W03

CSC316 Project Book - W03

Project Abstract:

The goal of this project is to visualize data about chess in Canada. There are three main objectives:

1. To determine how Canadian chess players become elite chess players. We want to analyse how much effort through the number of games, tournaments, and years of training it takes for someone to become a National Master and subsequently achieve higher titles such as Grandmaster.
2. To find interesting statistics about chess related to one's upbringing. We want to determine the geographical distribution of chess players and how their upbringing/environment may have played a role in their chess interests. We want to determine the popularity of chess and the relationship between online and in-person chess play.
3. We are interested in visualizing chess through new methods which will inspire chess organizers and the chess federation to make informed decisions about where efforts need to go to improve chess play in the country.

We have found data from the Chess Federation of Canada (chess.ca) which has data on primarily players and events. We can access/scrape the data through public APIs available for players and events. A full list of players is provided by the federation here. The full list of data has players' names, location, whether they are active players, and the player's membership-ids. Using the membership-ids we can query individual players to retrieve their chess profiles. Each chess profile will have the number of events that they have played and their scores for each event. Each event will have an event-id which will allow us to analyse individual events further.

We are also in talks with the Chess Federation of Canada to retrieve their internal datasets. As of Jan 30th, we are in an agreement with their webmaster to receive three SQLite database tables containing players (aka members), events, and crosstables. They have offered to clean/scrub personal identifiable data for us.

We also have options to add chess games through CanBase, Online chess games from lichess.org which is an online chess app, and data from FIDE, the world chess federation.

W04

CSC316 Project Book - W04

Team Name: The Great Visualizers
Project Title: From Pawns to Grandmasters: The Evolution of Canadian Chess Players
Members: Andy Feng (andy.feng@mail.utoronto.ca), Victor Zheng (victork.zheng@mail.utoronto.ca), Harsh Bajwa (harsh.bajwa@mail.utoronto.ca)

Online Version of Project Book: here

Background and Motivation:
Our team shares a strong interest in chess, with one of our members, Victor, serving as the Secretary and President of the Hart House Chess Club at the University of Toronto. His extensive experience and deep involvement in the chess community have inspired us to explore the game from a data-driven perspective. Our project is driven by the desire to bridge the gap between raw data and meaningful insights, providing a fresh perspective on chess that benefits both casual enthusiasts and serious players. Additionally, we seek to develop innovative visualizations that can provide valuable insights for chess organizers and federations. By leveraging data analytics, we hope to uncover meaningful patterns that can help shape the future of chess development in Canada. Please see the project abstract (in W03) for more details on our specific objectives.

Related Work: The available statistics in Canada for chess are very rare and not extensively studied. For instance, the federation provides a simple dashboard with total memberships year over year here. According to the federation, there are millions of chess players in Canada yet statistics regarding their participation is few and far between. It would be very beneficial to help visualize this data and inform Canadian's about chess participation.

Data:
We have found data from the Chess Federation of Canada (chess.ca) which has data on primarily players and events. We can access/scrape the data through public APIs available for players and events. A full list of players is provided by the federation here. The full list of data has players' names, location, whether they are active players, and the player's membership-ids. Using the membership-ids we can query individual players to retrieve their chess profiles. Each chess profile will have the number of events that they have played and their scores for each event. Each event will have an event-id which will allow us to analyse individual events further.

We are also in talks with the Chess Federation of Canada to retrieve their internal datasets. As of Jan 30th, we are in an agreement with their Webmaster to receive three SQLite database tables containing players (aka members), events, and crosstables. They have offered to clean/scrub personal identifiable data for us.

We also have options to add chess games through CanBase, Online chess games from lichess.org which is an online chess app, and data from FIDE, the world chess federation.

Data Cleanup:

We do not expect to perform extensive data cleanup, as the Chess Federation of Canada has agreed to scrub personally identifiable information before providing us with the datasets. However, we anticipate handling tasks such as ensuring data consistency, standardizing formats, and addressing any missing or incomplete records.

Our primary dataset consists of three SQLite tables:

- **Player Table**: Contains information on players, including CFC IDs, FIDE IDs, ratings (regular and quick), and membership status.
- **Event Table**: Includes details of tournaments such as event names, locations, dates, number of players, and rounds.
- **Crosstable**: Provides player performance in events, including games played, scores, pre/post ratings, and placement.

Using these tables, we currently plan to extract:

- **Player Progression**: Rating changes over time, tournaments played, and games required to reach National Master and Grandmaster titles.
- **Tournament Trends**: Participation rates, average scores, and player growth by province.
- **Geographical Insights**: Distribution of active players, correlation between location and chess engagement.
- **Online vs. In-Person Play**: Comparisons using external data from lichess.org and FIDE.

We plan to conduct the majority of data manipulation in Python (Pandas, SQLite) for querying, transformation, and analysis. Once processed, we aim to export the cleaned data to CSV format for further manipulation in D3.js, enabling interactive visualizations for our final presentation.

The Great Visualizers - Team Agreement

Communication

- Use Discord as the primary team communication channel. All team members must respond within 24 hours maximum, preferably within 4 hours during business hours (9am-5pm PST). For urgent matters, use @channel mentions.
- Weekly team meetings held every Monday at 2pm PST via Discord. Each member presents a 2-minute status update. Meeting notes stored in shared Google Doc. Attendance mandatory - notify team lead 24hrs ahead for absences.
- Task board updates required daily by 5pm PST. Include progress status, blockers, and estimated completion time.
- Weekly team meetings from 12 pm to 2 pm on Thursdays in-person meet at Bahen.

Code Guidelines

- Branch naming convention: feature/[ticket-number]-description (e.g., feature/123-login-page)
- All complex code requires inline comments explaining the logic. Functions longer than 20 lines must have detailed docstrings. Comment any workarounds or technical debt.

Tasks

- GitHub Projects board organized in columns: Backlog, To Do, In Progress, Review, Done
- Update ticket status and progress daily. Include time estimates, dependencies, and relevant screenshots/documentation

Version Control

- Main branch protected - no direct commits
- Create feature branches from latest main
- Commit messages must be descriptive and reference ticket numbers

Quality Standards

- All code must follow team style guide
- No failing tests in main branch
- Documentation updated with code changes
- Successful deployment to staging required before merge

Team

Members: Andy Feng (analytics lead), Victor Zheng (team lead/submittor), Harsh Bajwa (visualization lead)

Date: February 6, 2025

Signed: Andy Feng, Victor Zheng, Harsh Bajwa

W05

CSC 316 – Final Project

Week 5 - Map

Link to deliverable and project document: [CSC316 Project Book - The Great Visualizers]

1. Who is your audience? Come up with **at least three** options and pick one target audience.
    - *Chess Players currently playing in Canada*
        i. *Target audience*
    - *Chess Organizers in Canada*
    - *Potential chess players in Canada*
    - *Chess parents / supporters*
    - *Online chess players*
2. Describe your target audience in more detail. What do they know? What are their interests? What visualization literacy do they have? At what level of detail will you present information to them?
    - *We expect the primary target audience to know about chess and be current chess players. They likely have university backgrounds or have parents intending to enrol them into university. A large number will be interested in STEM and are currently pursuing or have pursued STEM related backgrounds. They would be able to perceive statistics and understand conclusions based on them.*
    - *People who want to learn about the history of elite Canadian chess players, focusing on the Canadian National Masters listed on the official CFC website*
3. What questions about your data will be interesting for your audience? Come up with a list of interesting questions that your audience may have about your data. The more, the better, but your team should come up with **at least ten questions**.
    - *How many players play chess in Canada each year?*
    - *How many tournaments do chess players play on average per year?*
    - *How many tournaments do Grandmasters compete in every year?*
    - *Is there a difference in ratings in different provinces? Are players overrated in some provinces while underrated in others?*
    - *How can chess be introduced to more people?*
    - *Where is chess most popular in Canada?*
    - *What are the differences in participation of men/women in chess?*
    - *What does it take to become a National Master in Canada? Number of games, number of tournaments, and which tournaments?*
    - *How does a player perform as they age? Do they perform better when younger/older? Is there a prime age for chess skill?*
    - *Can we predict a player's performance based on their past performance?*
    - *What is the distribution of chess players by age and how many people play chess at every age currently?*
    - *What year do players get involved in chess tournaments?*

What data do you have? Look at it in Excel or Google spreadsheet and briefly describe each attribute and its data type (categorical, ordinal, or quantitative) in your process book. It's OK if you are unsure about the data type for some attributes - you can simply describe them (e.g., geographic location).

Our data we got was provided in a SQLITE database with 3 tables for events, cross tables, and players. The data is already cleaned of personal information. This data can be easily exported to CSV and loaded into Tableau.

The details of each table are as follows:

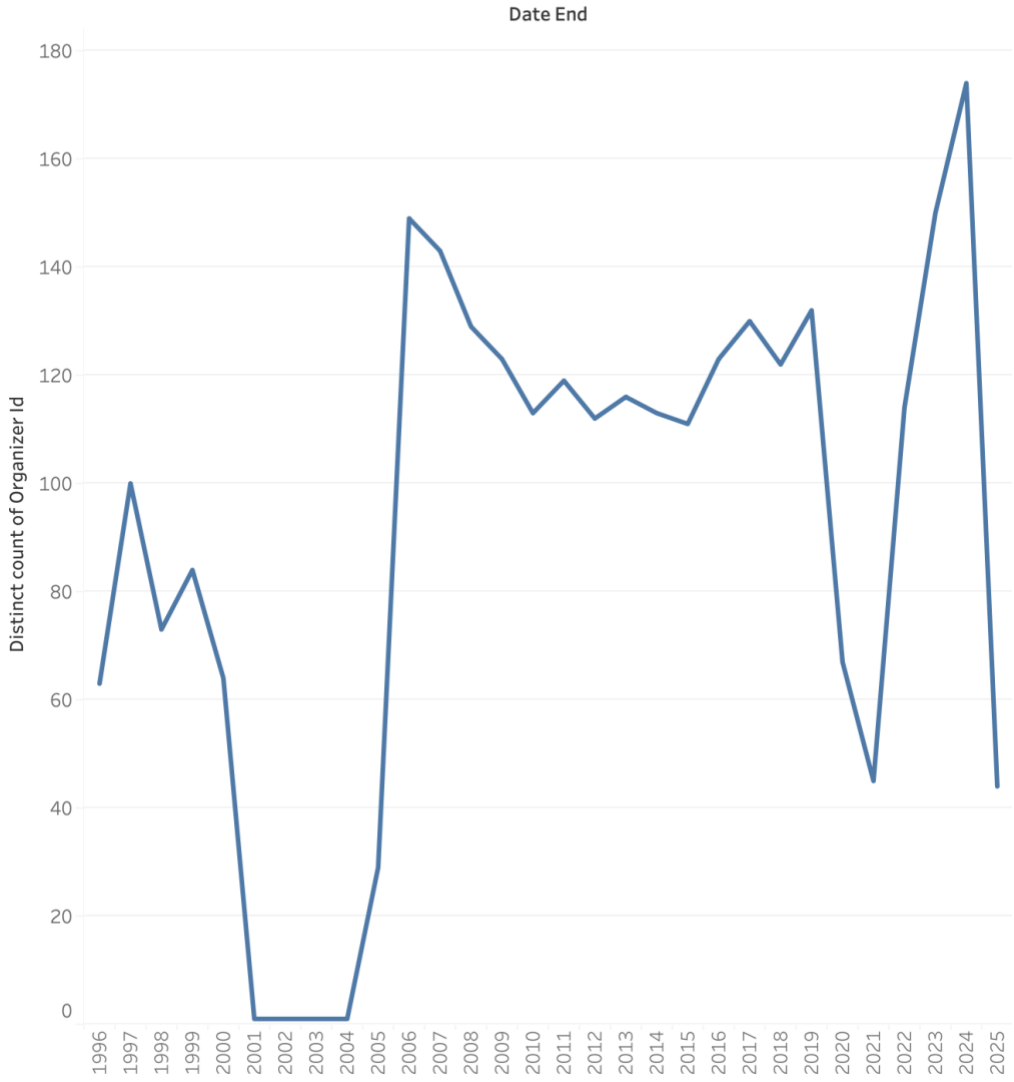
- *Players*
    - *This table has data on each player in Canada*
    - *There is an ID for each player*
        - *The id is a number and is 6 digits*
    - *There is a firstName and lastName field for the data which is text data*
    - *There is a Home City and Home Province field for geographical data. There is also a 3-digit postal-code prefix which can be used for more geographical analysis (was cleaned).*
    - *There are a few categorical data fields for gender, membership type and membership expiry for the federation.*
- *Events*
    - *Each event has a numerical value differentiating the event itself*
    - *Each event has a registered organizer with an ID referred to from the players table*
    - *Each event has a register arbiter (judge) with an ID referred to from the players table*
    - *Each event has a total number of players and a total number of rounds*
    - *Each event also has the type of event in categorical data called Pairing (Swiss, Round Robin, etc) which indicates what type of tournament format it is.*
    - *The events have a date of event which is quantitative*
    - *Every event has a province that the event was played in.*
- *Cross Tables*
    - *The cross tables are the actual results of each event*
    - *Each entry contains the result of a player in an event.*
    - *There are quantitative values for the number of games played, pre-tournament rating, and performance rating.*
    - *The results attribute can be used for determining the opponent played within that tournament.*

A note on the data:

- *We worked with the webmaster of the Canadian Chess Federation to grab internal data from the Federation and visualize it. This federation is recognized by the Canadian Olympic Committee as seen here.*
- *We were notified of the following items about the data:*
    - *The data that were provided has email, phone, and address data removed. The person who provided us the data created a field called "addr_postalcode_prefix" with the first 3 characters of the postal code (to help with any geography based analysis). The full postal code was removed.*
    - *The data also replaced birthdate with birth year (for age based analysis).*
    - *We were also notified that names with "zzz" prefix are usually a duplicate person that had to be merged into another.*
    - *We were also notified that birth years less than 1910 and greater than 2020 have some meaning other than being the true birth year.*
- To mitigate the issues of the data, we have decided to ensure that any visualizations that we create filter out data that may be inaccurate.
- The data contains tournaments played in Canada which are rated by the national federation. As a unique society, Quebec has its own chess rating system called the

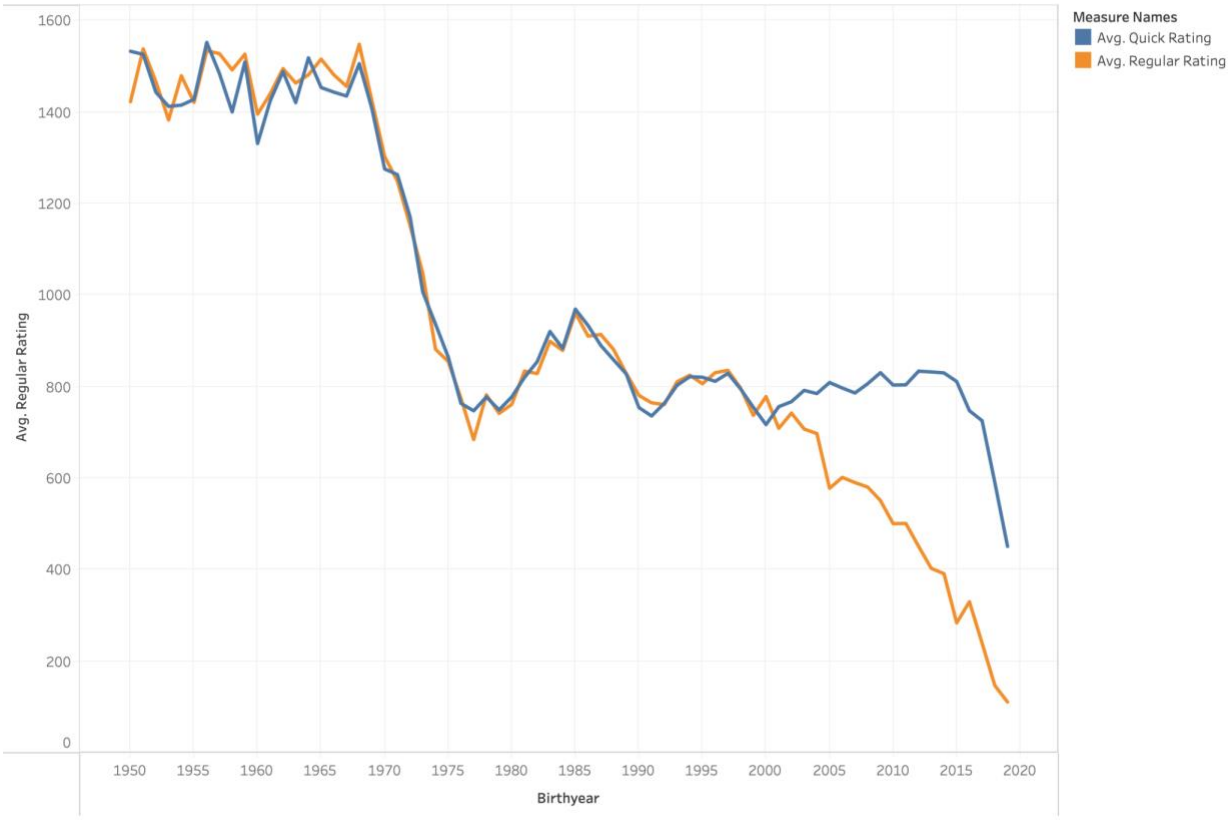
Visualizations by Victor

Number of Chess Organizers over time



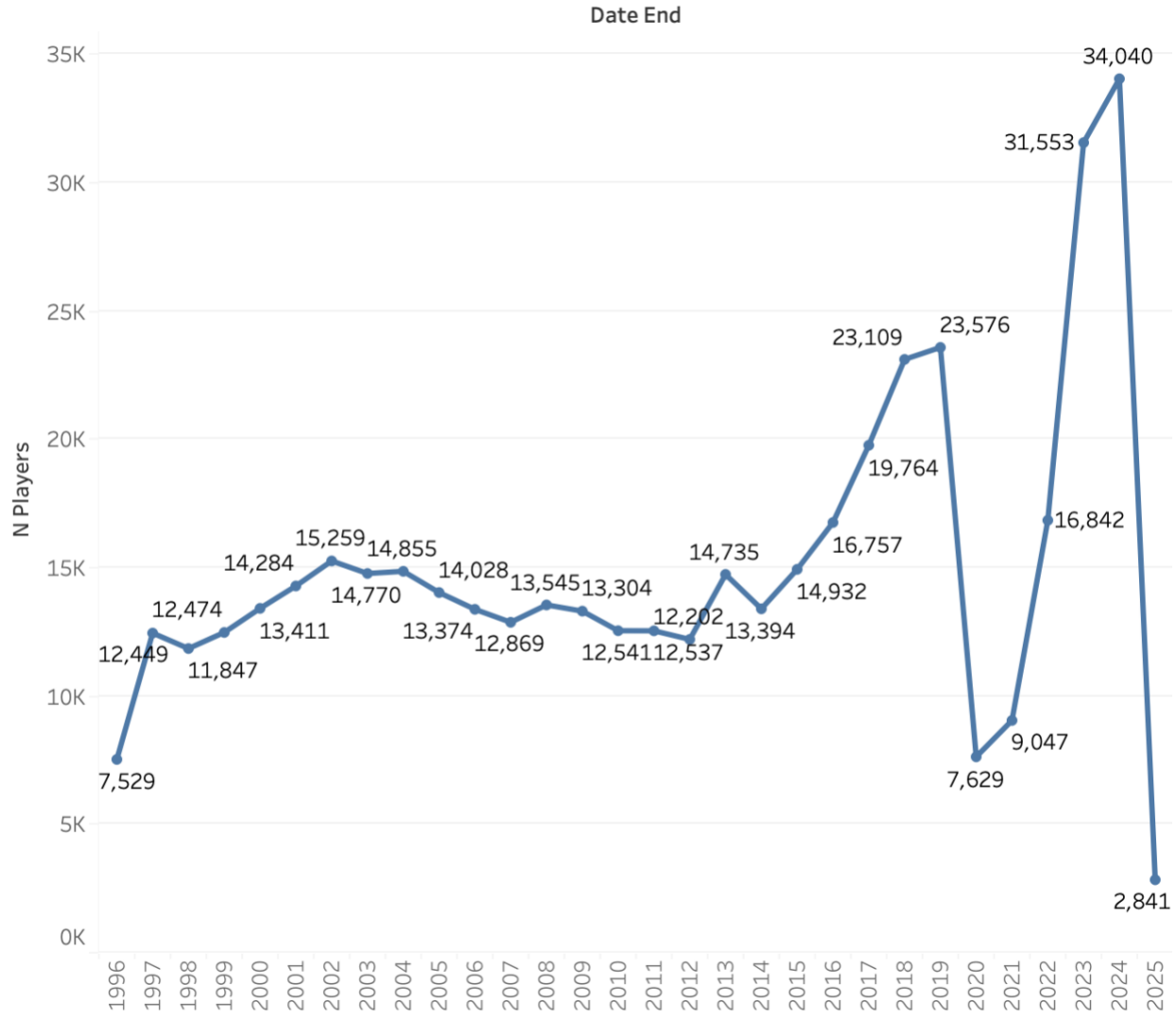
The trend of distinct count of Organizer Id for Date End Year.

Average Rating by Year Born



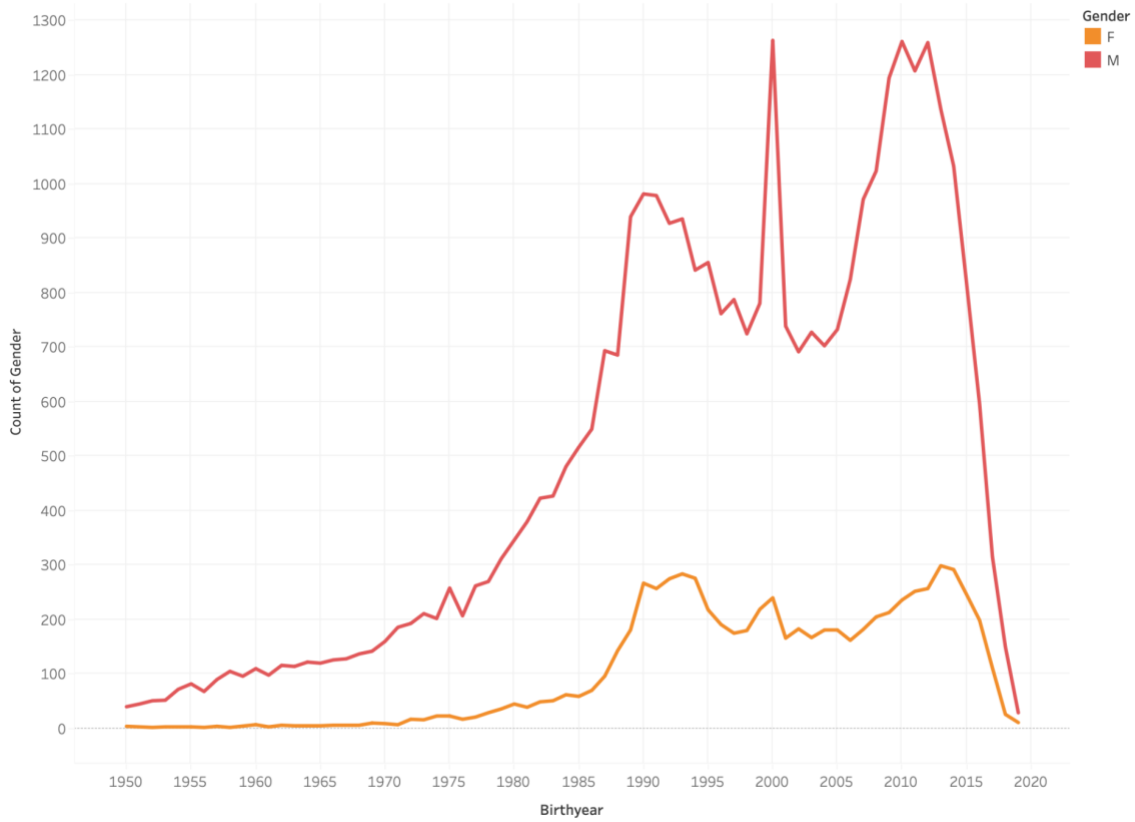
The trends of Avg. Regular Rating and Avg. Quick Rating for Birthyear. Color shows details about Avg. Regular Rating and Avg. Quick Rating. The view is filtered on Birthyear, which ranges from 1950 to 2019.

Total number of players participating

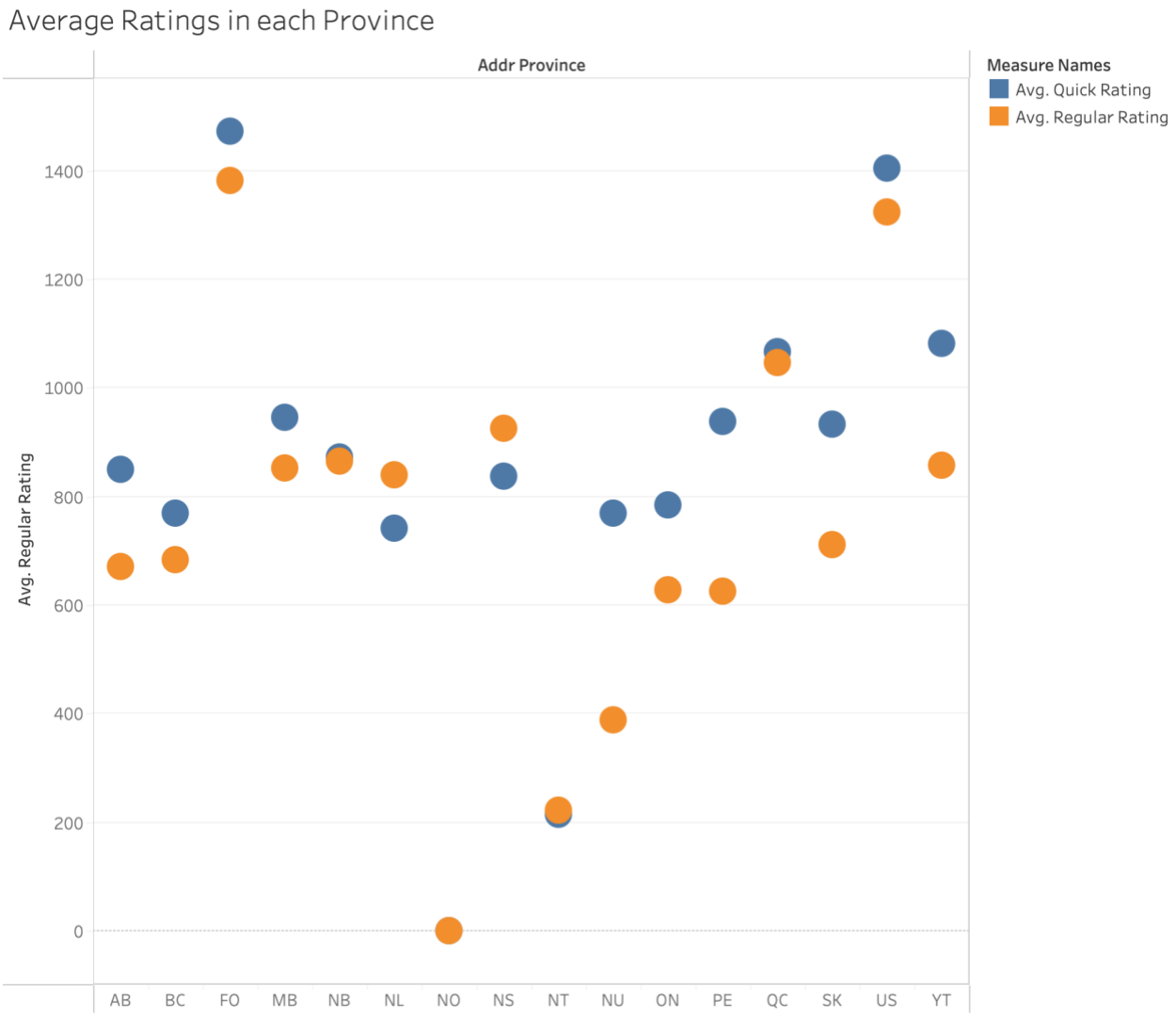


The trend of sum of N Players for Date End Year. The marks are labeled by sum of N Players.

Number of Female and Male Players



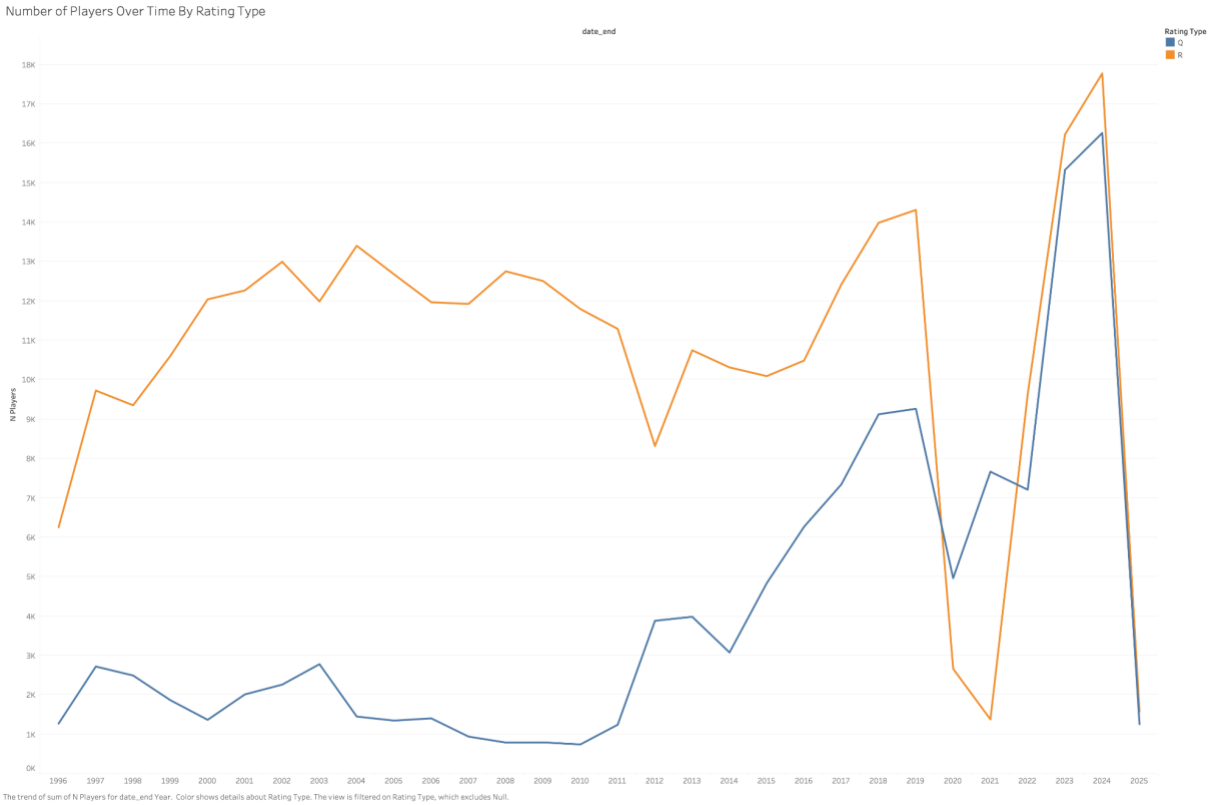
The trend of count of Gender for Birthyear. Color shows details about Gender. The view is filtered on Birthyear, count of Gender and Gender. The Birthyear filter ranges from 1950 to 2019. The count of Gender filter keeps non-Null values only. The Gender filter keeps F and M.



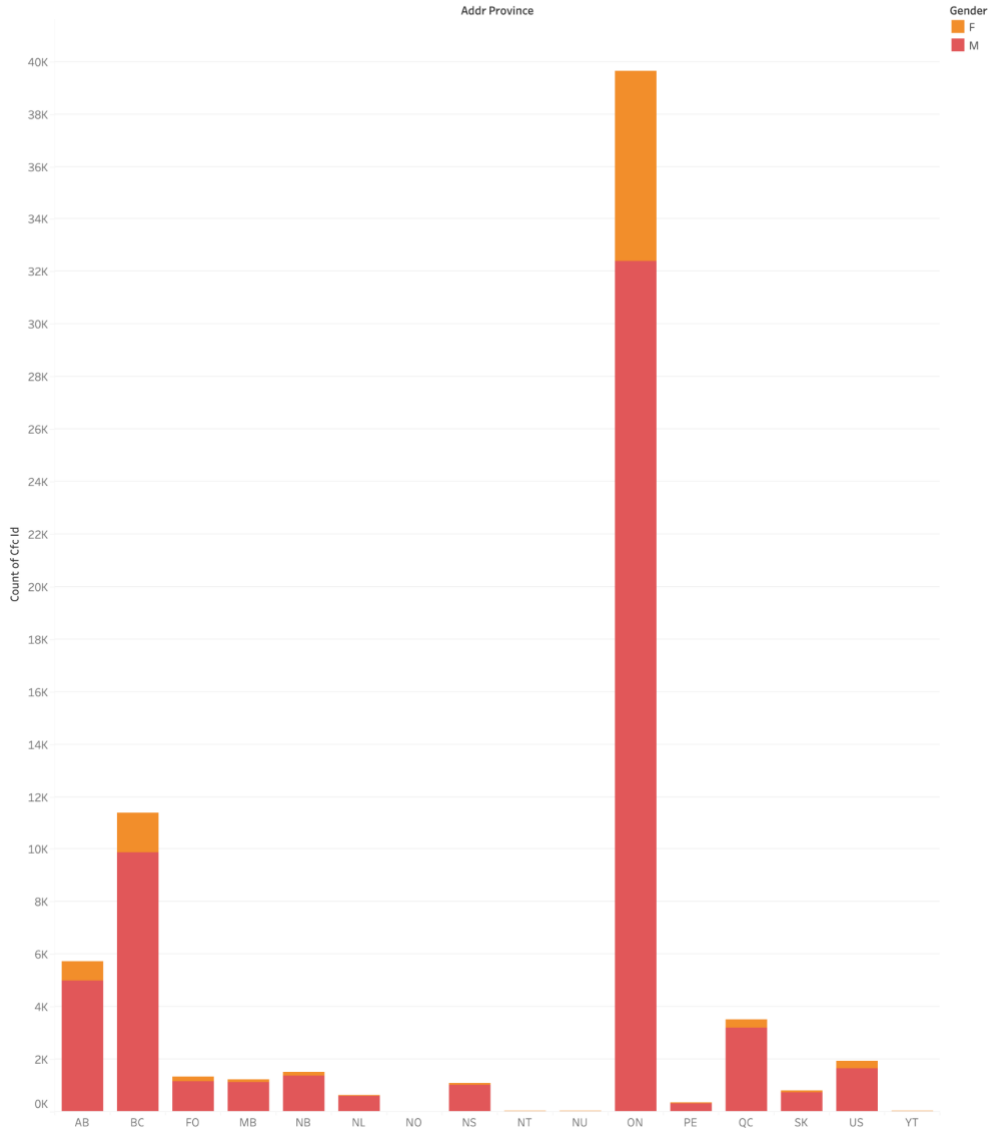
Avg. Regular Rating and Avg. Quick Rating for each Addr Province. Color shows details about Avg. Regular Rating and Avg. Quick Rating. The view is filtered on Addr Province, which excludes Null.

The visualizations that I did differed slightly from what we intended because many of them focused on quantitative data related to events themselves and players themselves rather than the relationships between the two. I found that it was easier to visualize this data and get working graphs. I found that as I started creating visualizations and playing around with the data it was easy to use *date* as a continuous variable. In addition, the *province* categorical variable was useful to use as it was available for every table. Some of the questions that we came up with as a team were answered such as the participation of women/men in chess tournaments. In addition, participation based on the year people were born was easily answered. I found that as I visualized the data it was also easier to understand the data that we had. It was also fun to be able to think about the data in new ways such as in the visualization of both Quick and Regular ratings in one graph.

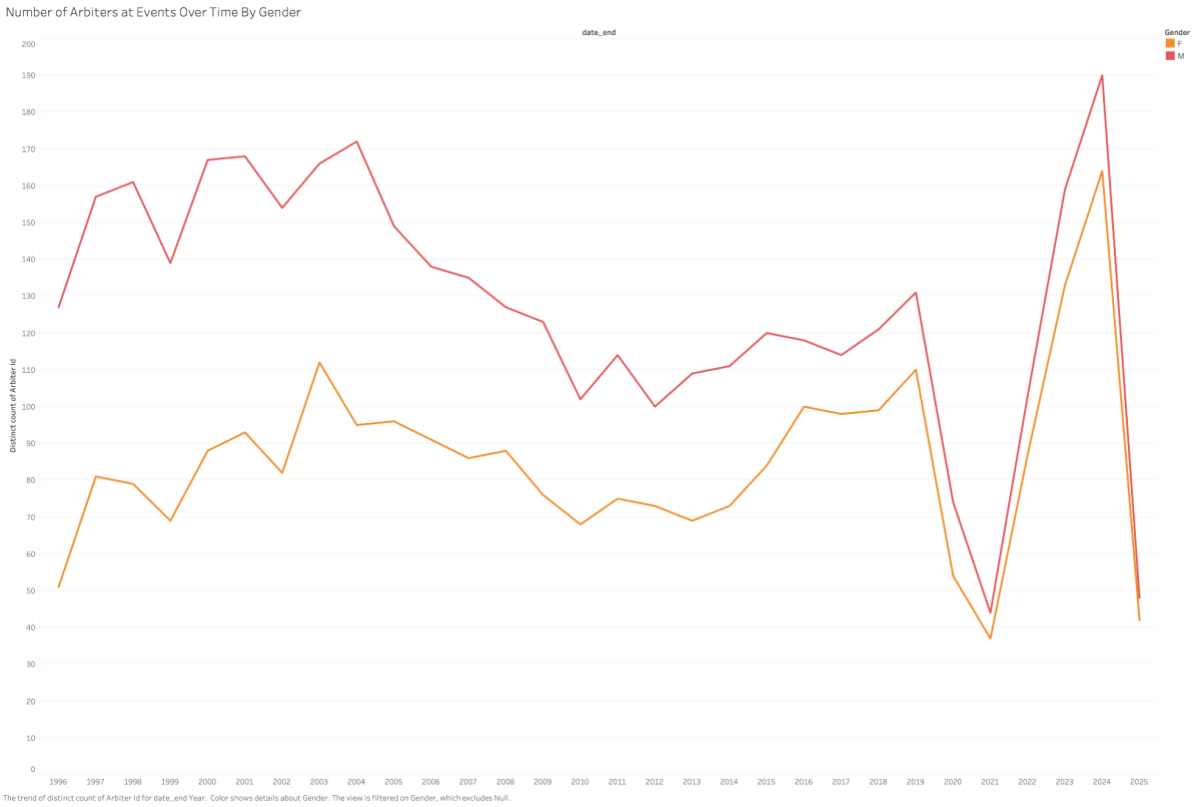
Visualizations by Andy



Player Gender Distribution by Province

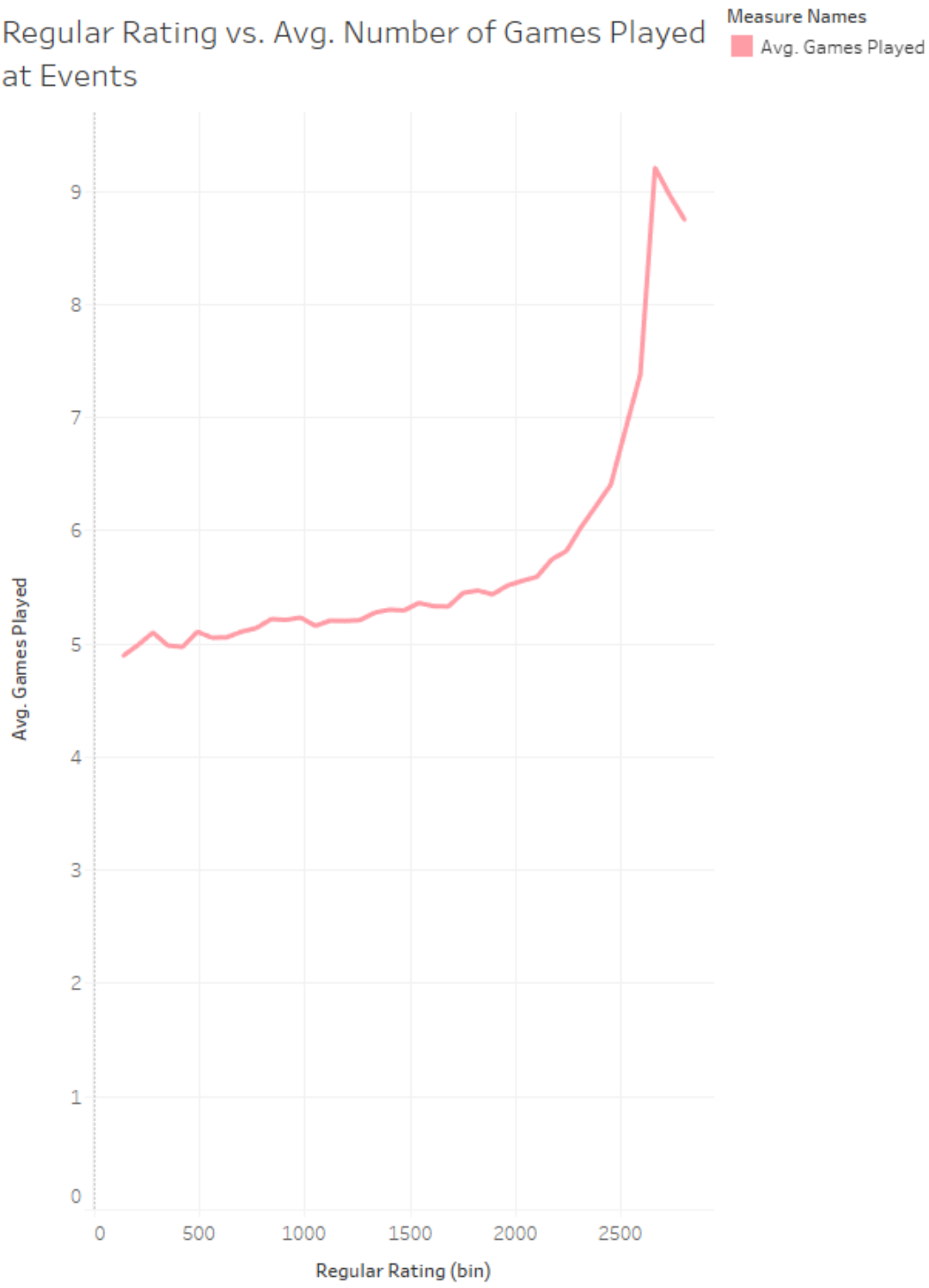


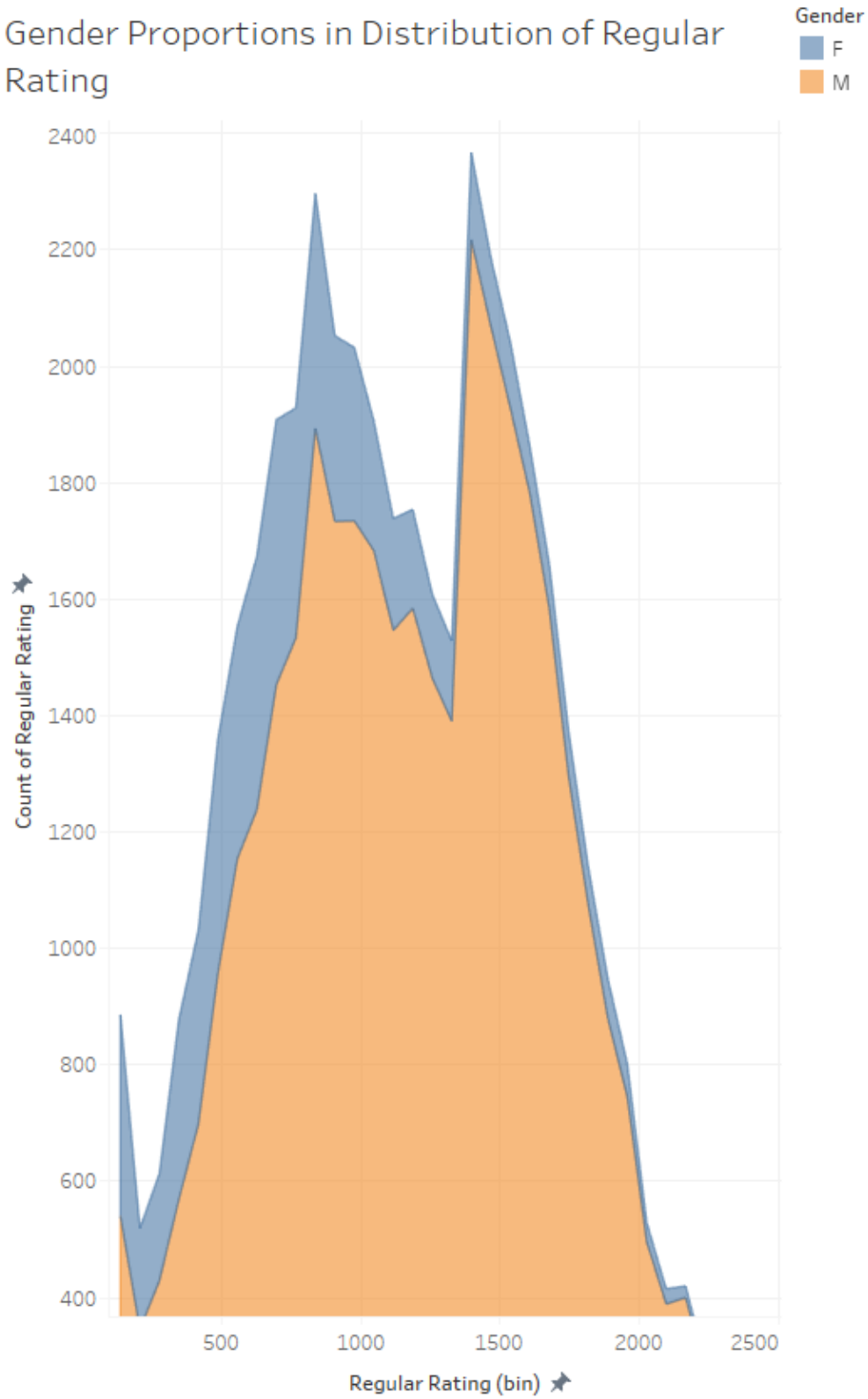
Count of Cfc Id for each Addr Province. Color shows details about Gender. The view is filtered on Gender, which excludes Null.



The Tableau visualizations focused on structured data that could be directly analyzed, such as player gender distribution by province, arbiters at events over time by gender, and player participation trends by rating category. These insights address aspects of the original questions, including gender differences in chess participation and rating trends over time. However, broader questions, such as predicting player performance, identifying the prime age for chess mastery, or understanding how to grow chess participation, may require more advanced analysis. Tableau might offer ways to explore these questions further, but as I am still learning the tool, I may not have found the best approach yet. The analysis focused on what could be effectively visualized with the available dataset.

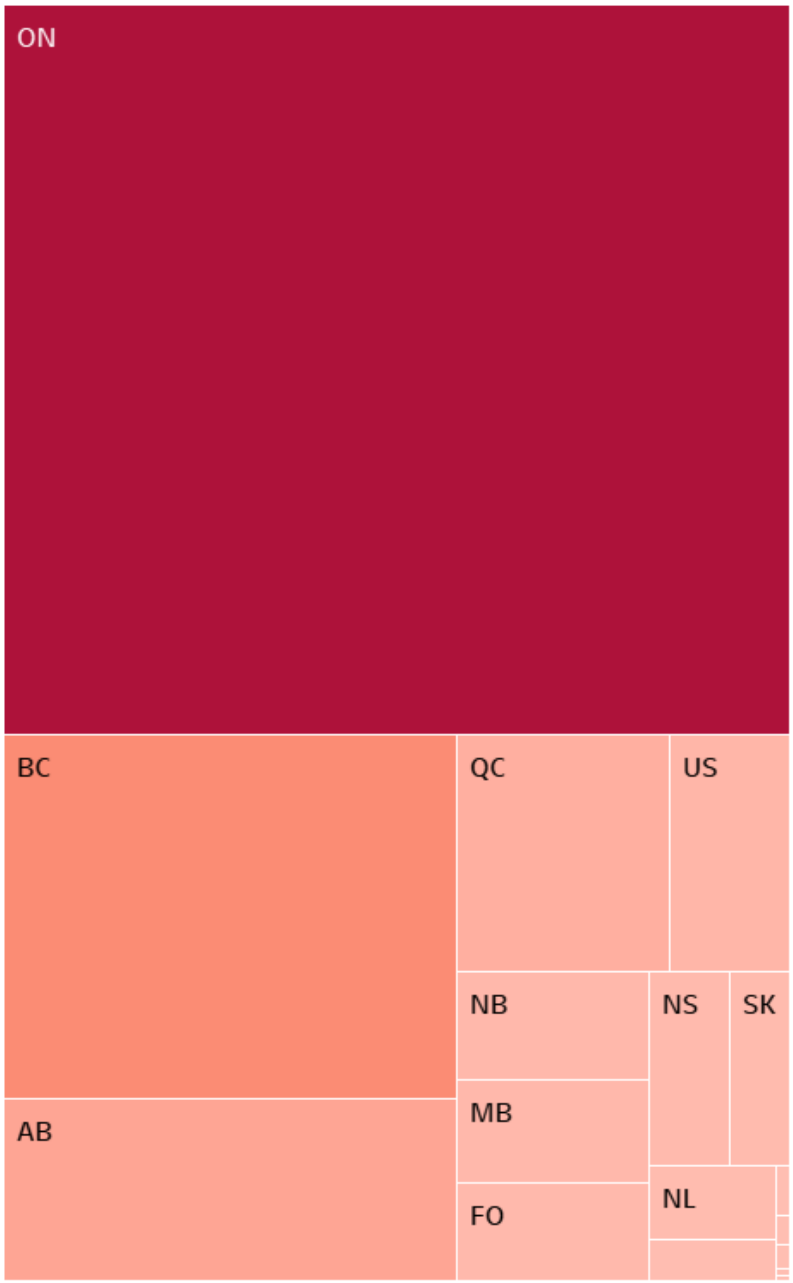
Visualizations by Harsh




Gender Proportions in Distribution of Regular Rating
Gender
F
M
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
Count of Regular Rating
500
1000
1500
2000
2500
Regular Rating (bin)

Distribution of Chess Players by Province

Count of player.csv
6 48,792



Addr Province. Color shows count of player.csv. Size shows count of player.csv.
The marks are labeled by Addr Province.

The questions that I answered in Tableau differed from the questions that we came up with as a team only in the sense that they were broader in scope–my new questions still provided answers for our original questions. For instance, as a team we asked what it takes for a player to become a National Master in Canada, a question that I answered in Tableau when I went after a more expansive question: what is the relationship between the average number of games played at events and a player's regular rating? I could have decided to limit my scope to the rating of National Masters, but I decided against it simply because I had access to more information than just that. The wealth of information made available to me made me want to broaden my scope as much as possible while still providing an answer to smaller and more targeted questions. I think that so long as you are not diluting the answer to a more narrowly focused question it is better to ask bigger questions.

W06

Week 6
(Feb 13 - Feb 19)
Sketch, Decide, Start Prototyping

Link to handout: CSC316-Final-Project-Week-06-Instructions_2025.docx
Link to Week 6 deliverables in Project book: CSC316 Project Book - The Great Visualizers

Audience: *People who want to learn about the development of elite Canadian chess players, focusing on the Canadian National Masters listed on the official CFC website*

Topic: *What does it take to get to the top of Canadian chess?*

Data Clarification:

- Our cleaned data is available here: cleaned-data, and population data from Canada Census Population Data 2021 here
- National Masters are players in the CFC database who have achieved performance ratings of >2300 at least three times and regular ratings of at least 2200 **OR** who have achieved 2300 regular rating based off of a minimum of 20 games. We will NOT base this off of the CFC-titles list because it may be in-accurate.
- FIDE-elite chess players
    - https://www.chess.ca/en/elite/fide-titles/
    - Subset of the National Masters (Canadian born) who have achieved FIDE Master, International Master, Grandmaster titles.
        - We have data on International Master and Grandmaster player games.
    - Also note that some FIDE Masters, International Masters, and Grandmasters will NOT be National Masters if they have immigrated to Canada.

New Questions from Map Phase

These are the updated/revised questions after meeting with our TA at our initial check-in meeting on Feb 21

Question ID	Question
1	How long (time) do you have to play to become a National Master?
2	How long (games) do you have to play to become a National Master?
3	What percent of players make it to that level? How rare is it to become a National Master.
4	At what age do players become National Masters? How has the trend changed over time?
5	What events contributed to those players becoming National Masters?
6	Which organizers and arbiters have organized events which have been popular with elite chess players?
7	What is the demographic of the National Masters in Canada? Gender breakdown. How old are National Masters today? Where are they from?
8	Who are the favourite players of elite chess players? Who have they played the most?
9	Which years do players make the most improvement in their chess?
10	What age is too late to become a master?
11	When do chess players peak in their rating skill?
12	How do chess players train? How many tournaments do they play annually and in what format?
13	What are their win/loss/draw rates of National Masters?
14	What are the games that the top chess players? What are the games that took them to become National Masters?
15	What happens after players become National Masters? Do they continue to improve or stop afterwards?
16	What are the top chess openings that top-chess players play in Canada?
17	Who are the top-Canadian born chess players in Canada? What are their backgrounds? Their story? Grandmasters -> Wikipedia? Those who went from National Master to achieve International/Grandmaster titles.

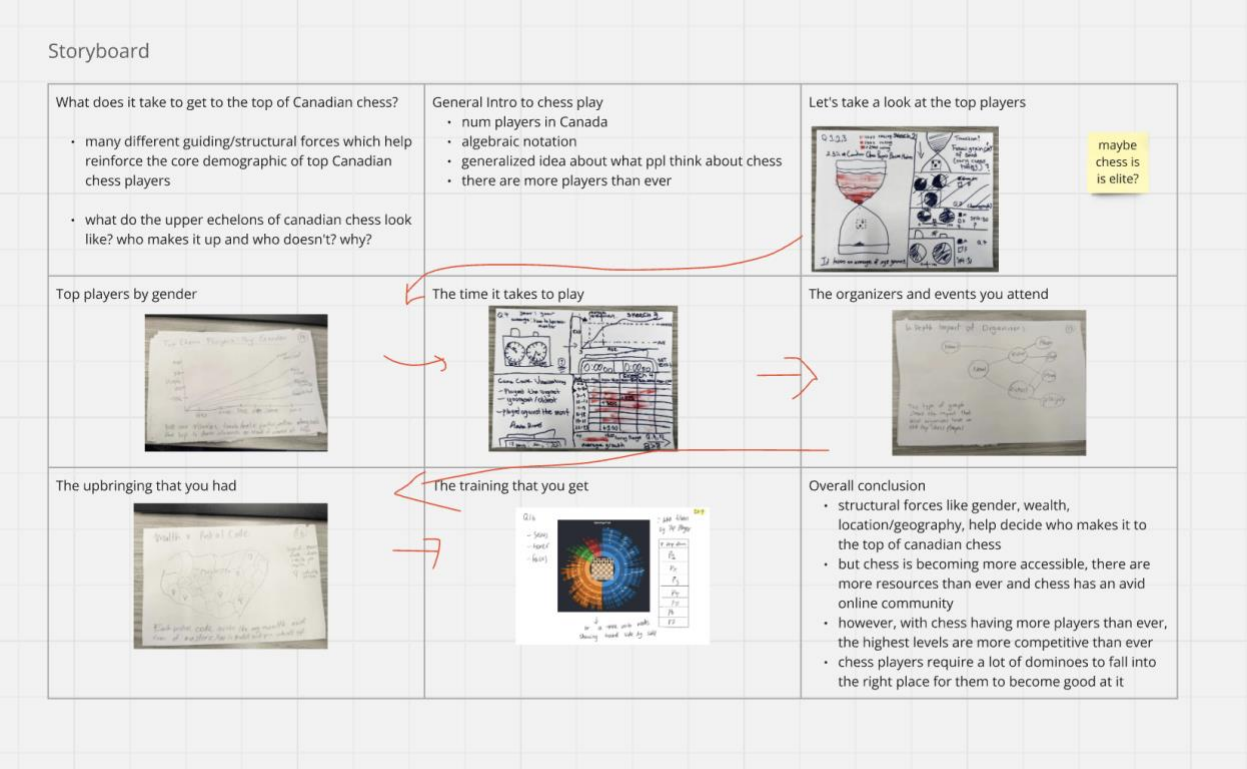
Affinity Diagram

Sketch ID	Question ID	Votes	Author
1	7		HB
2	1, 2, 3	VZ, AF, HB (3)	HB
3, 4	4, 9, 10, 11	VZ, AF (2)	HB
5	16		HB
6	3		AF
7	7		AF
8	4,10		AF
9	16	VZ, AF, HB (3)	AF
10	17		AF
11	7		VZ
12	5, 6		VZ
13	5, 6, 14	VZ, HB,AF (3)	VZ
14	7, 3	HB, VZ,AF (3)	VZ
15	13		VZ
16	7	HB (1)	VZ

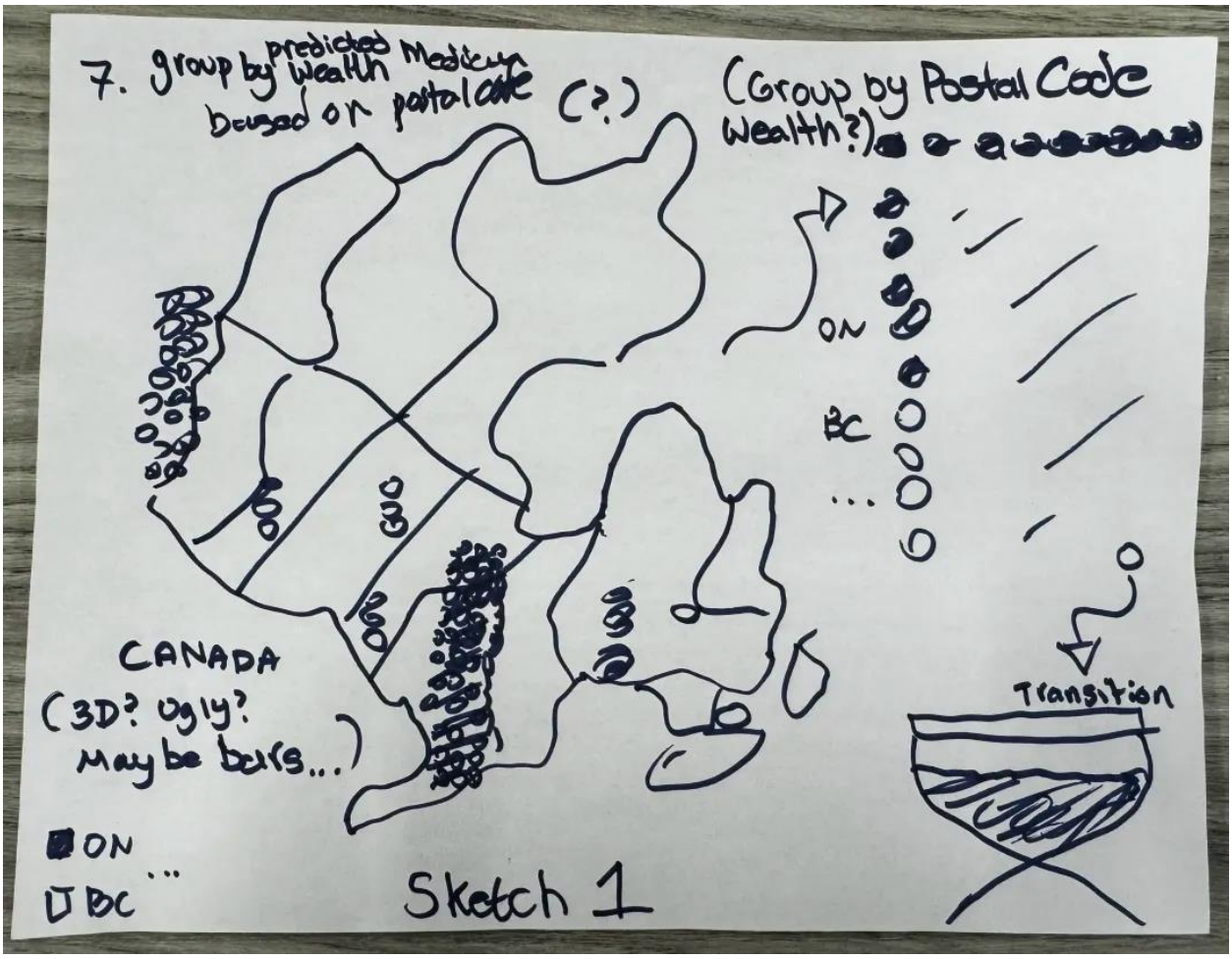
We chose the top-6 above to include in our sketches.

Sketching

We completed our sketches on Miro with a link to the board available here

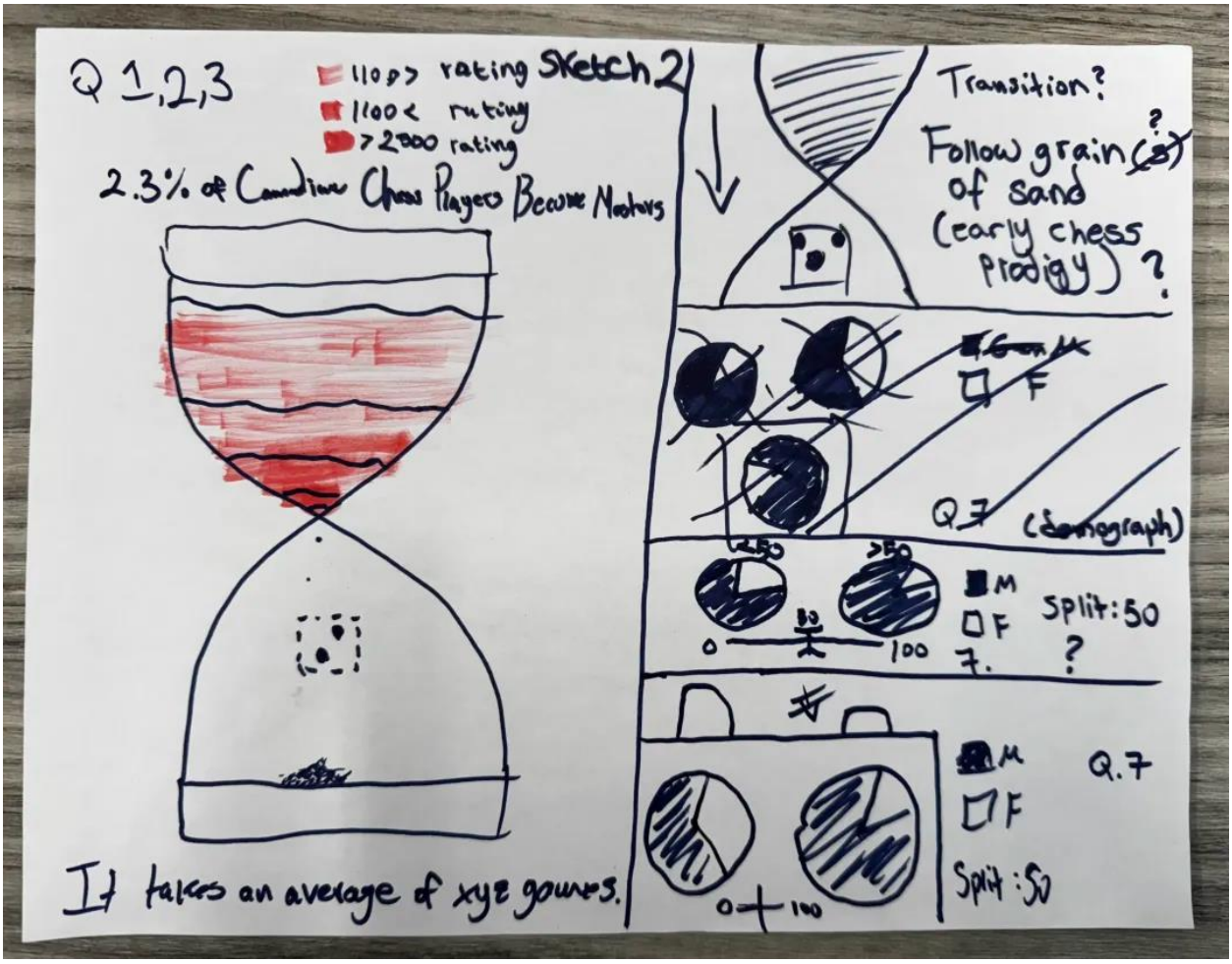


Sketch 1
HB



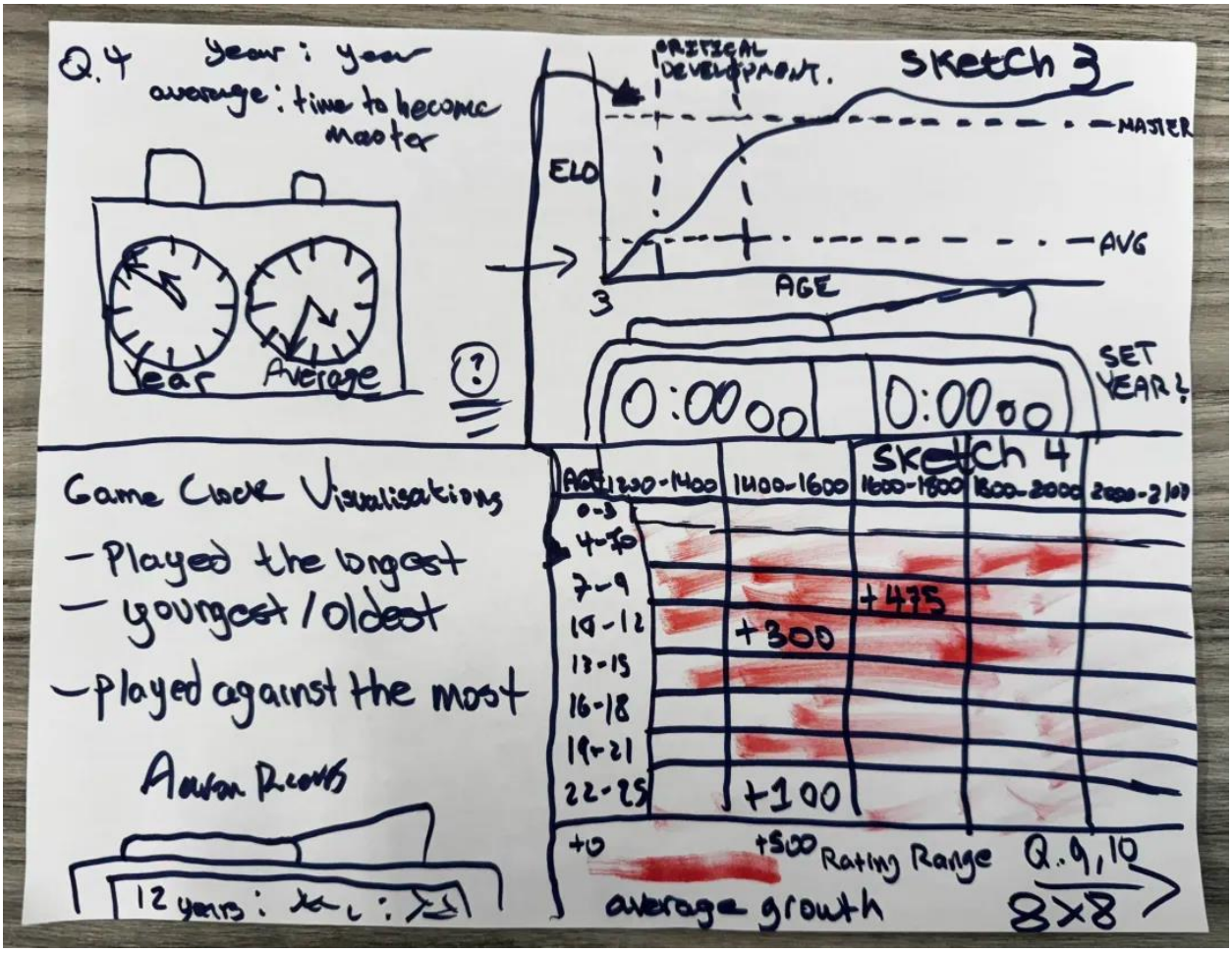
This sketch shows the origins of players within Canada, grouping n players by their postal code and scaling them down to a single pictogram. We plan on following a single pictogram into an array of all groups in Canada, grouping them by province and, optionally, sorting them by wealth / measuring them by a wealth gradient.

Sketch 2
HB



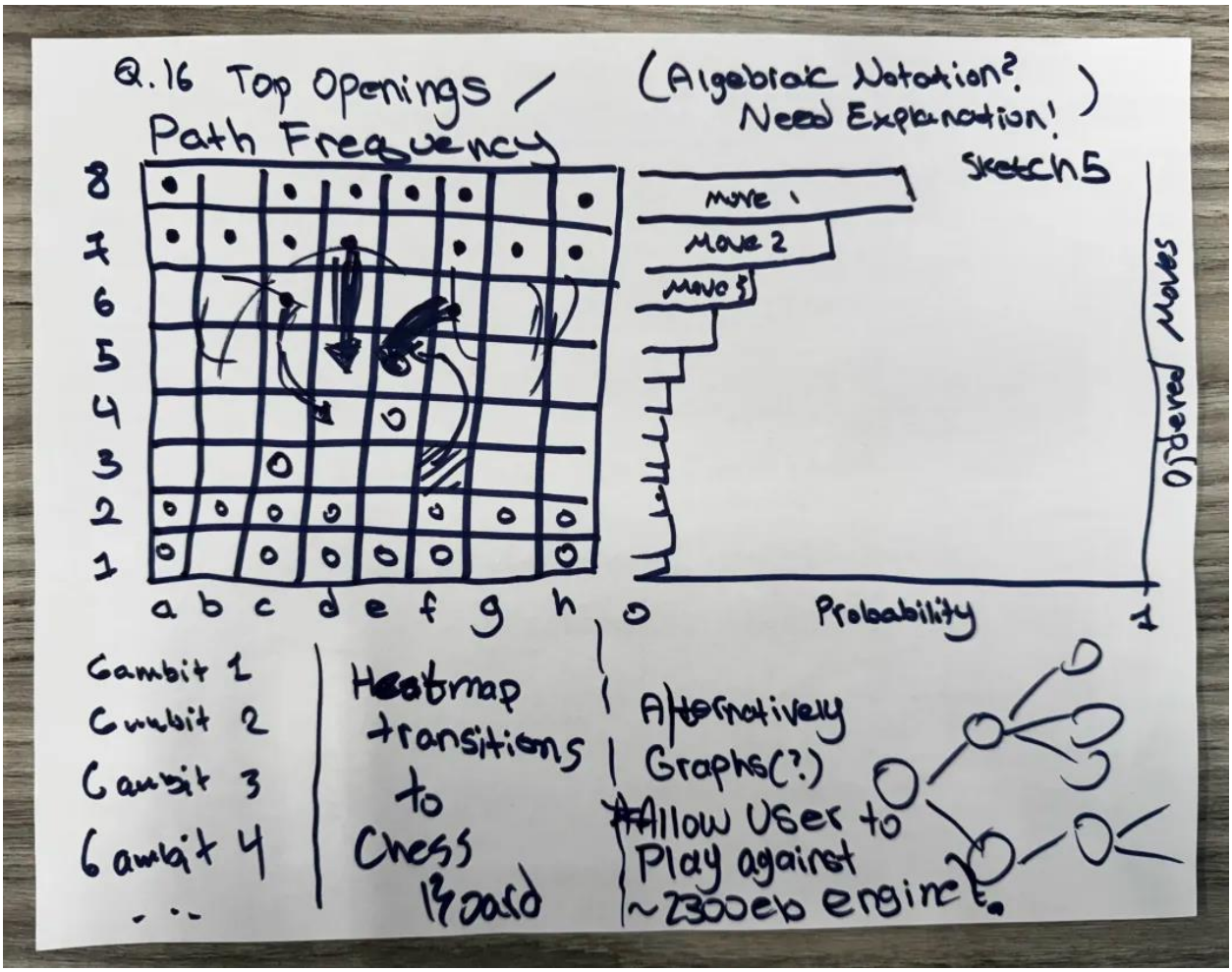
This sketch, which transitions from the last sketch, follows a pictogram into an hour-glass. The ‘grains’ of pictograms representing Canadian chess players. Optionally, the funnel is divided into layers by their rating group. We zoom-in on the falling grains, representing national masters, which now transition into two pie charts displaying the gender divide of Chess. A slider for age allows the user to view the gender split for different age ranges. As we continue scrolling, the grains fall seamlessly into the twin-clocks of an analog chess clock (perhaps we only display the pie charts at this point, as opposed to displaying them earlier).

Sketch 3 & 4
HB



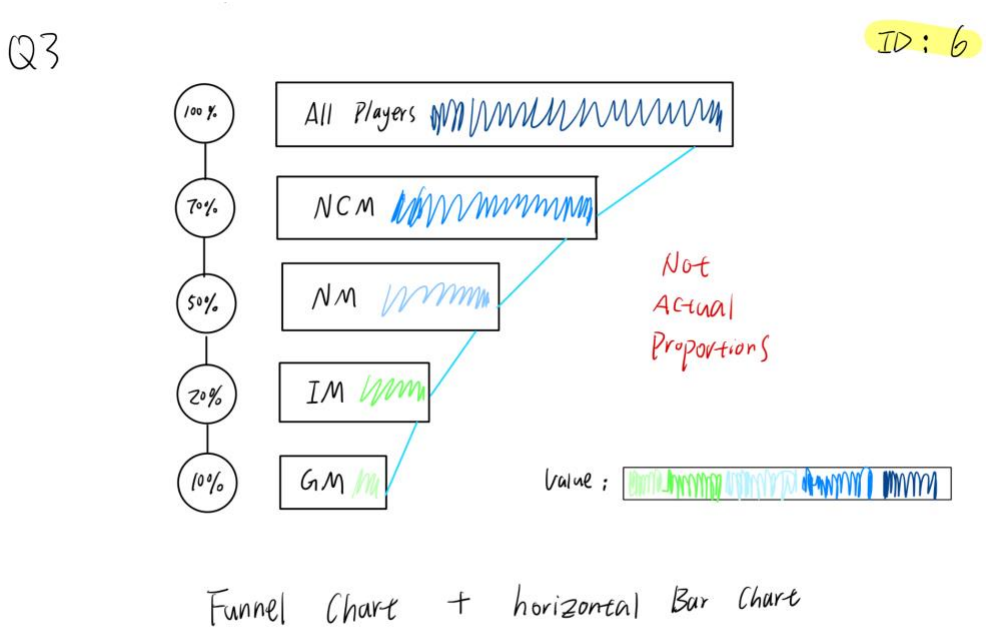
This sketch, which transitions from the last, continues with our analog chess clock. The clock on the left is moved counter-clockwise by the user to move back in time (scaled by some factor of course), and the clock on the right is used to show the average age to become a national master (we either scale years down to fit on a 12-hour clock, or we make use of multiple dials to represent years and months). The analog chess clock could also be used to answer some trivial age-based questions, like what are the ages of the oldest and youngest national masters? The button on the left is finally pressed down, and the sides switch. The analog clock evolves to a modern digital one–out with the old and in with the new generation. The clock gently lowers into place while a chart fades into view, showing the relationship between age and elo (for players who went on to become national masters). The critical development period, when young players grow the most, is highlighted. The clock begins generations ago, moving up incrementally by year, showing the critical development period shifting left over time. We zoom into the critical development range, and an 8x8 heat-table expands into view, showing median elo growth (dark for high, light for low) at different rating ranges for different ages.

Sketch 5
HB



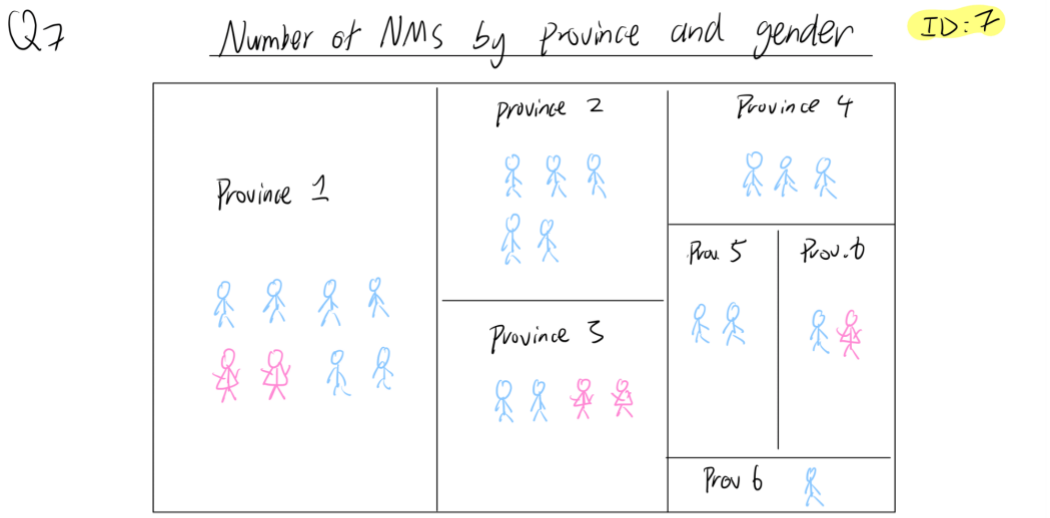
This sketch showcases the frequency and probability of different chess openings, gambits, and moves (based off of the state of the board) made by national masters. An 8x8 chess board (transitioning from the previous heat table) shows the most likely moves, the colour and size of the move representing its probability. Beside the chess board (which shifts to the left before the visualization begins) is a bar graph showing the probability of different moves (using algebraic notation). Alternatively, we may use a graph based visualization to help navigate through moves.

Sketch 6
AF



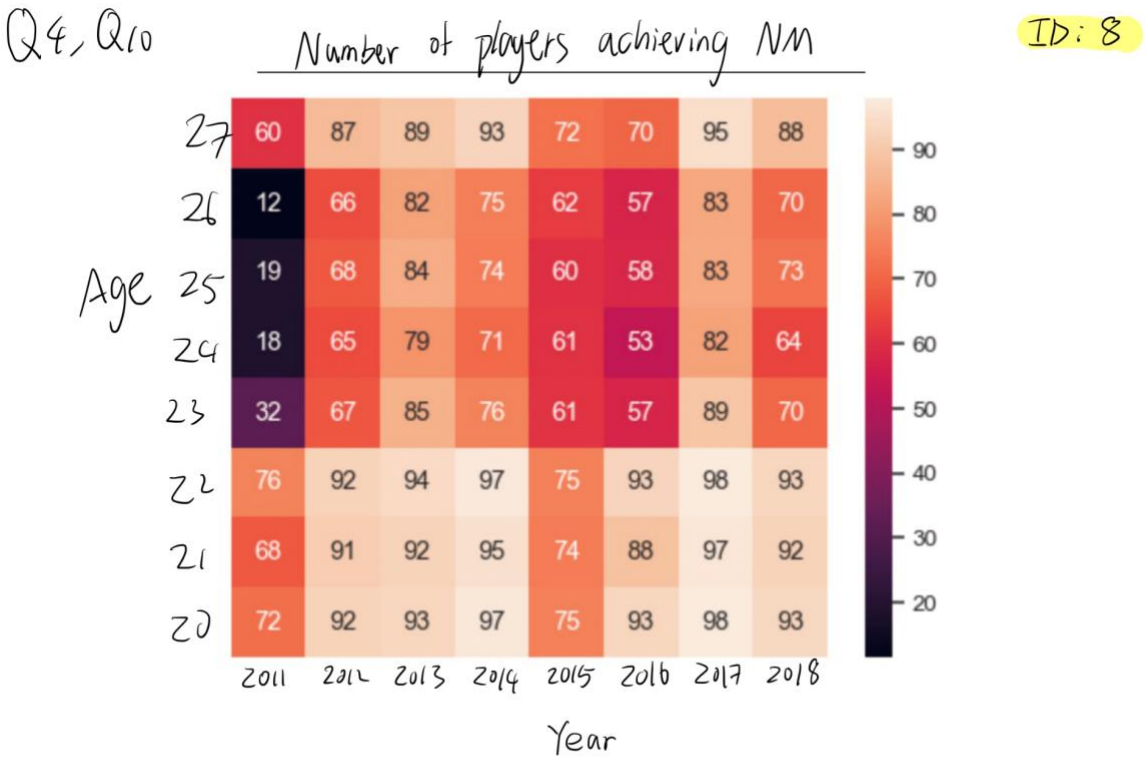
This is essentially a funnel chart or inverted pyramid chart which shows the flow of players as they reach the pinnacle in a hierarchical order. For example we start with the general population and visualize the proportion of those who achieve the title of NCM, and so on. Additionally the gradient could visualize the values i.e number of players in each level on a spectrum with dark blue being the max and light green being the minimum.

Sketch 7
AF



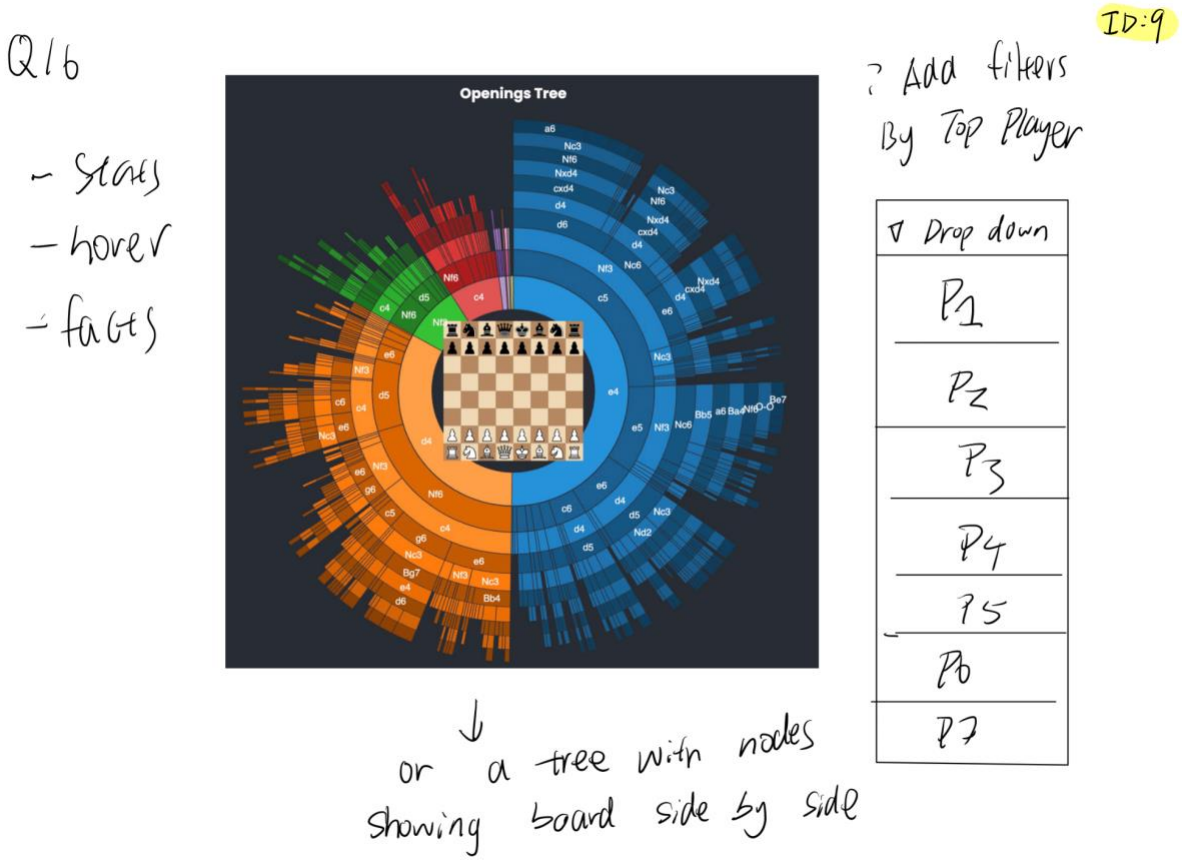
This is a treemap of the Canadian provinces. The size of the squares represent the number of top players born in that province. Inside the squares pictograms are used to depict the gender breakdown of the top players i.e (National Masters)

Sketch 8 AF



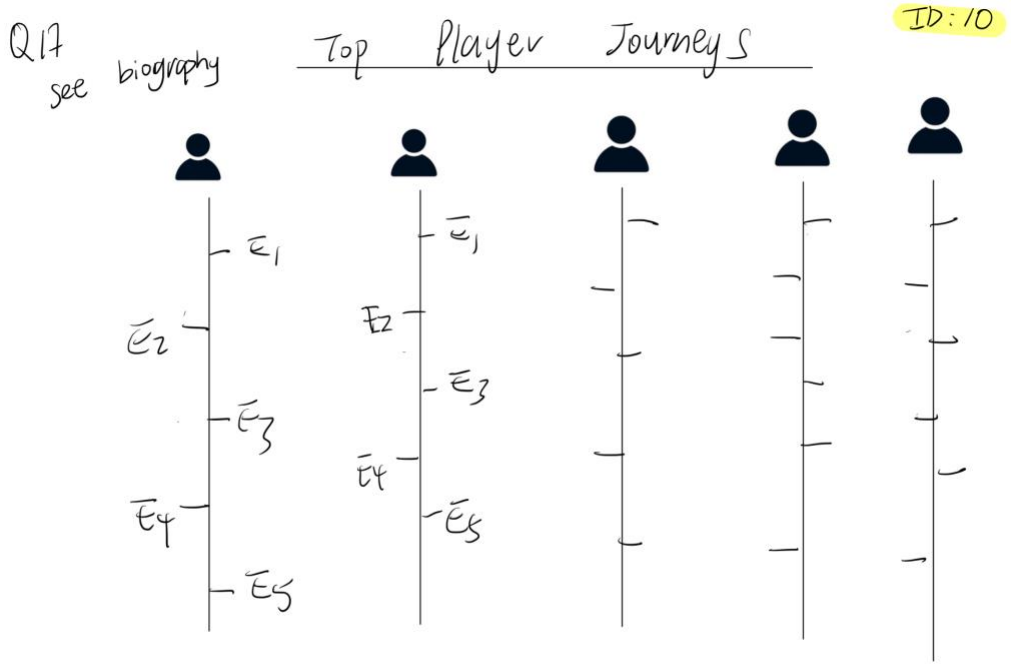
This is a heatmap matrix that shows the year-age combo of top players i.e what year and what age they are at when the master title is achieved. The gradient provides more detail and context so the magnitude of numbers could be better understood.

Sketch 9
AF



This shows a sunburst chart that highlights the opening sequence by top players, Additional options are to filter based on other criterias.

Sketch 10
AF

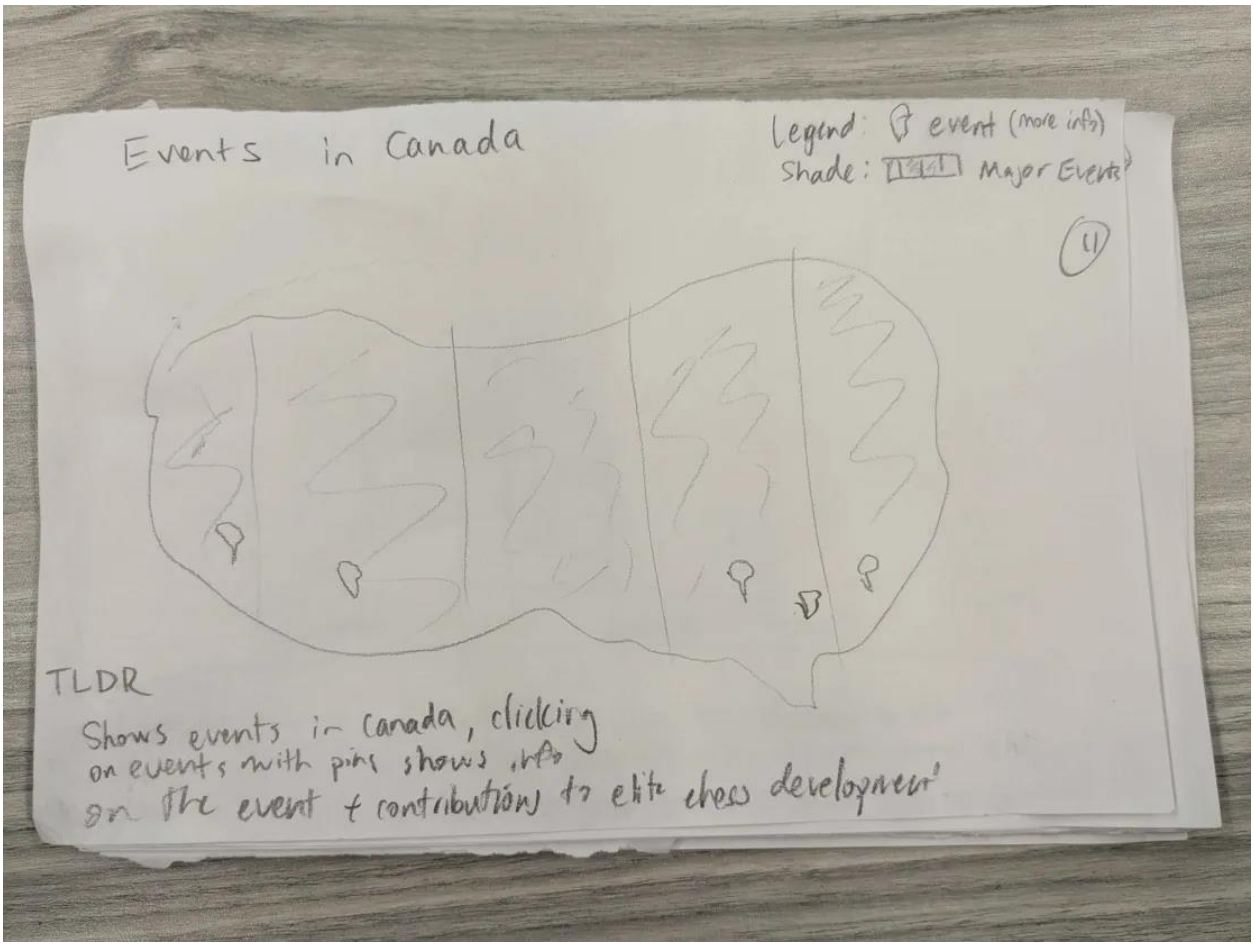


This is a visualization that aims to provide more information in a timeline form of top player journeys. Enables options to view biography and clickable elements that highlight important milestones(either data driven insights we uncovered or other research)

Sketch 11
Victor Zheng

Question answered: Q7

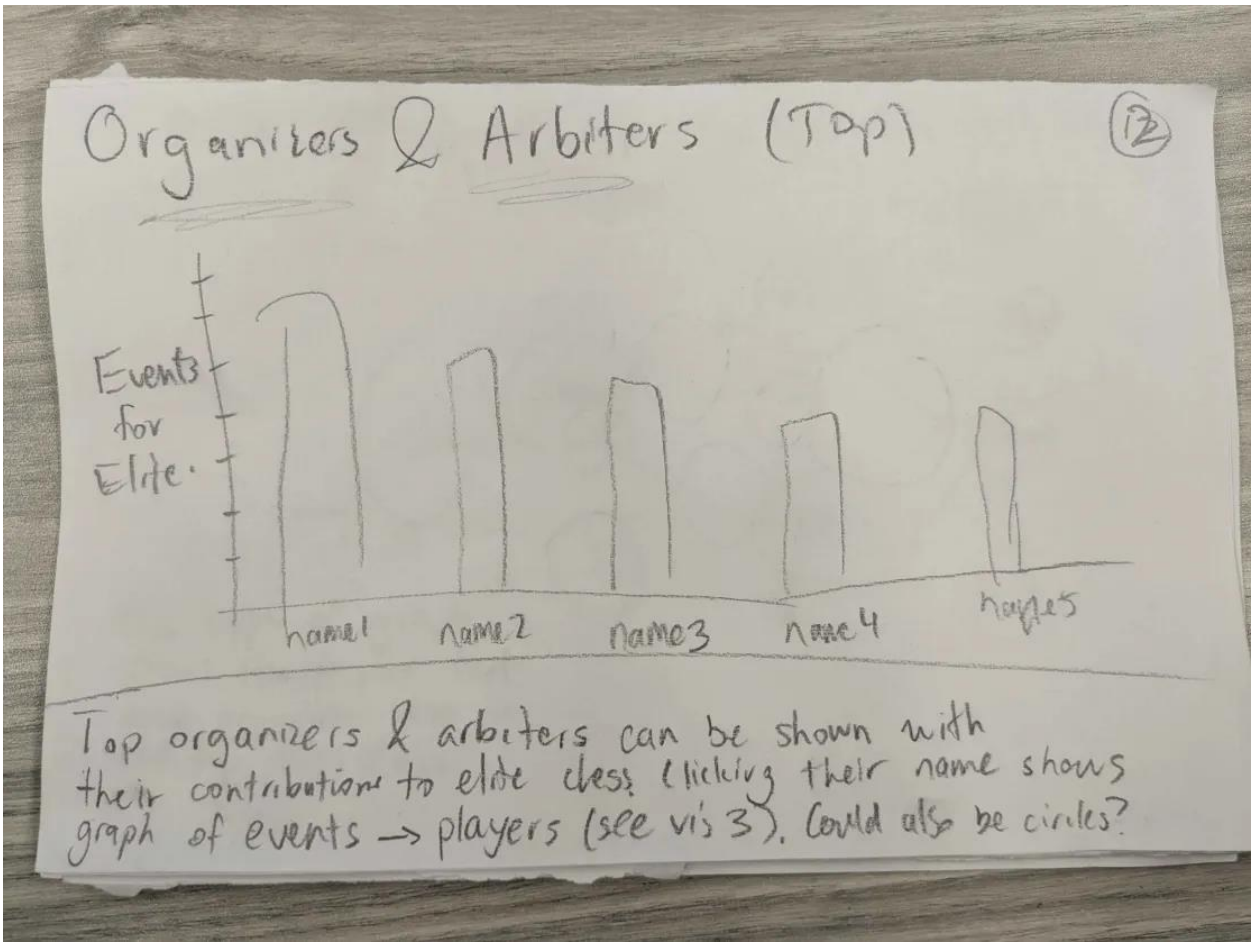
This is a visualization that showcases events across Canada and the top events specifically. Each pin represents the top-5 events. Clicking on the pin would showcase additional info about the event. We would measure that the event is in the top-5 by saying that an event is in the top-5 if it has contributed to the “norms” of chess masters.



Sketch 12
Victor Zheng

Question Answered: Q6, Q5

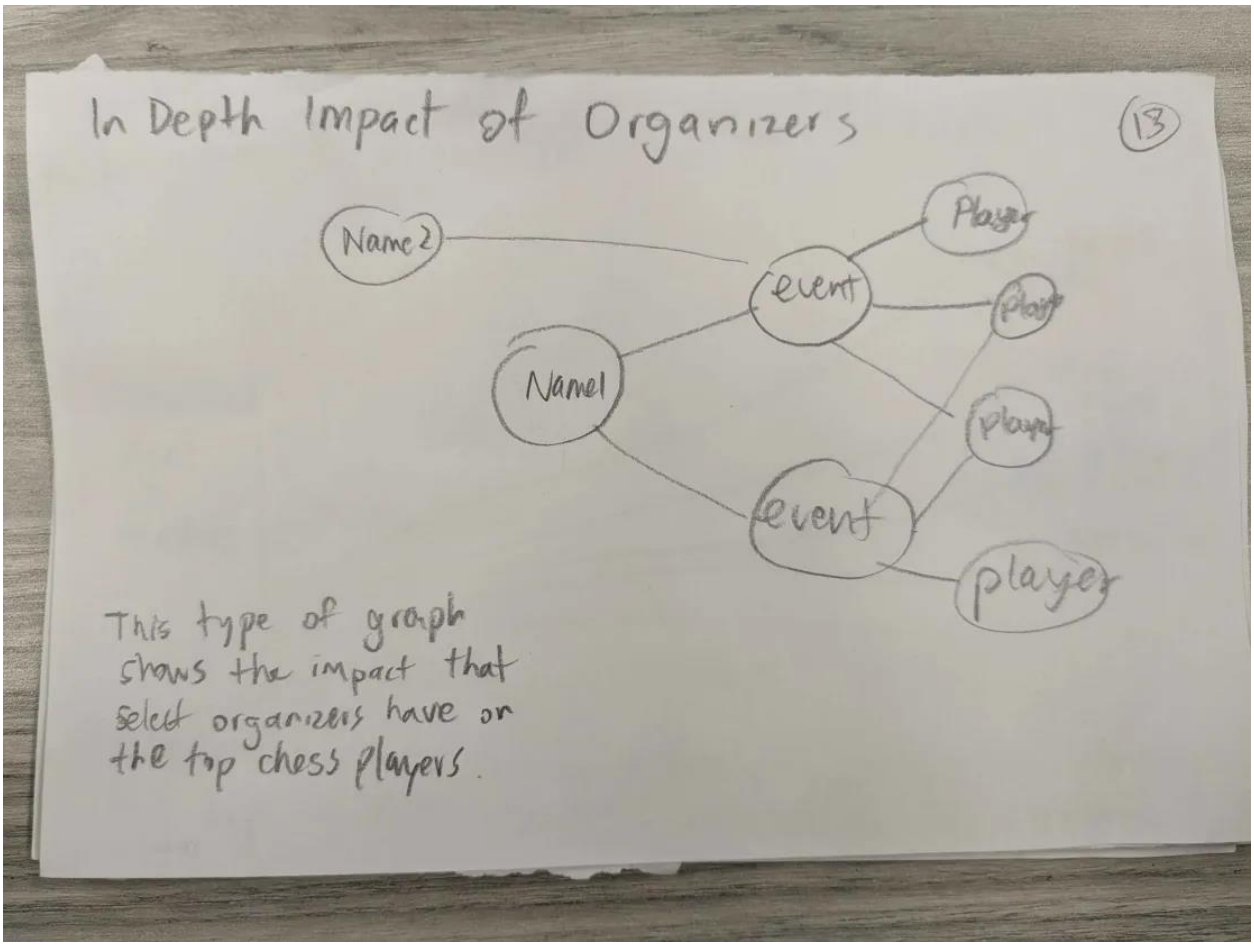
This is a simple bar graph which answers the question of which organizers and arbiters have organized the most events. On the x axis would be the names of the organizers and on the y axis the number of elite chess events organized by the organizer.



Sketch 13
Victor Zheng

Question Answered: Q14, Q6, Q5

This visualization is a graph that goes along with Sketch 13. We have the names of the organizers and the events that they have positively affected. All the events and players are connected in a network. This would be easy given our data which is in three separate csv files.

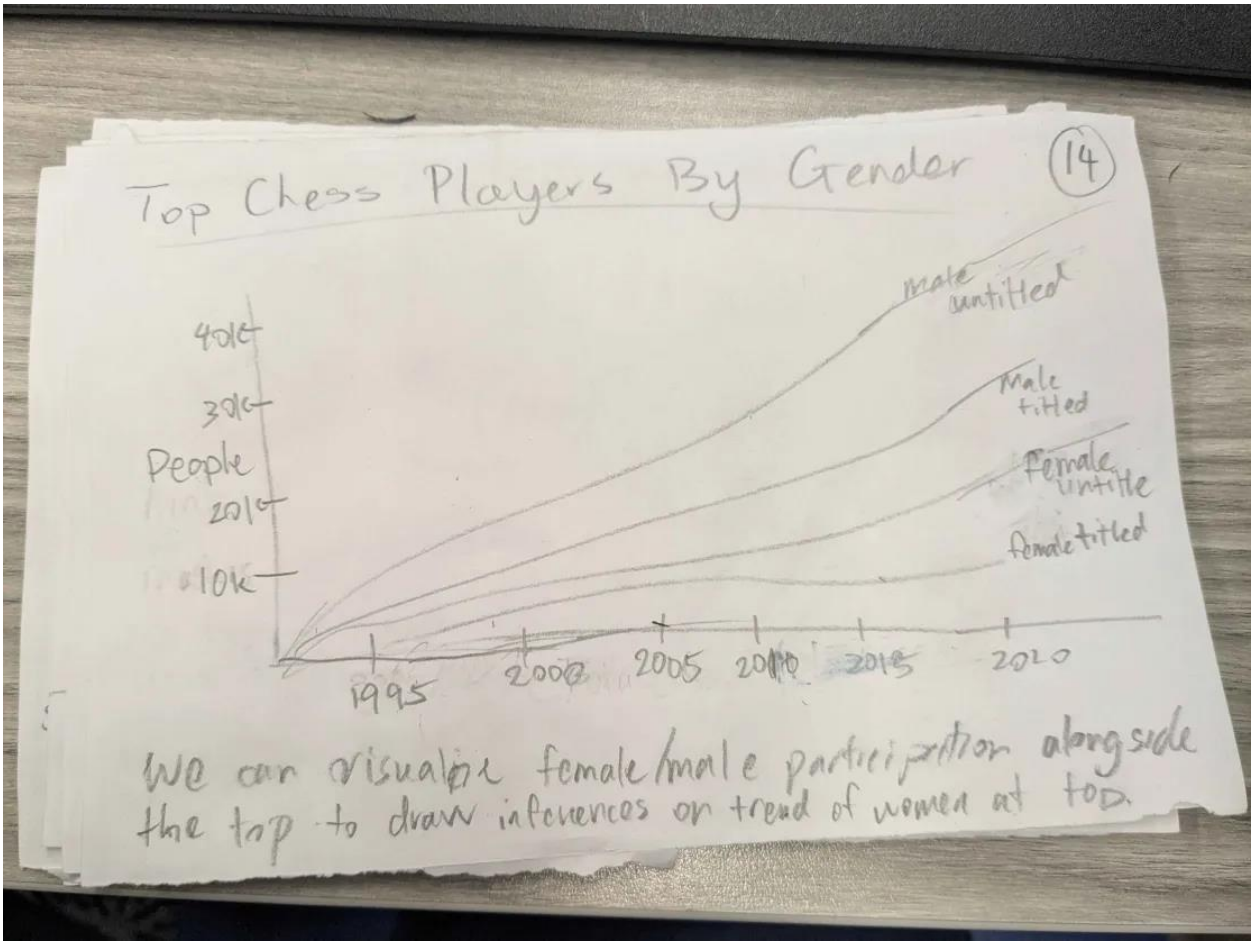


Sketch 14
Victor Zheng

Question answered: Question 7, 3

This is a visualization that tackles the problem of gender divide in chess. It is a stacked area chart where the x axis contains the years that players join chess and the years that people become National Masters. We want to visualize since 1996 whether male titled players have risen proportional to female titled players. We can do so by looking at the total number of female/male players.

We can also look into how rare it is for players to become National Masters.

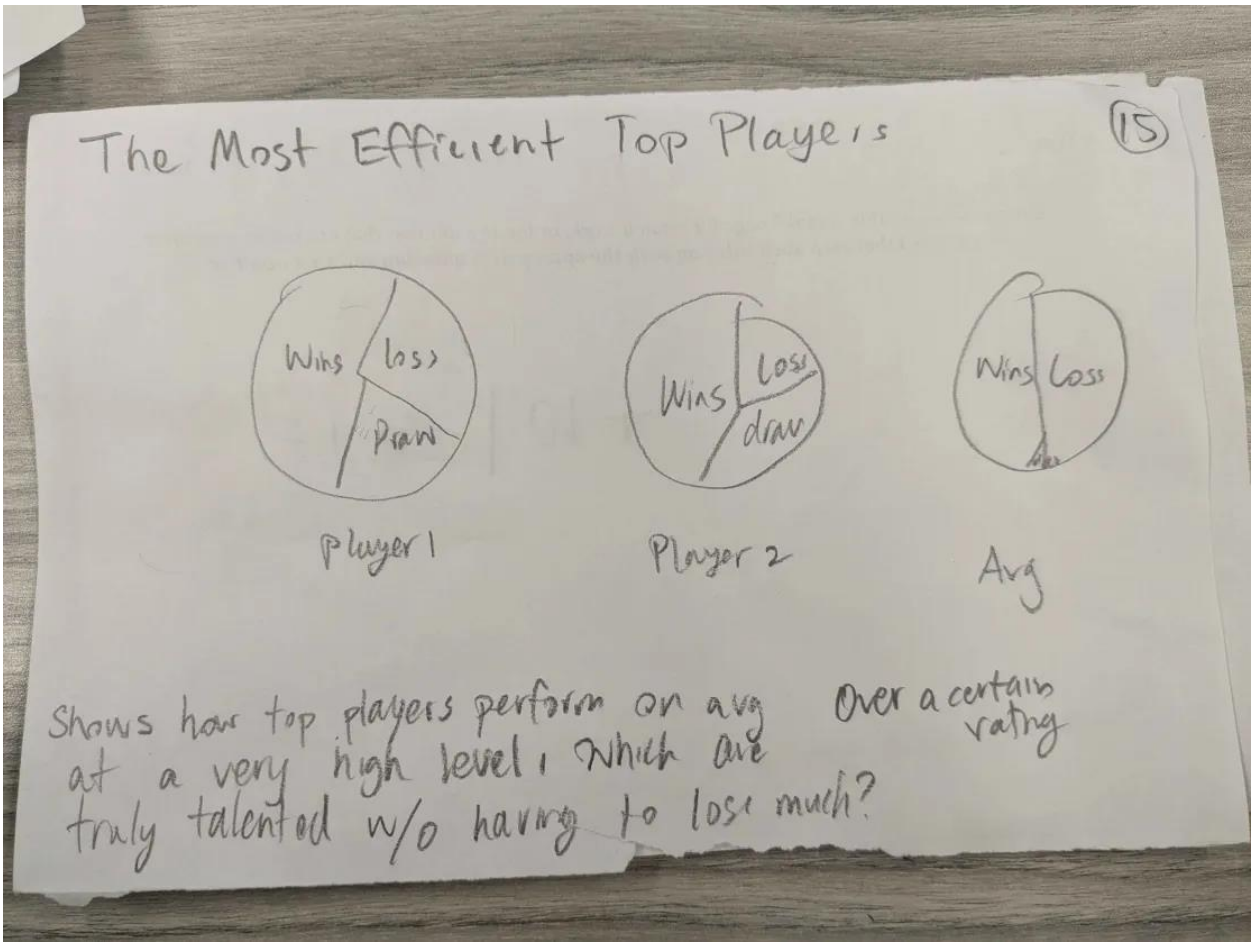


Sketch 15
Victor Zheng

Question answered: 13 (win/loss ratio)

This sketch looks at the efficiency of National Masters in terms of win/loss ratios. It would involve a few circular pie charts showing the number of wins that a player has over a certain elo. For instance, if a player consistently scores over 80% wins against over 2200 elo players then we could visualize this data.

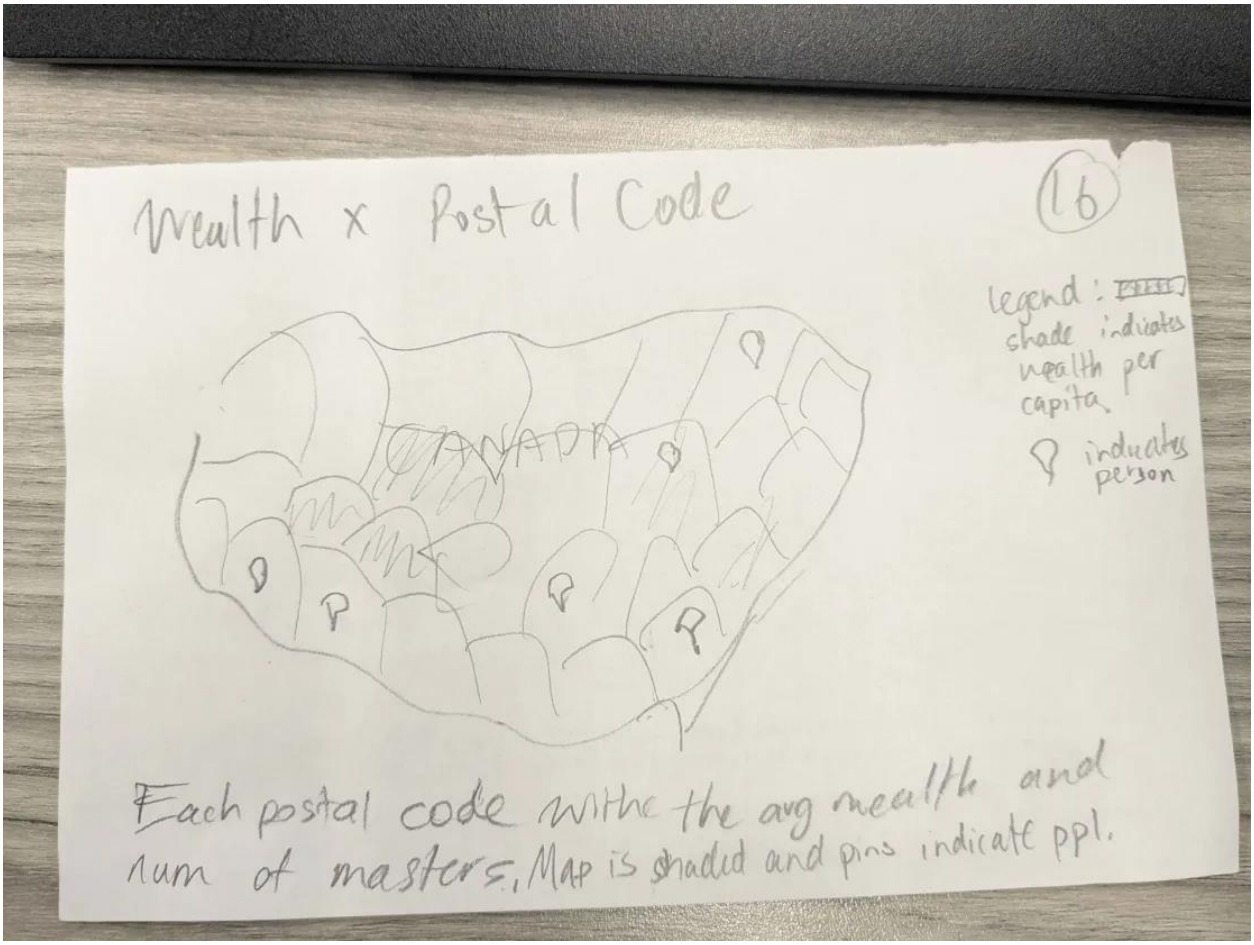
The insights of this graph could determine whether some National Masters are more efficient and more deadly than others. It may help in understanding whether some players have “talent” and others have “hard work”.



Sketch 16
Victor Zheng

Question answered: 7 (demographic of players)

This sketch shows the impact of wealth on the top players in Canada. It tries to showcase the impact that coming from a wealthier background brings to elite chess. We would be able to interpolate whether being from a wealthier family results in higher performance at chess events.



W07

Week 7
Prototype 1

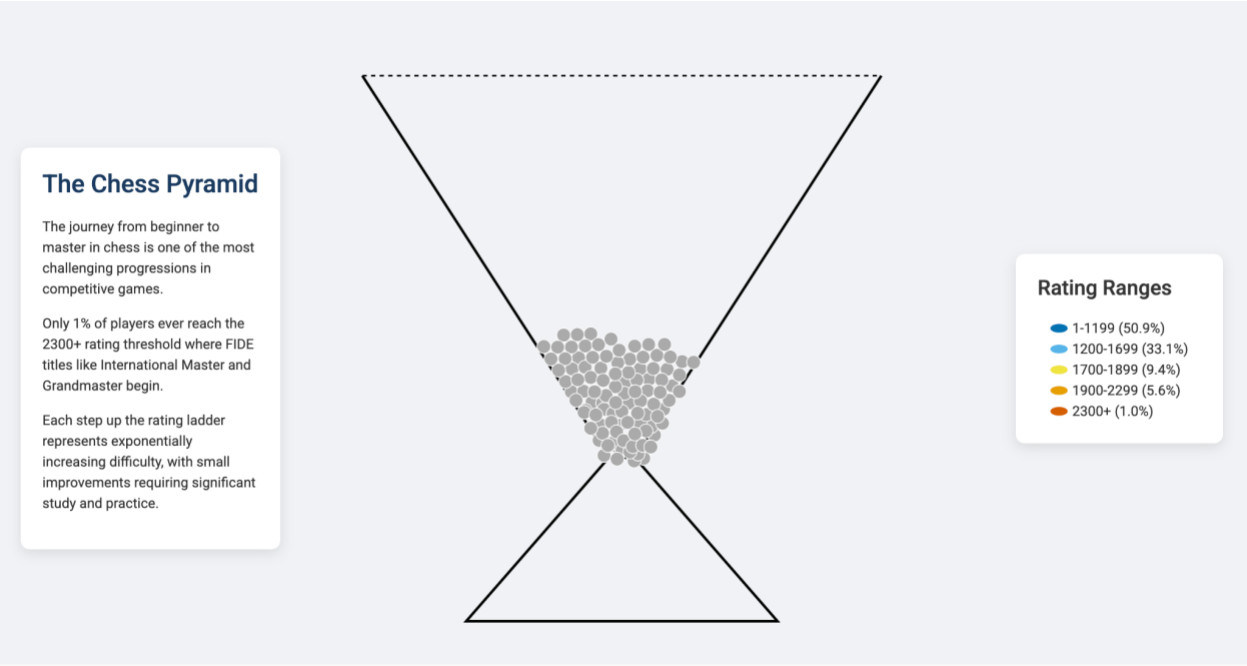
Prototype version: https://chessviz.github.io/canadian-chess/

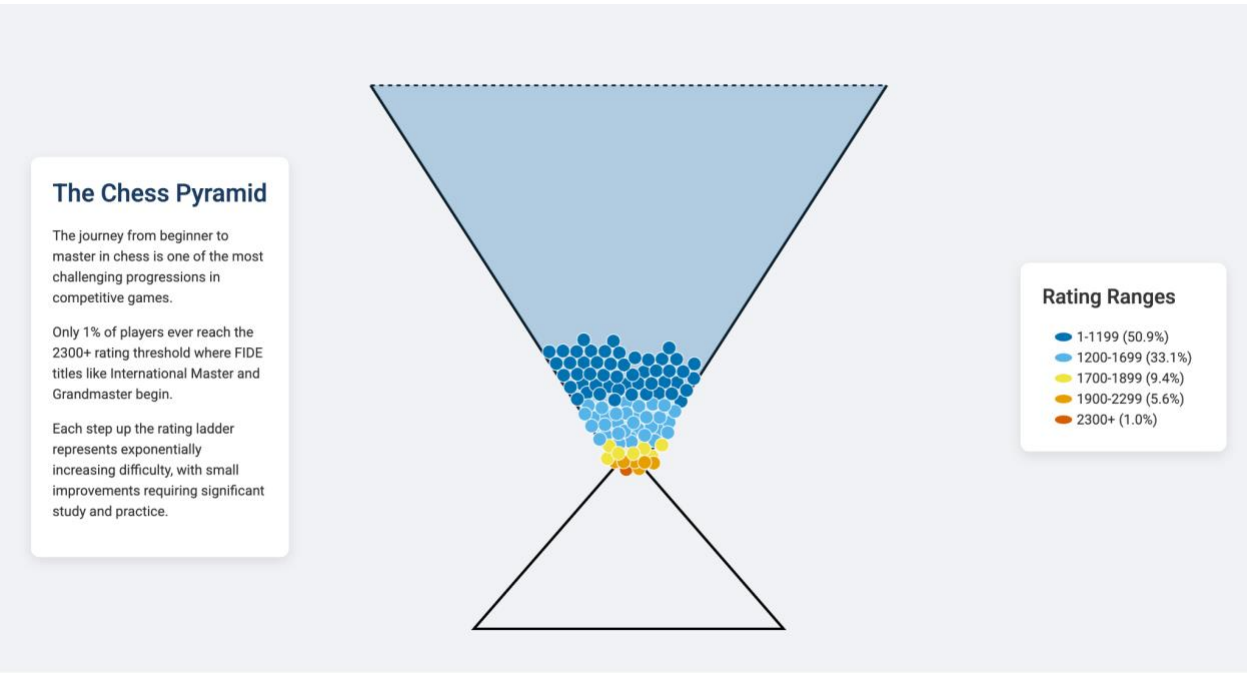
GitHub: https://github.com/chessviz/canadian-chess

Link to Week 7 deliverables in Project book: CSC316 Project Book - The Great Visualizers

Innovative Design

Our innovative design is a funnel containing balls. The balls fall from the funnel indicating the number of ppl who make it through to the top of Canadian chess.





New Version of our Storyboard

On Miro: https://miro.com/app/board/uXjVIYSFz2s=/

W08

Week 8
Prototype 2

Prototype version: https://chessviz.github.io/canadian-chess/

GitHub: https://github.com/chessviz/canadian-chess

W09

Week 9 - Final Project - Test
Project book: CSC316 Project Book - The Great Visualizers

Think Aloud Study 1

For each think-aloud session, create a new copy of the feedback table below in your process book. During the session, one team member should carefully listen to the tester and document their observations and feedback in the "Notes" column. Ensure that all sections of the table are completed for each tester. **If your group has 3 or more members, you must conduct at least two independent think-aloud sessions and document feedback for both.**

	Notes (To be filled by project leads)
Tester Name	Jeanine Ohene-Agyei
Describe any usability issues or confusion the tester encountered while using the prototype.	Theming inconsistencies, broken features, no introduction to players and/or not enough context
Was the tester able to understand the main message of the data story? (e.g., Yes/No + why/why not?)	Tester understood the main message as a deep look into the inner-world of Canadian chess because we did not go into details about the old generations vs. the young generation and just looked at chess at a high level
What parts of the interface or visualization did the tester find most engaging or effective?	The globe (which they thought we could implement more visualizations with) and the hourglass/funnel (which needs to be fixed)
What parts did the tester find confusing or less effective?	Anything involving the two players (not enough context/no introduction), masters per year chart (was not intuitive enough, wanted age information too)
Did the tester encounter any inconsistencies in design, data, or narrative?	Everything was related to chess in one way or another and thus seemed connected, but the age factor was brought in seemingly randomly at times and did not seem connected enough
Were there any unexpected interactions or insights that emerged during the session?	Broken features
What specific improvements or changes did the tester suggest for the prototype?	Focus on age, more globe stuff
Did the tester suggest any additional insights or visualizations to include?	More visualizations focused on rivalry, more examples, more context for people who do not

	understand or play chess, also more of a reason as to why all of this matters
General observations or comments from the tester.	All of the different pieces are there in one way or another, focus on bringing it together

Week 9 - Testing

Think Aloud Study 2

For each think-aloud session, create a new copy of the feedback table below in your process book. During the session, one team member should carefully listen to the tester and document their observations and feedback in the "Notes" column. Ensure that all sections of the table are completed for each tester. **If your group has 3 or more members, you must conduct at least two independent think-aloud sessions and document feedback for both.**

	Notes (To be filled by project leads)
Tester Name	Haya Tariq
Describe any usability issues or confusion the tester encountered while using the prototype.	- Confusion in interactive elements in the visualizations (especially in the funnel visualization) - Some parts were not accompanied with an explanation
Was the tester able to understand the main message of the data story? (e.g., Yes/No + why/why not?)	- Kind of (she wanted more explanation on several topics)
What parts of the interface or visualization did the tester find most engaging or effective?	- Brush/zoom in for the chess progression of the two players
What parts did the tester find confusing or less effective?	- Message conveyed by the visualization might not be super clear for a person not too familiar with chess e.g. Chess player rating distribution (confusion about the context and visualization) - They would like a explanation on chess ratings before diving in - Confusion about the connection from the player to the map - Funnel animation was slightly distracting - Starting rating of players?

Did the tester encounter any inconsistencies in design, data, or narrative?	- Need to fix up the font/color inconsistencies
Were there any unexpected interactions or insights that emerged during the session?	- Clicking on parts that were not designed for interaction
What specific improvements or changes did the tester suggest for the prototype?	- Hover for chess rating distribution
Did the tester suggest any additional insights or visualizations to include?	- Explanations on certain visualizations
General observations or comments from the tester.	- Not very usable for someone who have no prior exposure to chess (need more explanation)

Think Aloud Study Discussion

Discuss the results of the think-aloud study in your team. In your process book, answer the following questions:

- Based on the results of your ‘think aloud’ study, what would you improve in your data story?

  See additional notes below for
  - Prototype 2 TODOs
  - Final Project TODOs
  - TA Feedback

  We would like to improve our transitions and make our prototype 1 more cohesive. We found that a lot of our feedback surrounded not understanding the transition between different slides. We will definitely try to focus on improving our data story in terms of providing a cohesive message.

  There is still work that needs to be done for interactivity as we have some visualizations that don’t have any interaction. It’d be good to ensure that every visualization that we have is interactive and that the user understands them. If the user doesn’t understand the visualization easily, then we should include some format for additional info.

- Are there any additional insights and visualizations you would use? Would you amplify or change your message? Did your narrative work? Did the tester get your takeaways?

  Our testers understood the main takeaways which were related to how to get to the top in Canadian chess. We will keep our messaging and narrative that we currently have. Our testers did note in some of our visualizations that there was too much text. In other visualizations they thought we didn’t have enough explanations. One thing that we will add is additional context for how the ELO chess rating system operates.

- Decide as a team which of these improvements you will implement and write down your decisions and why you made them in your process book as a numbered list.

  Prototype 2 TODOs

- Implement the intended changes and check them off your list (e.g., adding “done”). You can distribute the tasks among your team members. If you are unable to implement specific changes, please explain why and describe the expected results in your process book.

  We have listed both our prototype 2 todos (which were completed for submission) and additionally final submission todos below.

See below for prototype 2 TODOs. Items marked in **DONE**

Prototype 2 TODOs

The following are things that we'd like to implement for Prototype 2. Note that feedback for Prototype 2 was received on the same day as user testing so it was difficult to implement all of these defined below.

1. Unify the theme - **HARSH** - **DONE**
    a. Css, backgrounds, fullpage.js
    b. Unify the theme so that everything is consistent
2. Introduce Chess, introduce how elos work - **Victor will send text, Harsh will make the page** - **DONE**
    - Touch on chess in Canada
    - Chess history
    - This will improve the narrative
3. Chess Player Rating Distribution **- HARSH** - **DONE**
    a. More informative, hover over
4. Fix the funnel - **HARSH** - **DONE**
    a. Speed of the funnel
    b. Two balls falling

— TWO PLAYERS MORE INFO - **ANDY** - **DONE**

5. Bio page
    a. Pictures of them to make it look nice
6. Let's Introduce the Player & Journey to the West
    a. Combined
    b. Plus pie chart
    c. This can allow us to have a better journey of the two players and transition to all players.

— ALL PLAYERS - **VICTOR**

7. Network flow - **DONE (changed to chart, not network flow)**
    a. Events and organizers for the two players
    b. This visualization/page will allow us to understand how organized chess works in Canada.
8. The chess moves - **VICTOR** - **DONE**
    a. Opening moves
    b. Just the two players
    c. Radial chart
9. Conclusion - **VICTOR** - **DONE**
    a. Trend in chess
    b. Conclude/give context to the story.

Final Submission TODOs

The following items are things that we'd like to fix for the final project:

1. Harsh: We would like to improve our scale for colours (blue scale colours)
    a. There are some inconsistencies with the colours still
2. Harsh: On all pages, improve the text format
3. Harsh: We want to fix the balls showing up on all the pages
    a. Not reactive
4. Harsh: Fix button for guessing. Can't be clicked.
5. Victor; Fix favicon
6. Andy: Rating page: remove regular ratings (DONE), add event info + perf rating, fix legends, Aaron's line should be Blue (DONE). Map fix (DONE).
7. Victor: Scroll is too fast + fix buttons for nav on the right - DONE
8. Victor: Pie chart page
    a. Include PGN viewer to view
        i. Shortest win (by moves), Longest win (by moves), and Best win (by rating)
    b. Show chess opening variations for the player
9. Harsh: Transition between individual and all
    a. Trivia to transition
10. Harsh: Canadian National Masters
    a. Legend info is not working
    b. Tooltip show name instead of ID
11. Victor: Chess Broader Population
    a. Chess Opening Variations
12. Victor: Tournament Contributors tooltip
13. Andy: About section, Conclusion

TA Feedback

Notes from TA meeting on March 20th

- Victor: How many chess tournaments took place just this year?
    - Guess thing, update the text
    - Make range better
    - Fix the scale 0 - 8K, bold the 300,000 online part
    - Make number seem like it is a big number
- Harsh: Change color to match, unify the theme
- Andy: Drop shadow around profile pic instead of halo, keep it magnified to indicate selection
- Victor: Pie Chart + games
    - Add color to the border to match player for pie charts upon click
    - Clicking on pie chart, make it expand and make it become little dots, make the other one disappear and replace with PGN viewer to show games
    - pie chart populating in a circular fashion
- Andy: interlude to the
    - Separation between the 2 players using a page for background explanation
- Victor: Take out the piece movements part (possibly change theme to match color)
- Andy: For tournament contributions don't have it side by side, show on one graph at a time and use a button to switch views
    - Place it on a map
    - Size of dot is number of players in the tournament
    - Each dot is a tournament
- Victor: Conclusion
    - Canadian chess is an exciting scene
    - Where to watch tournaments
    - The next tournament is at <insert date>
    - Learning resources for new players