.
- **Approach shot**: An approach shot is a stroke played from the fairway or rough with the intention of reaching the green. Approach shots are typically played with irons or wedges and aim to position the ball close to the hole for a putt.
- **Green**: The green is the specially prepared and manicured area of grass surrounding the hole, where the flagstick and cup are located. It is the final destination for each hole and where putting takes place.
- **Green in regulation (GIR)**: Green in regulation refers to reaching the green in the regulation number of strokes or fewer, excluding putts. For example, on a par-4 hole, reaching the green in two strokes would be considered hitting the green in regulation.

- **Fairway**: The fairway is the closely mown strip of grass that runs from the tee box to the green. It provides a clear path for shots and is preferred over the rough, which has longer, thicker grass.
- **Rough**: The rough is the area of longer, thicker grass surrounding the fairway and green. It is considered more difficult to play from than the fairway and can penalize wayward shots.
- **Making the cut**: Making the cut refers to advancing to the final rounds of a golf tournament by achieving a score that falls below a predetermined threshold. In professional tournaments, a cut is typically made after the first two rounds, with only the top-performing players advancing to compete in the remaining rounds.

Data

The data used in this study was collected from the PGA Tour, ESPN and the USGA World Golf Rankings. Different performance metrics recorded over the years 1993-2023 were utilized to develop a full analysis of how golf has progressed over the last three decades. These statistical categories relate to different shots a player would see over the course of a round. By collecting data on every swing golfers have been able to analyze aspects of their game in more depth than ever before. While the end score is what everyone see, the numbers behind each and every swing are what truly matter.

Questions

The questions I set out to answer were: How has technology impacted golf performance and which metrics are most correlated with overall performance? This study aims to bring high level analysis of golf to the everyday player. By analyzing the metrics of the PGA players it will reveal trends in the data that correlate to successful results. In doing so it will allow the average player to gain a full understand of the shot they are about to hit. This type of analysis is likely done for players throughout the tour but these statistics are not recorded for a typical round. That is why it is important to find trends that can be applied to the game of golf in general rather than for a specific person.

Problem Statement

This study may be somewhat of a niche topic; however, the game of golf is growing rapidly. Today it is played by people of all ages around the world. Everyone who plays the game of golf knows how your performance varies every round you play. I am confident that most of them would be interested to read about trends found in the data and how they can relate that back to themselves. Along with gaining the knowledge on how different technology in golf equipment have impacted different statistics.

Methodology

In order to complete this study I sourced data collected by the PGA in various categories such as scoring, distance and accuracy. With the advancement in technology every aspect of a players round is analyzed and stored in a data bank for future use. In order to see the effects across tour I selected the averages for the lowest and top ranked player in each category. This was done to ensure that the analysis is no skewed by only using a sample of the top performers. The data provides us with a chance to visualize the progression of the entire PGA Tour in each category over the past 30 years.

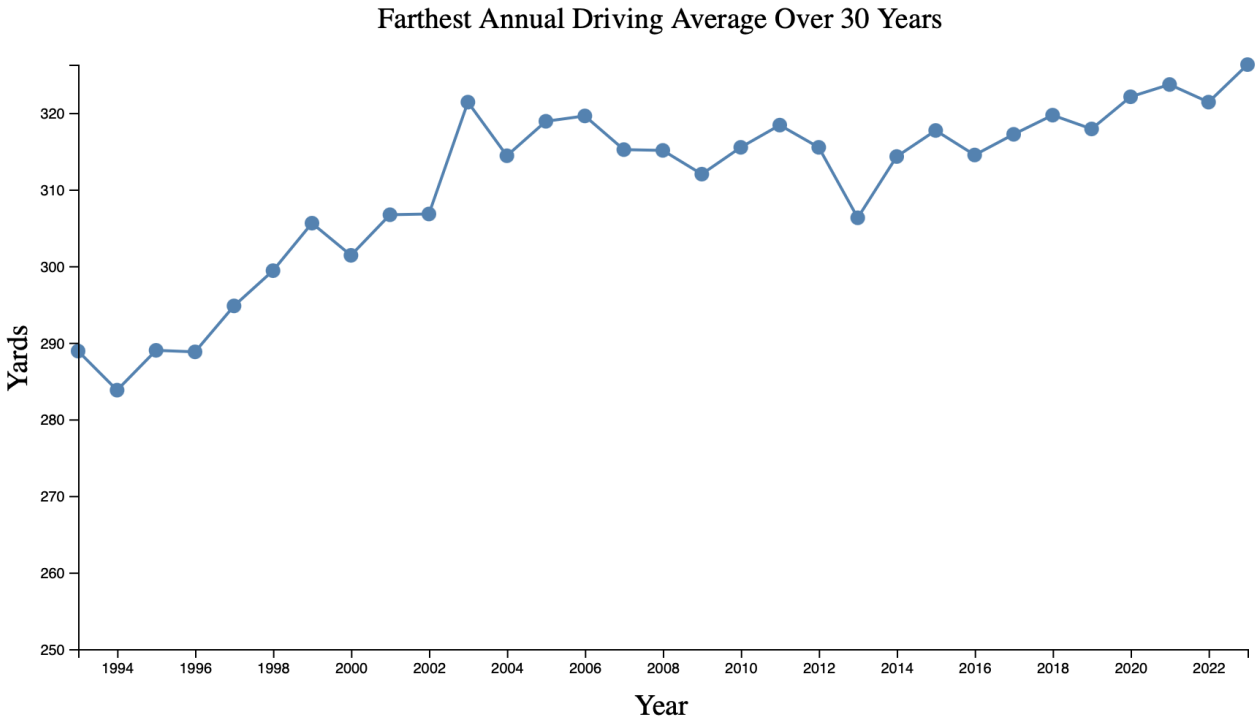
To get the most accurate results of my analysis I set barriers for different categories to give the best results of a full season. For example when sampling average driving distance the golfer must have hit a minimum of 100 drives over the course of the year to qualify for the study. By doing this you help to increase the validity of your results. Having an appropriate sample size is crucial for the success of your study. If not enough data is taken into account, you may fail to see trends or see trends that are inaccurate.

The categories I selected to focus on for my study were: Scoring average, average number of birdies and season total, average driving distance, driving accuracy, number of greens hit in regulation, average putts per round, low putt total and world golf rankings. Of the data collected these categories had the most consistent years of record and significant impact to performance. For each category I looked at how the data progressed and keyed in on years that there was innovation in equipment.

I then grouped related categories such as driving accuracy and distance to create dashboards for sections of the golf course (Scoring, Driving, Approach and Putting). This was done to help individuals relate the data to the overall round. By separating your game into different components it allows one to see which areas are in need of improvement.

Finally, I took the top ranked player in each category and compared them to the player who was ranked #1 in the world for the majority of that year. In doing so I aimed to discover which category has the highest correlation between the top performer and world #1. In common knowledge putting is known as the most difficult aspect of the game. So one might assume whoever is the best at putting is the best at golf, but is that truly the case?

Results



[Figure 1]

This graph shows the progression of the farthest driving average on the PGA Tour from the years 1993-2023.

Overall Score

The standard Par round of golf is 72 stokes over 18 holes. Depending on your skill level, scores can range from the 50's to 120+. For the professionals on the PGA Tour the range is significantly smaller with players rarely shooting in the 80's. As I stated previously golf can be a game of great inconsistency, for this reason it is better to look into the average scores over the course of a season opposed to looking at one day/tournament. Each player is expected to make par by the end of the round, this can be 18 straight pars or a combination of bogies and birdies. Tournaments are scored by total strokes, this makes shooting under par on each hole (birdie/eagle) crucial to move up the leaderboard. This study focuses on birdies rather than eagles as they occur on a more regular basis.

There will always be the standout round where a player shoots 13 under par, but those are far and few between. With the season spanning most of the year and each event consisting of two or four rounds, depending if the player makes the cut. This provides an opportunity to gather how players perform while illuminating some of the inconsistency present in recording golf data. The average PGA Tour event score has not changed much over the last three decades. Stay at a consistent range of 68-74 between the best and worst on the tour. This means that the lowest rated player on tour was shooting an

average of two over par while the top-rated player was averaging a round four under par. There was so indication of a single year standing out as a significant shift in the data recorded.

While there was minimal fluctuation for the average score that was not the case for the average number of birdies. The difference between the first and last rated player was consistent throughout the timeframe at roughly 1.5. However, there are years such as 2000 where the difference is significantly higher, though there did not appear to be a direct cause for the sudden spike in difference seen in figure 2. The data indicated there was a slight upward trend to the number of birdies made on average over the years 1993-2023.

Driving

Driving sets the tone for a player's performance on each hole. There are many different factors that come into play when selecting how to hit your drive. Such as hole location, weather conditions and much more. With some many variables in play it was important to select metrics that were constant course to course and impactful on the success of the drive and overall performance. This study dives into the details of driving distance, accuracy and percentage over 320 yards. Distance and accuracy are the common two cornerstones of a successful drive. The reason I selected to collect the percentage of player drives over 320 yards was because that is the common sought after number among tour professionals.

While seeing a ball launched into the air is always exciting for fans, it is a very important aspect of a players game. Some players are known for their ability to drive the ball extreme distances, but how has it changed over the years and how does it relate to the recorded score. There has been a steady increase of average driving distance for all players on tour over the time period studied. The lowest rated player moving from 240 yards in 1993 to 270 yards in 2023. Along with the top performer seeing an increase from 285 yards to 325 yards.

While distance is important it only gets you so far. The ability to be accurate with your shot is far more crucial with the complex design of the course's today. The accuracy of players fluctuates from year to year but stay along the same trend lines experiencing some outliers. The best players on tour sit in the high 70's low 80's for the percentage of fairways hit. Meaning the best players in the world miss their target on nearly three holes every round. While this seems like a lot for a professional it highlights the importance of bringing together all aspects of your golf game in order to be successful.

With 320 yards being the sought after average driver yardage for today's tour players I had assumed that this was a regular occurrence across the board. The data proved that assumption to be extremely incorrect. This statistic was not directly recorded until the early 200's, I selected the years 2003-2023 to keep my samples consistent with decades. Since 2000 there have always been players driving the ball more than 320 yards anywhere from 30-60% of the time. What stood out to me from this data was that it wasn't until the year 2018 in which every tour player recorded at least one drive longer than 320 yards.

Approach Shot

Approach shots offer golfers many different opportunities, recover from a poor tee shot, capitalize on a great drive or set yourself up for an optimal next shot. These shots are your second/third shot off the tee usually taken from the fairway or rough aiming at the green. The main two factors to focus on are the percentage of greens hit in regulation (expected in relation to par) and the distance the shot lands from the hole.

There was very little change among the top performers in this category over the last 30 years, staying within a 3% range of 74% greens hit in regulation. However the worst performers saw a steady increase of 10% over the time period with fluctuations year to year. With the largest margin from the top being over 20%.

The data for average distance from the hole was collected starting in 2003. The data shows there to be no pattern present in this category with great fluctuation from year to year. Seeing a low of 5'11" in 2008 and high's of 6'7" in 2017 and 2023. This is key due to the immense difficulty of putting it is extremely helpful to put yourself in the closet position to the hole as possible.

Putting

Putting is widely regarded as the most difficult part of golf. With greens having difference in speed, contour and natural elements each putt is different from the last. Being a successful putter involves the ability to consistently control your speed, correctly judge the slope and strike the ball properly time after time. Most players lose or gain stroke while putting so it is crucial to maintain a low putting average to ensure success.

Par accounts for a player to make two putts on every hole, 18 hole, 36 putts a round. The study looks into the average putts per round and lowest putts recorded in a round. The data is consistent for tour players with the worst rated players averaging just above 30 putts per round. The top rated players in this category were averaging between 27-29 putts per round. There is no year in the data that stands out to be significant.

I decided to sample the lowest putts recorded over a round to see if there we any year in which there was an outlier that could add to my analysis. The data cross references the top performer in average putts made to the lowest total putts in a round that year. Two points stood out to be when creating this visual. The first is that on three occasions the worst rated player for average putts had a round with lower total putts than the top performer. The second is an spectacle for the sport, Cameron Smith recorded a round with 18 putts. This is such an outlier because that is statically one putting every hole which is extremely unlikely.

World Ranking

The OWGR Official World Golf Ranking has an algorithm to determine the top ranked players in the world. They release the ranking every week with updates from the previous event. I set out to see if there was any correlation present between the players who spent the majority of the year ranked as World #1 and the top performer in each category I selected for my study. The objective of this was to determine which induvial aspect of the game of golf is most impactful for overall performance.

The table in [Figure 6] highlight the players that were the top performer in a statical category and spent the majority of the year ranked as the top golfer in the world. There was the most overlap between the categories involved in scoring which is to be expected as it most correlates to tournament placement. With the average number of birdies being second with is consistent with the high impact birdies have on score.

There were three other categories in which overlap occurred: Percentage of Drives 320yards+, Putts per Round and Percentage of Greens hit in Regulation. The most recent coming last year with Scottie Scheffler who lead in scoring average and greens in regulation. Greens in regulation was the most common of these three categories with the other two only occurring a single time. There is no evidence that one category is directly related to being the top ranked player in the world.

Technology's Impact

While the impact varies from each category we can see how the development of the technology used in the game of golf has progressed it over time. Ranging from the different materials players can choose from to construct their clubs to the technology used to analyze a players swing path. We know more about the way a player performs now more than ever before. Which allows us the opportunity to see the impacts they have had.

We can see this clearly in the visual showing the farthest annual driving distance in [Figure 1]. While it is difficult to attribute the increase in distance to one factor due to the fact that golf clubs never stop being altered. One influential factor in this was the redesign of clubheads in the 1990's to increase the sweet spot enhancing forgiveness and distance.

One aspect of golf that has progressed immensely since the 1990's is the shaft technology. The introduction of graphite shafts serve as a lightweight option to its counterpart steel shafts. This benefits players in variables such as clubhead speed and reduced vibration throughout the club. With such a high correlation between clubhead speed and distance, graphite shafts have become a popular option for drivers and fairway woods.

The overall major advancement is seen in the technology used behind the scenes in golf. The sport has shifted a strong focus to the data that is produced by players to analyze many aspects of their game. Metrics such as launch angle and spin rate have added further levels of analysis for players and club designer. Players are now able to see minute details in their swing that are unseen by the naked eye.

This allows them to further enhance their abilities on the course. Club designers are now able to take the data produced by a previous product and adjust it accordingly for the next generation.

Tables and figures

- Average Birdies Made [Figure 2]
- Driving Accuracy [Figure 3]
- Average Distance from the Hole on Approach [Figure 4]
- Average Putts per Round [Figure 5]
- World #1 to Metrics Comparison [Figure 6]

Discussion and Conclusion

This study has provided valuable insights into the evolution of golf over the past three decades, with a particular focus on the role of technology in driving progress. Through meticulous analysis of data spanning various facets of the sport, including player performance metrics, equipment innovations, and scoring trends, we have gained a deeper understanding of the transformative impact of technological advancements on golf.

While there was no indication of one advancement specifically in the technology used in golf. It is clean that the combination of those advancements have has an impact on the data collected. From the introduction of advanced materials and design innovations in golf clubs to data analytics tools and real-time tracking technologies, the landscape of golf has undergone a profound transformation. These advancements have not only reshaped the way the game is played but have also enhanced the overall experience for players of all skill levels.

There was no clear correlation found between one category and overall performance. Proving tat it is a culmination of all those factors that result in a players success. Although there was no key shot to focus on, the advancement of all players in each category studied is evident. Over the last 30 years the advancements in the technology used in equipment and behind the scenes have allowed players in increase their abilities in each aspect of the game. Resulting in an improvement in overall performance.

As we look towards the future, it is evident that data will continue to play a critical role in the development of new club technology and player performance analysis. The symbiotic relationship between golf and technology will continue to drive innovation and propel the sport to even greater heights.

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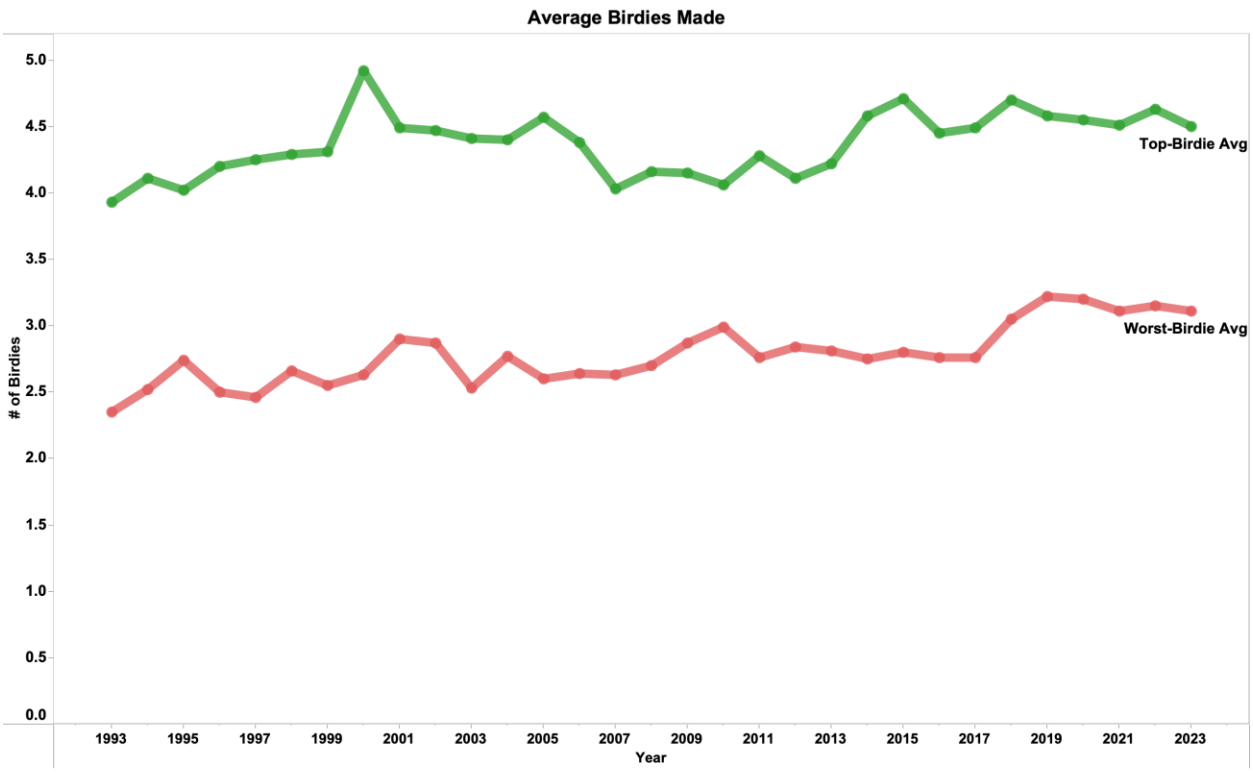
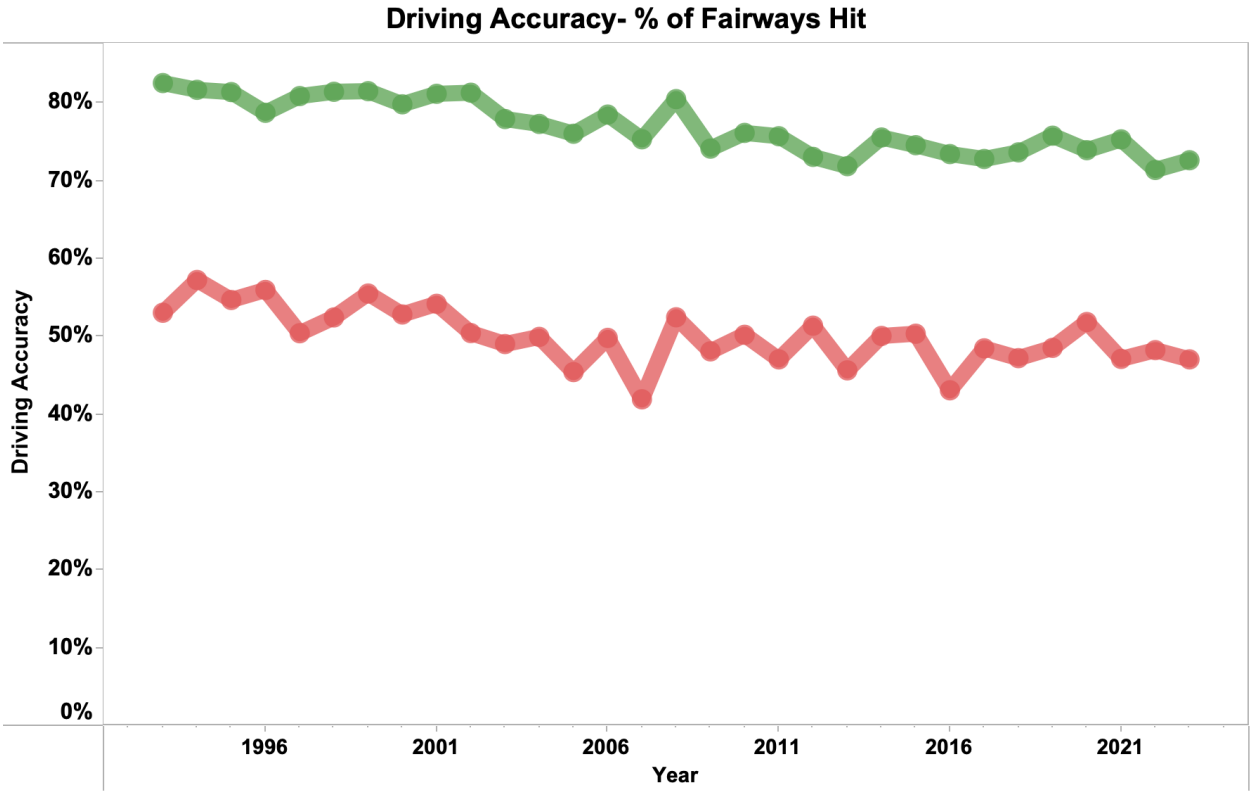

Average Birdies Made
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
# of Birdies
Top-Birdie Avg
Worst-Birdie Avg
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
Year
The trends of Top-Birdie Avg and Worst-Birdie Avg for Year Year. Color shows details about Top-Birdie Avg and Worst-Birdie Avg. The marks are labeled by Top-Birdie Avg and Worst-Birdie Avg.

[Figure 2]



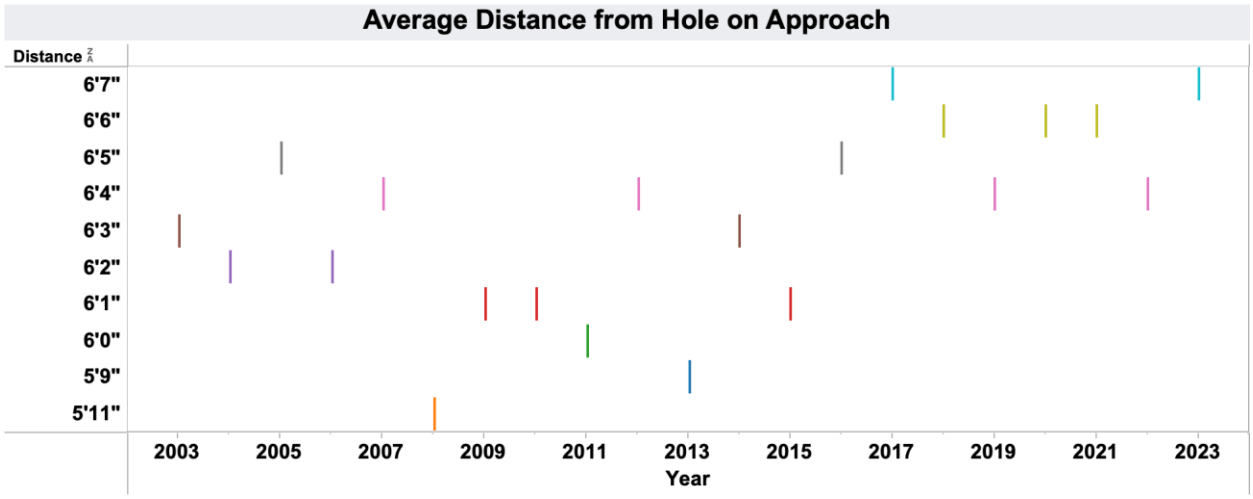
The trends of Top- Driver Accuracy (Fairways Hit) and Worst- Driver Accuracy (Fairways Hit) for Year Year. Color shows details about Top- Driver Accuracy (Fairways Hit) and Worst- Driver Accuracy (Fairways Hit).

Measure Names

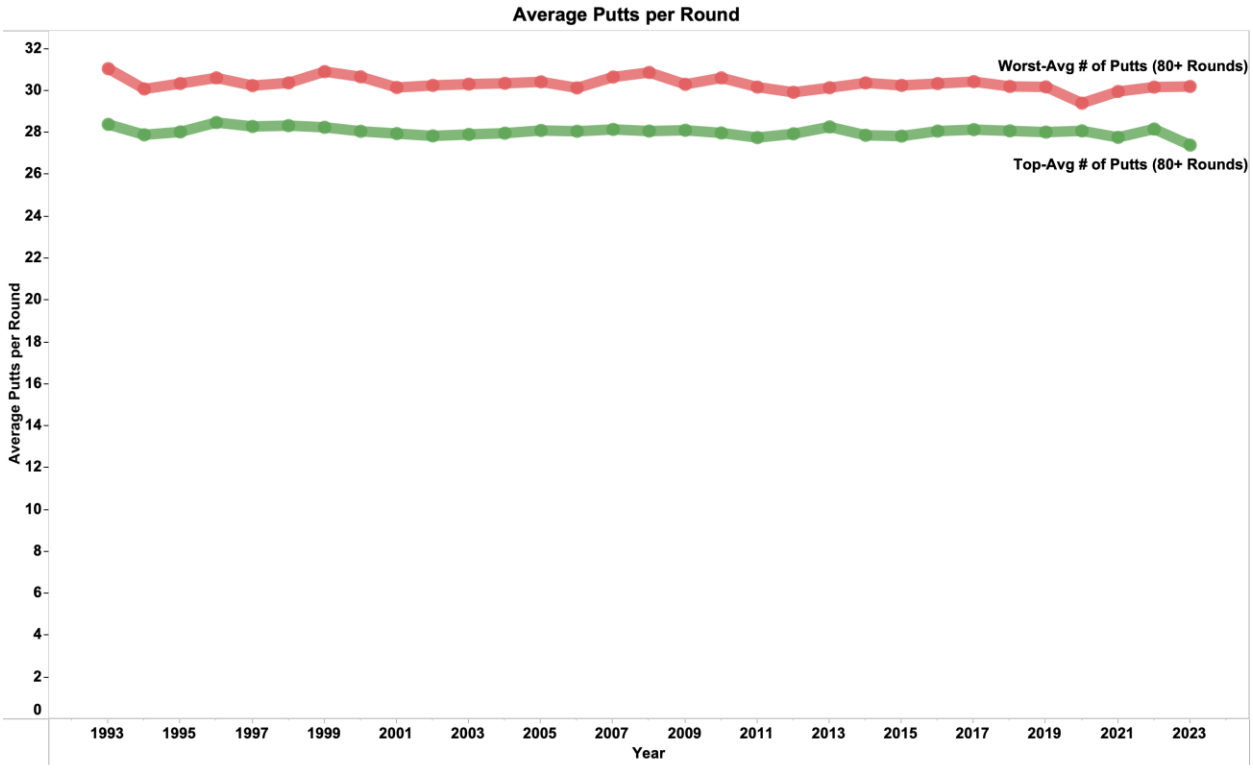
Top- Driver Accuracy (Fairways Hit)

Worst- Driver Accuracy (Fairways Hit)

[Figure 3]


Average Distance from Hole on Approach
Distance
6'7"
6'6"
6'5"
6'4"
6'3"
6'2"
6'1"
6'0"
5'9"
5'11"
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
Year

[Figure 4]



The trends of Top-Avg # of Putts (80+ Rounds) and Worst-Avg # of Putts (80+ Rounds) for Year Year. Color shows details about Top-Avg # of Putts (80+ Rounds) and Worst-Avg # of Putts (80+ Rounds). The marks are labeled by Top-Avg # of Putts (80+ Rounds) and Worst-Avg # of Putts (80+ Rounds).

[Figure 5]

Year	World #1 (Majority)	Scoring Average	Average Birdies	Driving Distance	Driving Accuracy	% of Drives 320yds+	Putts per Round	Green in Regulation	Proximity to the Hole
2023	Scottie Scheffler	Scotties Scheffler	Patrick Cantlay	Rory McIlroy	Russell Henly	Rory McIlroy	Taylor Montgomery	Scottie Scheffler	Byeong Hun An
2022	Scottie Scheffler	Justin Thomas	Cameron Smith	Cameron Champ	Brian Stuard	Cameron Champ	Cameron Young	Scottie Scheffler	Shane Lowry
2021	Jon Rahm	John Rahm	Rory McIlroy	Bryson DeChambeau	Brendon Todd	Bryson Dechambeau	Cameron Smith	Cameron Percy	Kevin Na
2020	Dustin Johnson	Bryson Dechambeau	Justin Thomas	Bryson DeChambeau	Ryan Armour	Bryson Dechambeau	Brendon Todd	Russell Henley	Brian Harman
2019	Brooks Koepka	Justin Thomas	Justin Thomas	Cameron Champ	Chez Reavie	Cameron Champ	Peter Malnati	Corey Conners	Byeong Hun An
2018	Brooks Koepka	Dustin Johnson	Dustin Johnson	Rory McIlroy	Ryan Armour	Trey Mullinax	Peter Malnati	Henrik Stenson	Kevin Na
2017	Dustin Johnson	Jordan Speth	Jordan Speith	Rory McIlroy	Ryan Armour	Dustin Johnson	Wesley Bryan	Martin Flores	Phil Mickelson
2016	Jason Day	Dustin Johnson	Dustin Johnson	J.B Holmes	Colt Knost	J.B. Holmes	Aaron Baddeley	Lucas Glover	Luke List
2015	Jordan Speith	Jason Day	Jason Day	Dustin Johnson	David Toms	Dustin Johnson	Jordan Speith	Henrik Stenson	Kevin Na
2014	Rory McIlroy	Rory McIlory	Rory McIlroy	Bubba Watson	David Toms	Bubba Watson	Jordan Speith	Justin Hicks	Justin Leonard
2013	Tiger Woods	Tiger Woods	Phil Mickelson	Luke List	Jerry Kelly	Dustin Johnson	Chris Kirk	Henrik Stenson	Bob Estes
2012	Rory McIlroy	Tiger Woods	Webb Simpson	Bubba Watson	Jerry Kelly	Bubba Watson	Greg Chalmers	Justin Rose	Jason Dufner
2011	Luke Donald	Webb Simposon	Steve Stricker	J.B Holmes	Joe Durant	J.B. Holmes	Kevin Na	Boo Weekley	Brian Gay
2010	Tiger Woods	Matt Kuchar	Tom Gillis	Robert Garrigus	Omar Uresti	Robert Garrigus	Brandit Snedeker	John Senden	Justin Rose
2009	Tiger Woods	Tiger Woods	Tiger Woods	Robert Garrigus	Tim Clark	Bubba Watson	Joe Ogilivie	John Senden	Bob Estes
2008	Tiger Woods	Bob Tway	Ryan Palmer	Bubba Watson	Olin Browne	Bubba Watson	Daniel Chopra	Joe Durant	Vijar Singh
2007	Tiger Woods	Tiger Woods	Tiger Woods	Bubba Watson	Fred Funk	Bubba Watson	Kevin Na	Tiger Woods	Justin Leonard
2006	Tiger Woods	Jim Furyk	Phil Mickelson	Bubba Watson	Joe Durant	Bubba Watson	Brian Gay	Jeff Gove	Scott Verplank
2005	Tiger Woods	Tiger Woods	Tiger Woods	Scott Hend	Jeff Hart	Scott Hend	Aaron Baddeley	Sergio Garcia	Shigeki Maruyama
2004	Tiger Woods	Vijay Singh	Vijay Singh	Hank Kuehne	Fred Funk	Hank Kuehne	Brian Gay	Joe Durant	Corey Pavin
2003	Tiger Woods	Vijay Singh	Vijay Singh	Hank Kuehne	Fred Funk	Hank Kuehne	Chris Riley	Joe Durant	Corey Pavin
2002	Tiger Woods	Tiger Woods	Tiger Woods	John Daly	Fred Funk		Chris Riley	Tiger Woods	
2001	Tiger Woods	Tiger Woods	Phil Mickelson	John Daly	Joe Durant		David Frost	Tom Lehman	
2000	Tiger Woods	Tiger Woods	Tiger Woods	John Daly	Fred Funk		Brad Faxon	Tiger Woods	
1999	Tiger Woods	Tiger Woods	Tiger Woods	John Daly	Jeff Maggert		Robert Dramon	David Duval	
1998	Tiger Woods	David Duval	David Duval	John Daly	Bruce Fleisher		Len Mattiace	Hal Sutton	
1997	Greg Norman	Tiger Woods	Tiger Woods	Tiger Woods	Allen Doyle		Justin Leonard	Tom Lehman	
1996	Greg Norman	Fred Couples	Fred Couples	John Daly	Fred Funk		Glen Day	Mark O'Meara	
1995	Greg Norman	Scott Simpson	Joe Ozaki	John Daly	Fred Funk		Jim Furyk	Lennie Clements	
1994	Nick Price	Greg Norman	John Huston	Davis Love III	David Edwards		Ben Crenshaw	Bill Glasson	
1993	Nick Faldo	Nick Price	David Frost	John Daly	Doug Tewell		Dick Mast	Fuzzy Zoeller	

[Figure 6]

Appendix A – Resources Used

Datasets

- PGA Tour Statistics

    - Statistics from multiple categories were collected to analyze overall player performance. The object was to see how each category relates to a players overall performance and how players have progressed in each category over time.
- ESPN PGA Tour Statistics
    - This data set was used to validate the information being collected by the PGA Tour. All data sourced in my visualization was collected directly from the PGA Tour dataset and not ESPN.
- Official World Golf Rankings
    - I used the Official World Golf Rankings to decipher if there was any correlation between one specific statistical category and a world #1 ranking. In doing so I cross reference the year leader in each category with the player who spent the majority of that year ranked as #1.

Tools used

List all tools used in the project and a brief description (see the *examples* below); **update accordingly**.

Tool/Application	**Description**
Excel	Data cleaning and formatting
Tableau	Data visualization
Wix	Website Design

Appendix B – Project Web Page

https://www.coltonvanoverberghe.com/cgt-275-final-project