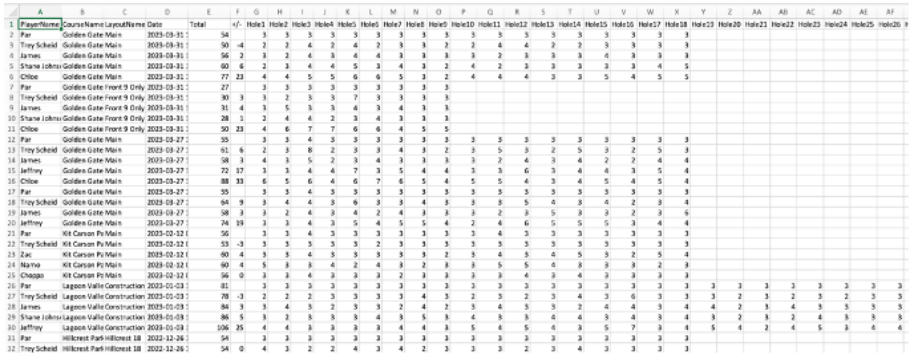
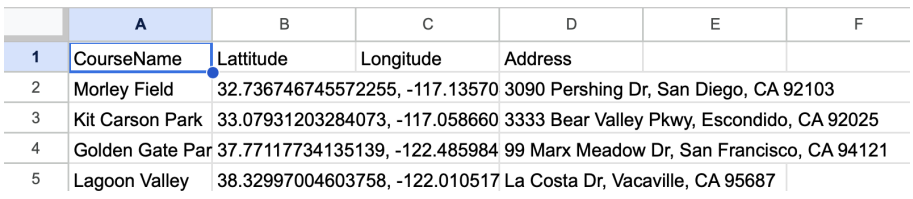
Trey Scheid, Wilber

Final Project Report

Part 1 - Story and Narrative

Link to the dataset	**A**: scores main (UDiscScorecards.csv) https://drive.google.com/file/d/13BegTaIwEr6D4bbXOds04HDSi7Fckc9k/view?usp=sharing created by me over the years on the Udisc app for disc golf (downloaded from app in csv format, cleaned a little using udisc_cleaning.ipynb then further altered in js) **B**: course locations dataset: (Courses.csv created by me using google maps) https://docs.google.com/spreadsheets/d/1_7jQS1nJqbkKPB7SYPe85ElUjgRPYlzYI1PLN8cgWHo/edit?usp=sharing **C**: network dataset derived from A/scores main using python script “udisc_cleaning.ipynb” (nodelink.json) (also uses us-states-6.json from lecture) **D**: timeprocessed.csv: created from A/scores main using “udisc_cleaning.ipynb”
Example item from the dataset	A  B  C

B

	A	B	C	D	E	F
1	CourseName	Lattitude	Longitude	Address		
2	Morley Field	32.736746745572255, -117.13570		3090 Pershing Dr, San Diego, CA 92103		
3	Kit Carson Park	33.07931203284073, -117.058660		3333 Bear Valley Pkwy, Escondido, CA 92025		
4	Golden Gate Par	37.77117734135139, -122.485984		99 Marx Meadow Dr, San Francisco, CA 94121		
5	Lagoon Valley	38.32997004603758, -122.010517		La Costa Dr, Vacaville, CA 95687		

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us-states-6


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D

Date	PlayerName	CourseName	CoursesPlayed
2016-11-11 0000	Bing bing		0.0
2016-11-11 0000	Bradley		0.0
2016-11-11 0000	Chloe		0.0
2016-11-11 0000	Choppa		0.0
2016-11-11 0000	Danny		0.0
2016-11-11 0000	Dave		0.0
2016-11-11 0000	Eduardo		0.0
2016-11-11 0000	Elum		0.0
2016-11-11 0000	Eshaan		0.0
2016-11-11 0000	George		0.0

Story you want to deliver

Message:

- I love frisbee, but I really love playing with my friends and exploring new places.
- Also, disc golf brings people together

Events:

- Every player has a first round they played beginning with myself and my core group all the way to my newest friends in a different geographical location
- There was my years in the bay area in high school, living

	with those friends and my family and sometimes having a car or not. Then I move to SD for school and my location and social circle change. Facts: ● Played at many courses, but mostly play in the same few courses greater than 5 times ● Play with the same couple friends and my dad the majority of the time ● I've played with every person in my dataset ● I my friends and I like to play when its not too early in the morning This story is an exploration into how long, how often, and who I have disc golfed with. This is something I enjoy greatly, yet I am very serious about at times. It can be an easily overlooked activity but it is pleasant and healthy and brings people together. I want to take my audience on a journey that explores my history and they can see how they fit into it and hopefully see what the sport may mean to themselves. They also will get to see some cool graphs and data specific to them to brighten their day a little :)
Describe your target audience.	● My friends who I play with (and my family) who are part of these scorecards in the dataset are my intended audience. They know how the sport works but have not seen many aggregate statistics. ● They will be interested in how we perform in relation to each other, such as who is better, or the rates different people improved at over time. They will also wonder what had the most influence on score, such as weather, location first time playing etc if I can show that. ● Primarily I want them to enjoy and have ease understanding the viz. Specifically I want them to see their growth, and see who brings the group up or down. ● They will be able to view the medium of a static digital file since they are all decently tech savvy. They understand standard plots such as bar, scatter, I doubt they have seen beeswarm, radial and other complicated charts. ○ They likely will not know how the network graph is made or what forces are acting on it.

	• I will send them the finished poster digitally. • They could understand math if explained. Proportions and above/below par they will understand from playing the sport before. I don't plan on doing anything fancier than average computations. • I expect this to be opened on email on a computer and on phones from messages or email.
The goal of your project outcome. And why?	I would like this to primarily be an **explanatory** work so that I can lead my friends and family who will see this through the data. My main goal is to show how much I love disc golf through all that I share the game with, how much I have played and how I bring it everywhere I go making it an adventure. They may not be familiar with what is difficult or what factors are important to check out. I hope to wow them with different visualizations they have not seen before or would not expect from a disc golf dataset.
Narrative structure you plan to use	Interactive Slideshow
Elaborate your choice of narrative structure.	My friends and family are not experienced with data exploration and although there isn't much complication here I think they would rather be guided through the insights than explore on their own. The interactive slideshow is ideal because it indicates that my charts will be specific and with enough guidance through selection, highlights, annotations etc. that the reader does not need to feel around to find the messages I want them to see. This is author driven (linearity). I do not mean that this will be a static experience however, part of the slideshow is interactivity and I am excited that they will be able to dive into the data to find their own statistics through some local exploration.
Narrative genre you plan to use	Partitioned Poster

Elaborate your choice of narrative genre.	This way I can show all my charts on one page and include notations that may refer to one or multiple annotated charts. This project does not need additional imagery such as a comic. I will likely share this as a website link hosted on github so I can easily share it and they can make use of hover effects to see individual data points if they are curious of exact values. Or to zoom in for my grandparents' poor sight.

Part 2 - Outline

Story you want to deliver	copied from part I Message: ● I love frisbee, but I really love playing with my friends and exploring new places. ● Also, disc golf brings people together Events: ● Every player has a first round they played beginning with myself and my core group all the way to my newest friends in a different geographical location ● There was my years in the bay area in high school, living with those friends and my family and sometimes having a car or not. Then I move to SD for school and my location and social circle change. Facts: ● Played at many courses, but mostly play in the same few courses greater than 5 times ● Play with the same couple friends and my dad the majority of the time ● I've played with every person in my dataset ● I my friends and I like to play when its not too early in the morning This story is an exploration into how long, how often, and who I have disc golfed with. This is something I enjoy greatly, yet I am very serious about at times. It can be an easily overlooked activity but it is pleasant and healthy and brings people together. I want to take my audience on a journey that explores my history and they can see how they fit into it and hopefully see what the sport may mean to themselves. They also will get to see some cool graphs and data specific to them to brighten their day a little :)
Specifications on each plot **in the order of how you lay out on your project**	1) clear task abstraction, 2) attributes used, 3) marks, 4) channels, and 5) how this plot adds to the story) Plot 1 - link (node link diagram) 1) Task: *discover* any groupings in the *topology* of people who have played together 2) C.nodes, C.links from nodelink.json (essentially PlayerNames and count when grouped by course+date) 3) Marks - area mark for (nodes) and lines / connections (links)

	4) channels - a) ~~area of circle for count(total),~~ b) spatial region encodes strength of connection through closeness to each other, shows the topography we are looking for c) thickness of line for (count(links) together) this is a length channel since 1D 5) clearly shows who plays together most and if there are groups of friends or outliers. Shows how much disc golf means to me because of all the people I play with. Interactivity: highlights links for hovered node, helps see specific data for browsing Plot 2 - Position (geographical map) 1) Task: *Explore* the *distribution* of rounds played at different geographical locations. *Summarize* their score *distributions* or *identify shapes* or *dependencies* 2) B.latitude, B.longitude, A.COUNT("total") by course when tables A and B joined on "CourseName" 3) Mark area (circle) 4) channels a) area for A.count("total") b) position on common scale from latitude and longitude, this is a geometric dataset with spatial data 5) Shows Where I and others play most and least. Discover where I have traveled. See where other people Interactivity: Get tooltip with CourseName, rounds played and avg_score. Filter or aggregate data by person. This lets users explore themselves or see where groups from the first chart may play together, also discover names of courses you could go and play based on popularity by me! Plot 3 - Attribute "Courses Over Time" 1. Task: *Present* the *features* of when players enter into disc golf and especially groups of them at once. The interactivity aims to allow audience to do searches for a specific distribution/player. When doing that they can annotate the extreme when the player began playing. 2. from dataset D, group by PlayerName to get cumulative unique "CoursesPlayed" 3. Mark - stacked area chart (area is the mark) 4. channel a) color hue: for distinct PlayerName, the sequential pattern is not ideal for the divergent data but the large size of different categories limited my tools online for generating unique color set. It should be clear this is not ordered by color so should not confuse the viewer b) position vertical for "CoursesPlayed" c) position horizontal for "Date" 5. Shows when I met or introduced people to the game, shows

	who I explore the most courses with and how far disc golf stretches beyond the home course! Interactivity: Because there are so many playerNames I did not add a legend and instead you can hover to see PlayerName. The date they first played a round also appears since the large scale nature of the data makes that difficult to see. Plot 4 - Attribute matrix 1) Task: *Compare* the *trends* in score for each player to find similarity or identify differences. 2) shows "score+/-" per "PlayerName" on each "Date" a round was entered 3) Mark - line 4) channels a) color hue: "PlayerName" same caveat as before except now wanting to keep the theme consistent despite lower number of players. b) position vertical for "+/-" c) position horizontal for "Date" 5) The aim is to display in detail the journey of my closest friends and how we have progressively improved and how frequently and variably we play. Plot 5 - Attribute 1) Task: Goal is to present the correlation between time of day and score across players and help individuals discover extremes. 2) dataset A: PlayerName grouping as usual, added bins for "Date" looking only at time of day not m/d/y. Aggregate "score+/-" for each bin to get average. 3) Mark - line 4) channel (for each point on line chart line) a) color hue: "Date" bin b) position vertical for average "+/-" per bin c) position horizontal for "PlayerName" and "Date" bin. 5) This is an interesting metric that will push the boundaries a little deeper in our exploration of what disc golfers think about and how we perform, in this case when to play. Also should help meet my goals of showing the cool things you can do with disc golf data that they may not initially expect.
Elaborate the choice of their marks and channels for each vis	• Using area to show the counts for various attributes is the most expressive channel I can use on this ordered data (position is already being used in these plots for the keys and plotting lengths would be strange on a map or in space). (The length by radius is also an option but for human perception area is better than using radius length despite its increased expressiveness since people comprehend the circle as a whole size not the diameter alone). • Increasing line thickness in the node link diagram is another

	ordered channel to show which connections are stronger from playing more together on the course. The distance between nodes (position) is not entirely reliable or consistent since many connections and nodes in one place affecting each other may cause some nodes one place with X number of shared rounds be much farther/closer than nodes somewhere else also with X shared rounds. These groupings in spatial regions show important topography but the added area mark for line thickness is a standardized method. ● Using position for the geometric dataset is ideal for showing spatial data. ● I use color saturation and luminance in my interactivity to let a user know which datapoint they are receiving information from as well as simply hiding or showing connections and area marks above other data more clearly. ● I split up the line charts into a matrix to easily see trends across teh five golfers while still knowing who is who and not worrying about interactivity. There is less exploring for the viewer and more guidance. ● color hue in my bar graph lets you compare across PlayerName easily despite their staggered horizontal position, much more perceptible than say a text label

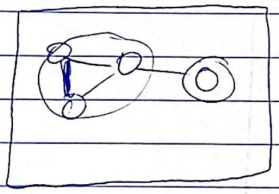
Changed the Title and layout is now all linear for bigger visualizations and cleaner design. Additional plots for added insights and storyline.

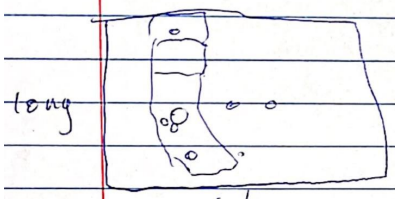
New Title: Fairways to Friendships: Disc Golf's Unity

8 years of Rounds Around

After over 200 scorecards, most with friends and family I have come a long way.

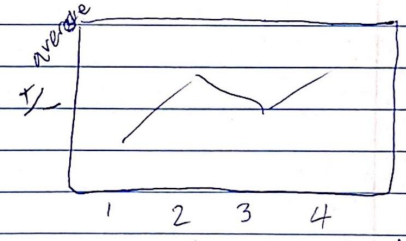
Here are the people I have played with. You see my family, my uncle on the outside I played in Oregon!





You see my home course the greatest size for most r
any a sprinkle in other stat

As I play with others I ~~play~~ perform differently.



Now you see why I love playing with you all!