

THE SPIKE OF GLOBAL INTEREST IN ONLINE CHESS

DECEMBER 12, 2020

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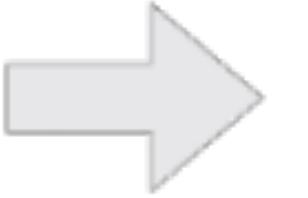
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1. INTRODUCTION

Chess is one of the most ancient board games in history and it has been played by millions of people worldwide. During this 2020-year, online chess has gained popularity that we have not seen before and millions of new fans have joined online chess platforms.

This project aims to illustrate the current global interest in the online chess.com platform. To reduce the scope of the data, we will analyze three main groups: Titled Players, University and ChessKids.

2. DATASETS



Chess.com API

- ▶ API allows users to download public data from chess.com website.
- ▶ The API has different methods such as getting player info, games, countries, among other functionalities.

Datasets groups:

- ▶ Titled Players
- ▶ University Players
- ▶ ChessKids Players

K-means algorithm

- ▶ Clustering chess openings

Geopy API

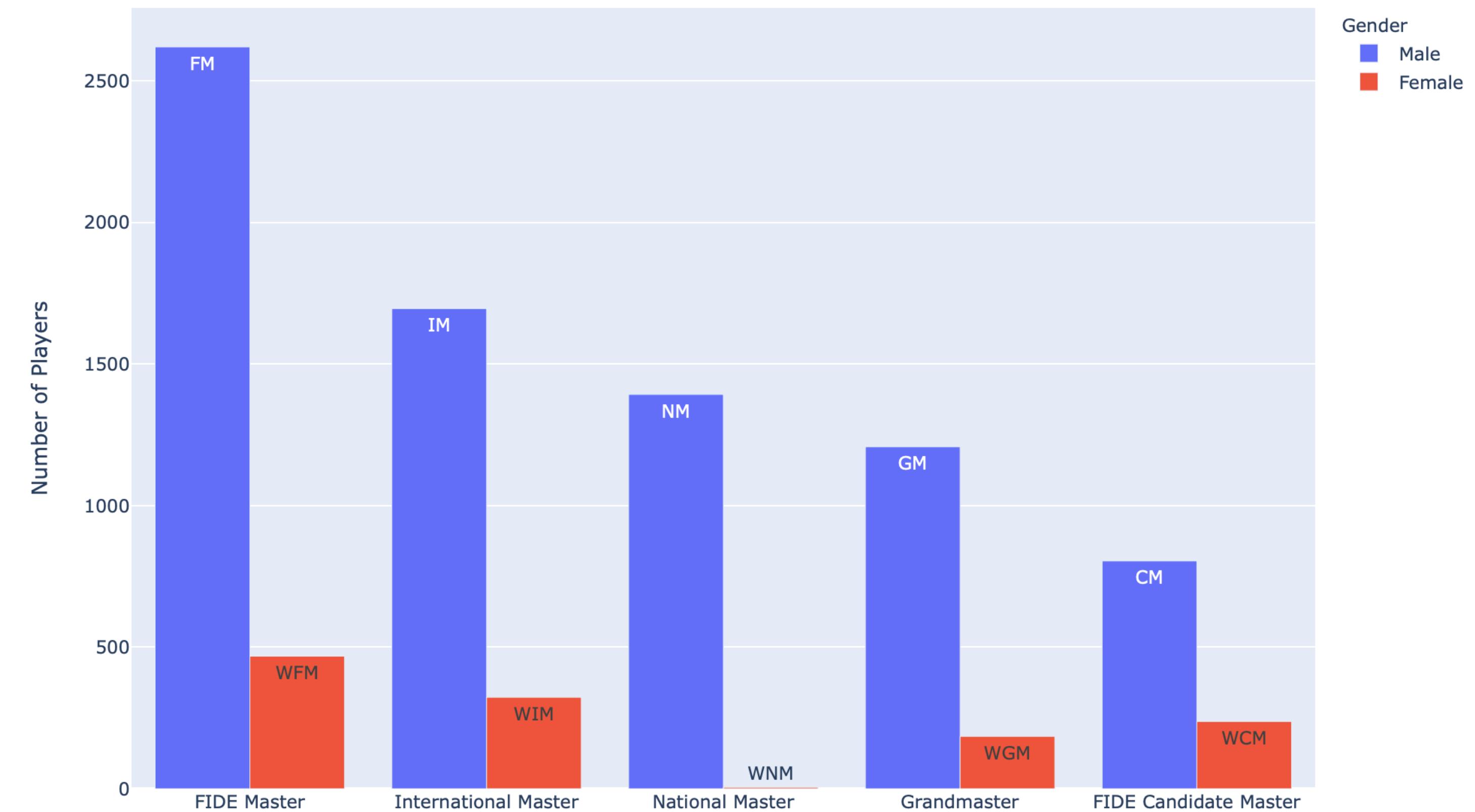
- ▶ Google Geocoding Python API (geopy) to locate the coordinates of each country.

2. DATASETS: TITLED PLAYERS

The International Chess Federation (FIDE), awards chess titles to classify the strength of a player.

Grandmaster (GM) is the highest title a chess player can attain. Any title may be earned by any player. However, there is a separation for women's titles and they are restricted only to female players.

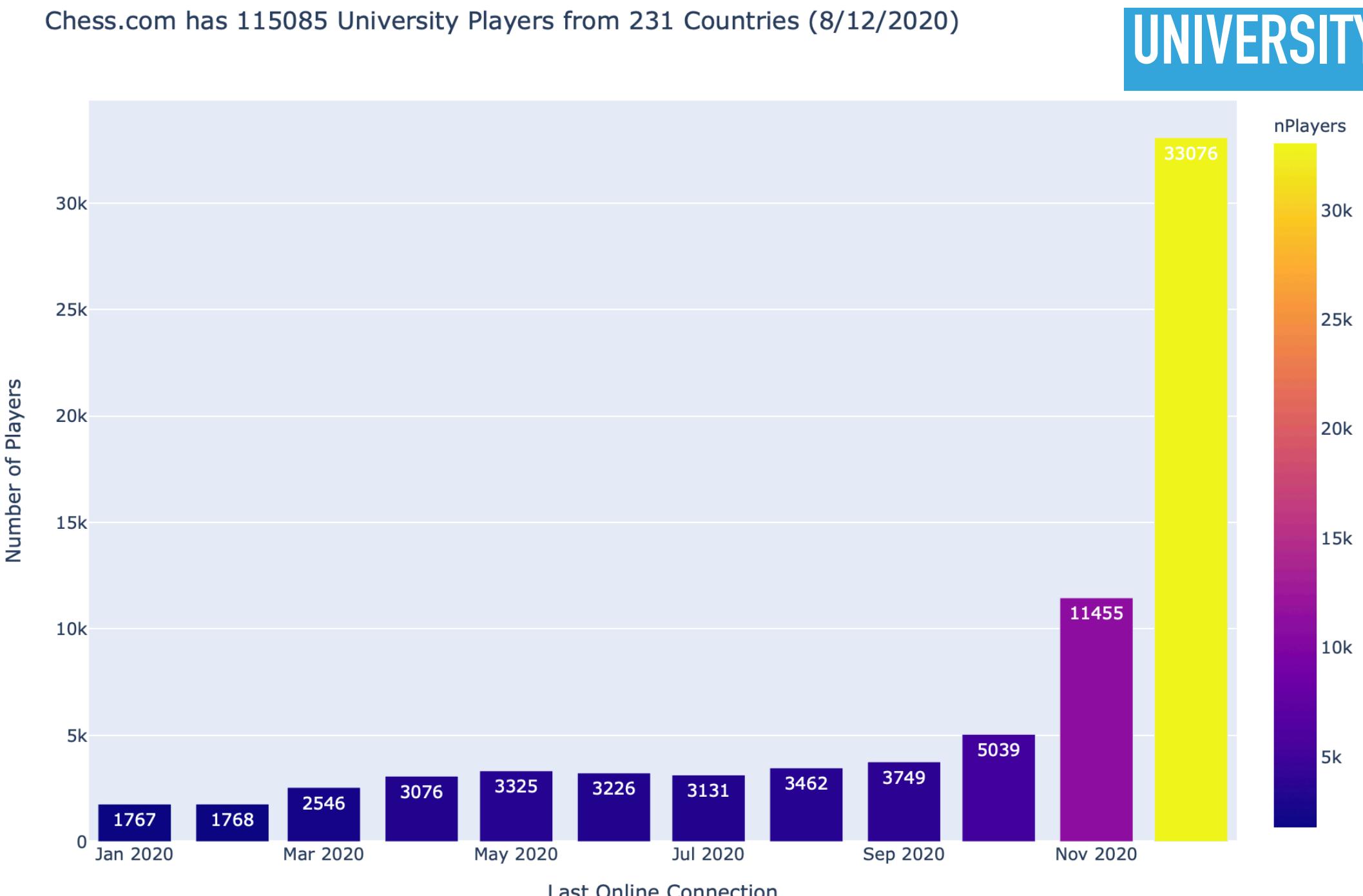
Chess.com has 8934 Titled Players from 208 Countries (8/12/2020)



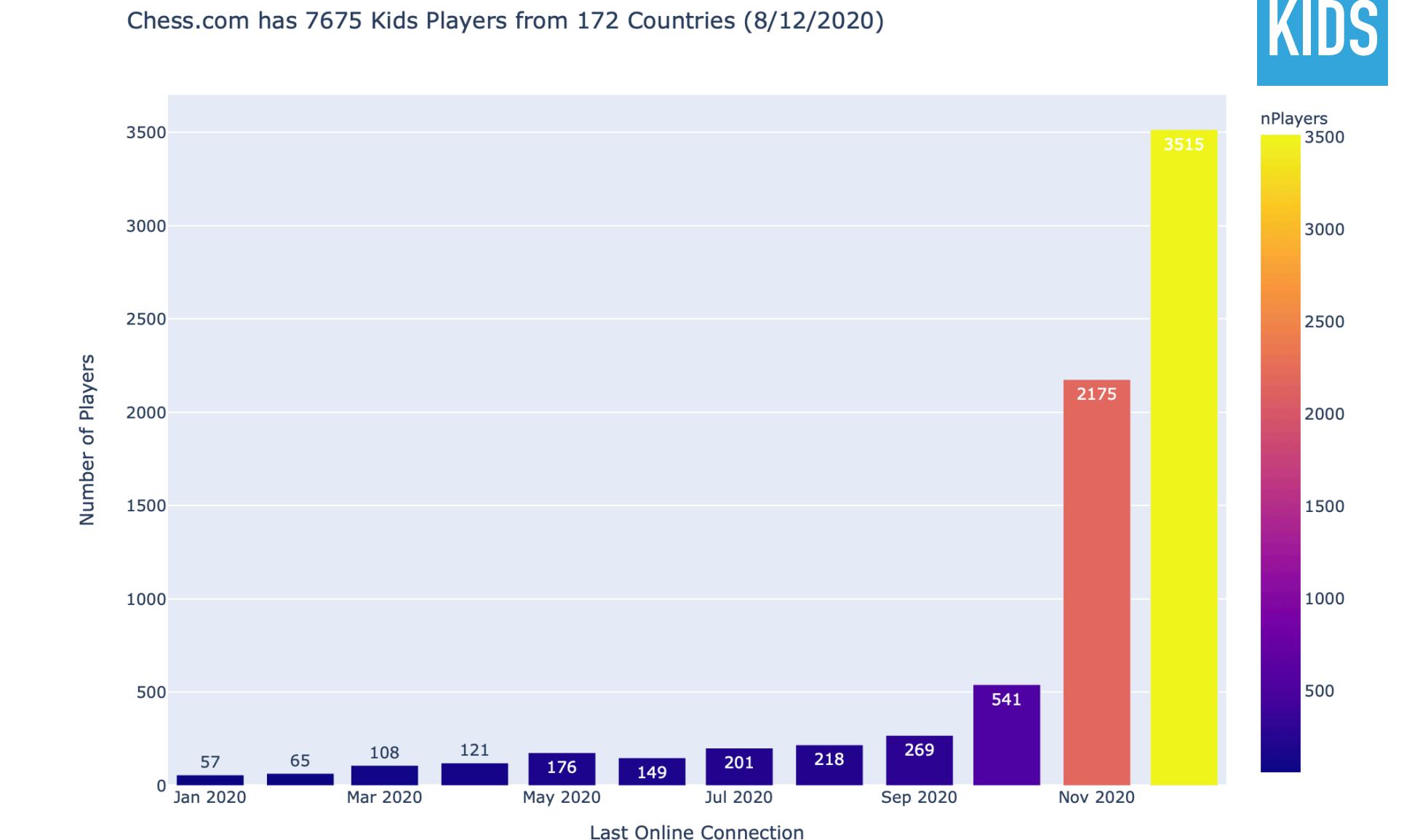
3.1 METHODOLOGY: NUMBER OF PLAYERS

- ▶ All data was collected before December 8, 2020.
- ▶ As we can observed from the plots below, all groups show a spike of new connections during the last month:

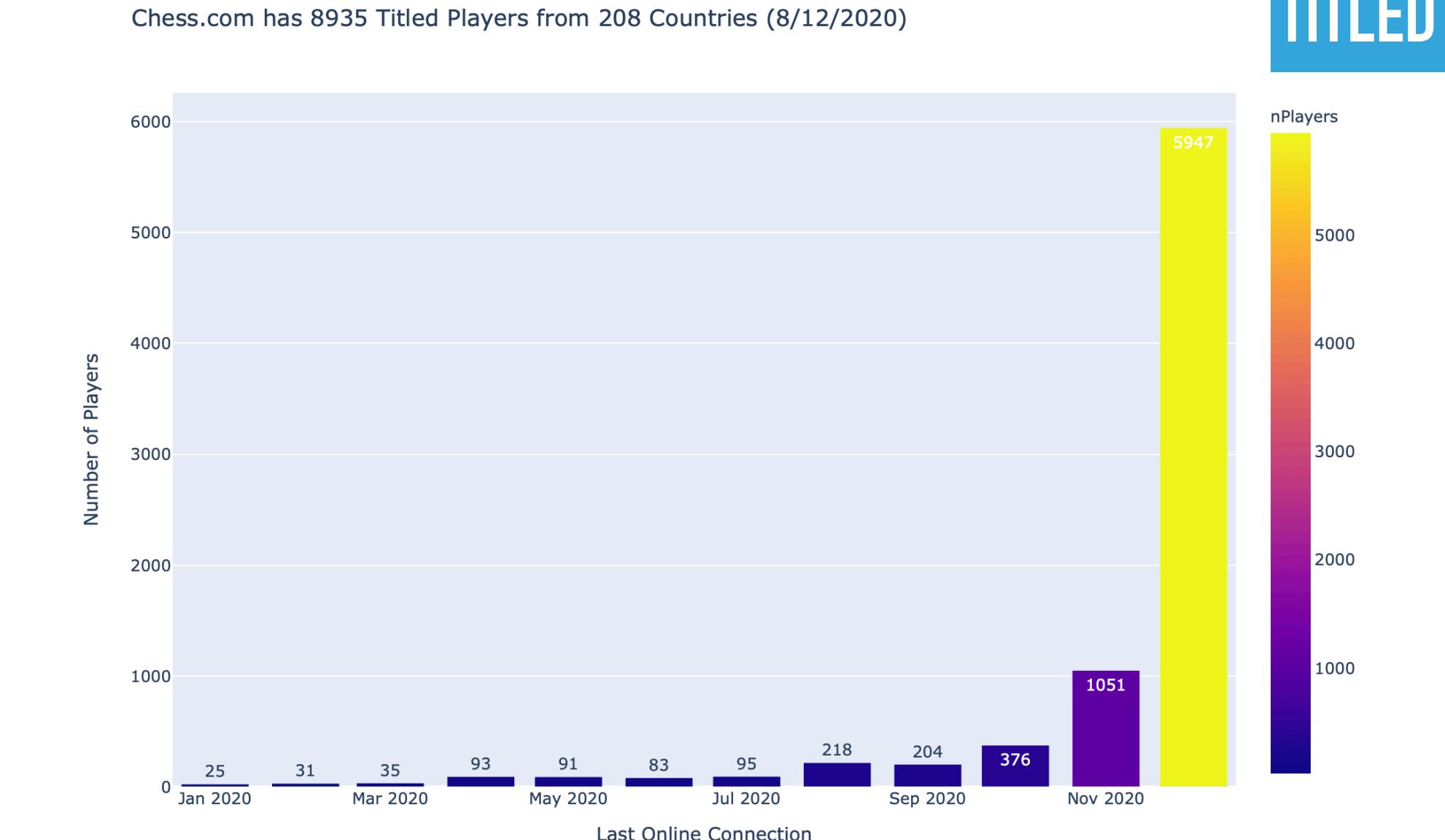
Chess.com has 115085 University Players from 231 Countries (8/12/2020)



Chess.com has 7675 Kids Players from 172 Countries (8/12/2020)



Chess.com has 8935 Titled Players from 208 Countries (8/12/2020)



3.2 METHODOLOGY: NUMBER OF COUNTRIES

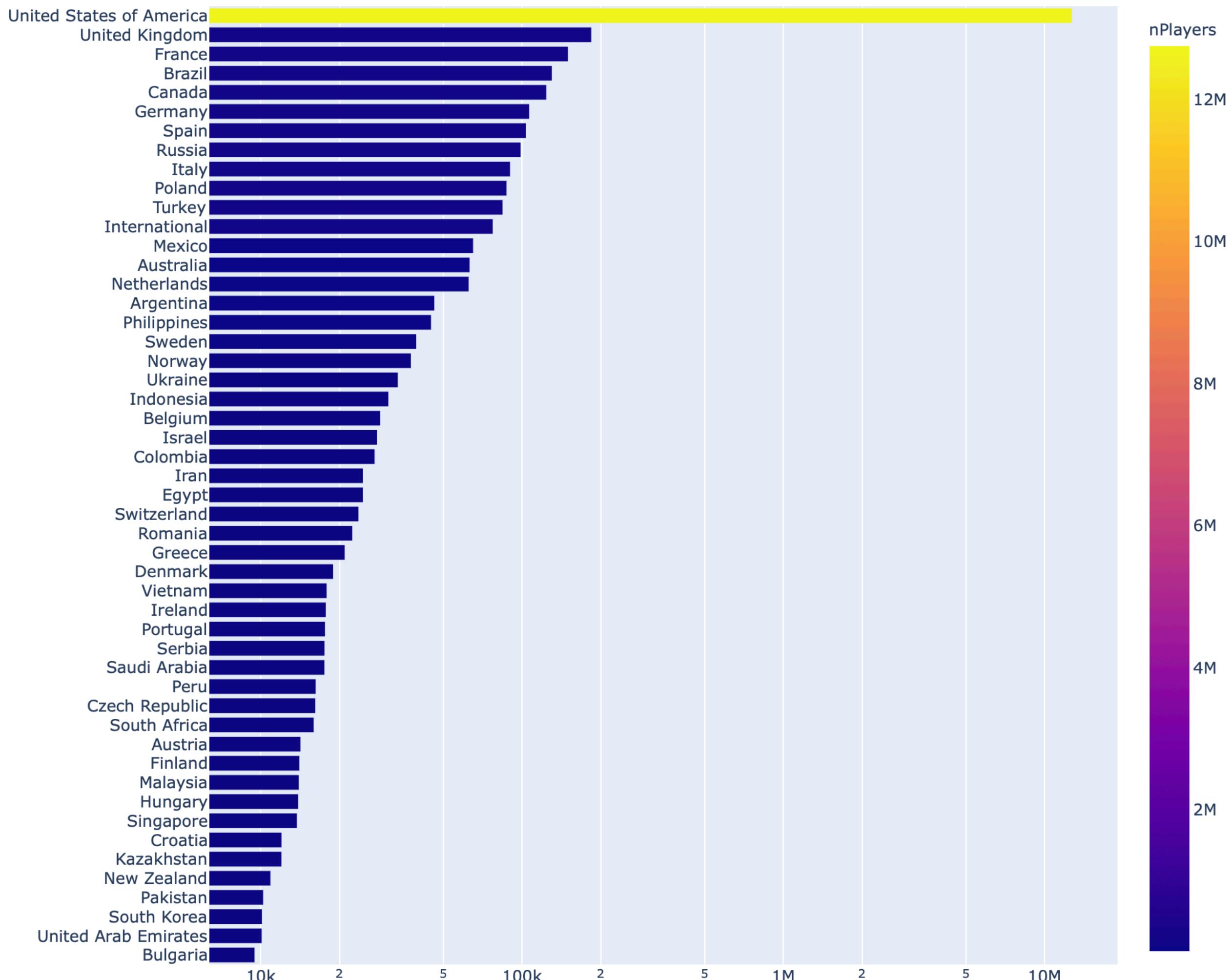
In Chess.com

- ▶ The country name “international” is when a player does not want to disclose his/her nationality.
- ▶ Islands are classified as countries, therefore there are more than 195 official country names.

Observations:

- ▶ USA has more than 10 millions players which is a remarkable difference compared to other countries.
- ▶ It's worth mentioning that there are other online chess platforms like chess24 or lichess that are more popular in Europe and Asia

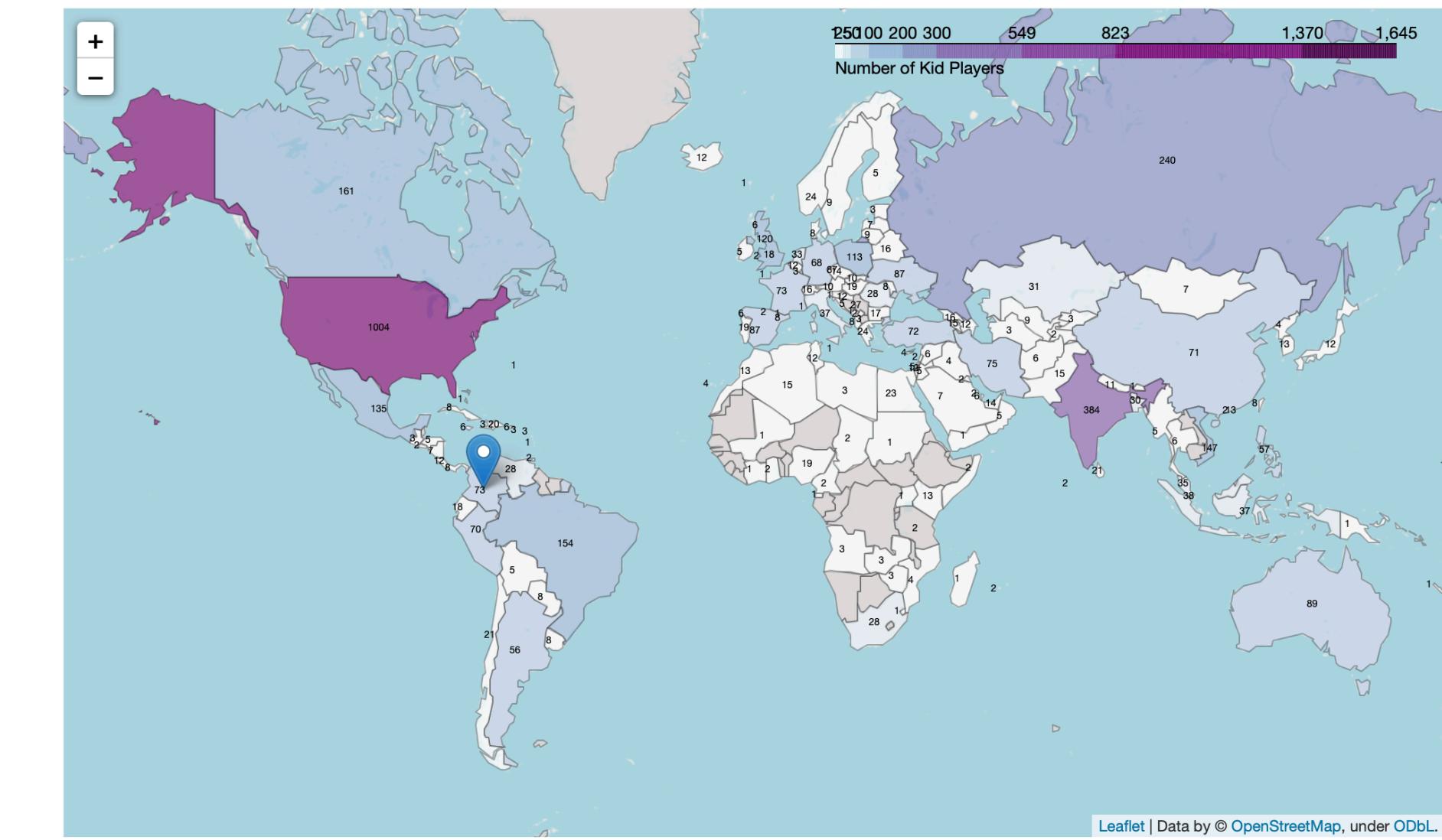
Top 50 Countries out of 228 from 15.21 million Players @ Chess.com (12/12/20)



3.3 METHODOLOGY: WORLD MAP

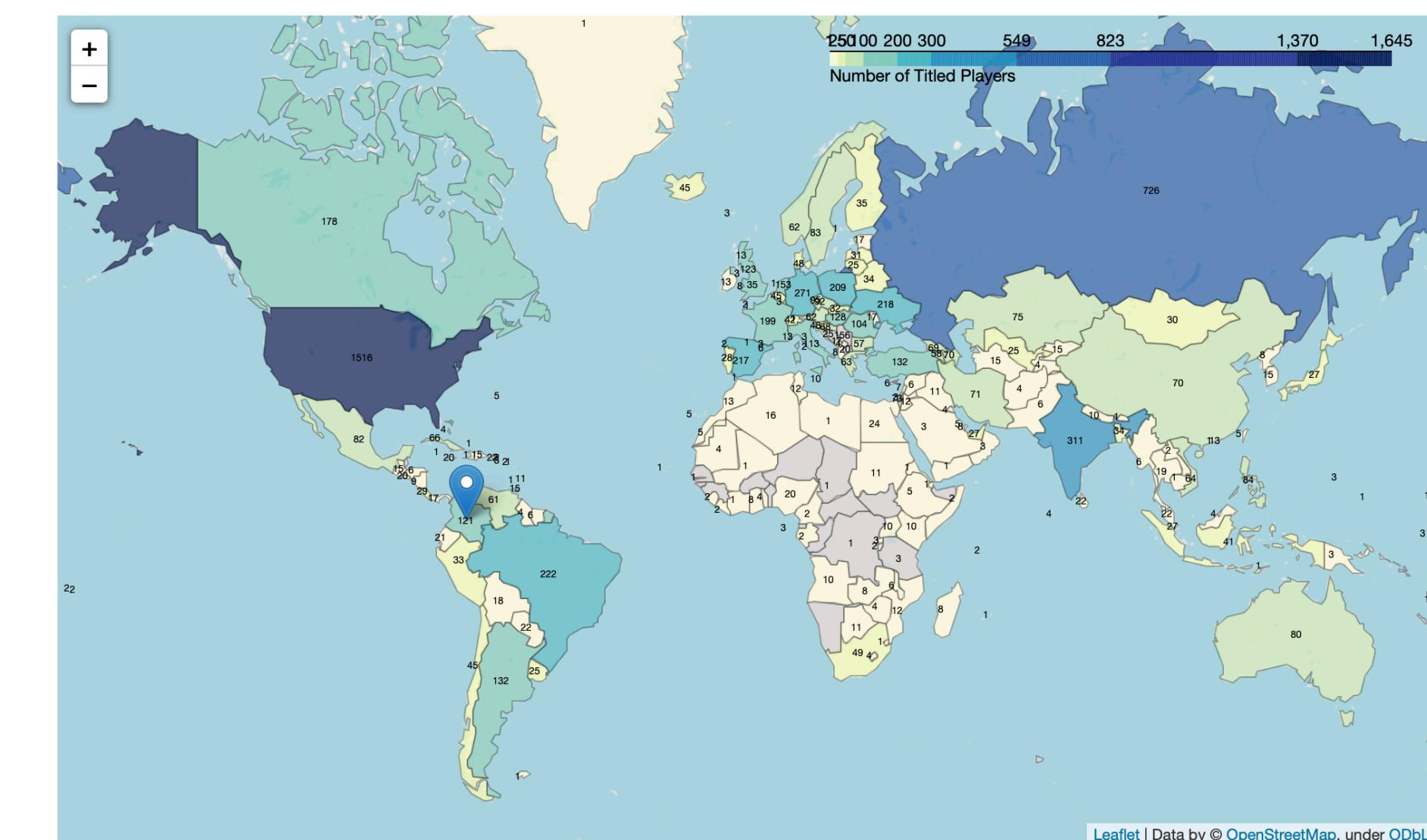
ChessKids and Titled Players Map

- ▶ There are 3 main dominant countries USA, Russia and India in both groups.



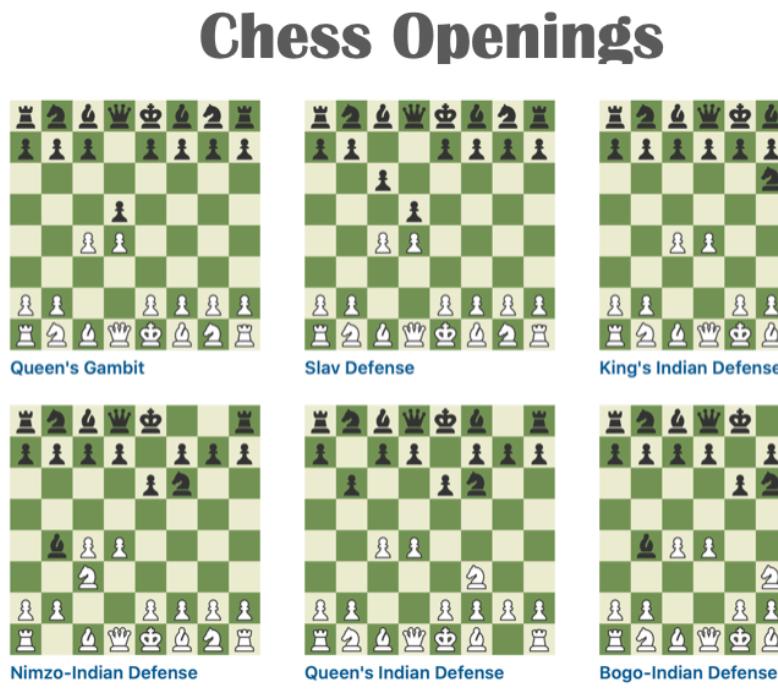
Observations:

- ▶ Emerging countries in Africa show a very low number of players
- ▶ This is a reflection of our society where countries with social-economic disadvantage have less access to have a computer and be connected online.



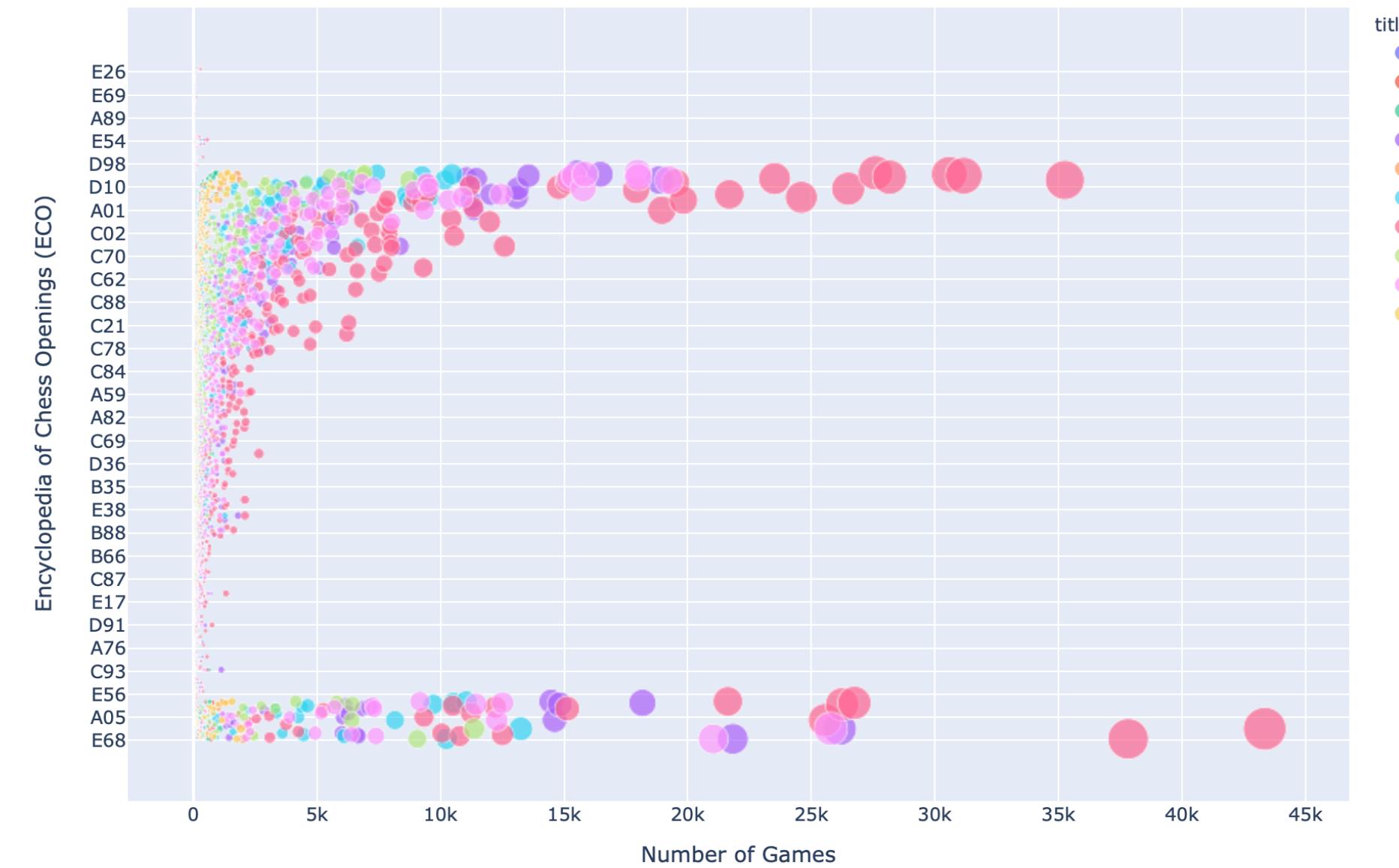
- ▶ The ping is pointing out Players from Colombia.

3.4 METHODOLOGY: CLUSTERING BLITZ-OPENINGS



- ▶ There are thousands of openings and millions of variants played around the world.

479 ECO Blitz-Openings from 10 Titled Players (3.67 million games)



- ▶ The Encyclopedia of Chess Openings (ECO)
- ▶ ECO uses a coding system to classify chess openings in five categories: A,B,C,D,E. Each category has 100 subcategories (e.g A00-A99)

3.4 METHODOLOGY: CLUSTERING BLITZ-OPENINGS

K-means clustering

- ▶ Before training, I grouped the openings with the mean of the frequency of occurrence of each ECO.
- ▶ After training with 10 different k-values. There is a big drop when k=2 meaning there are two major groups
- ▶ To get more details between the titled players a k=4 was used

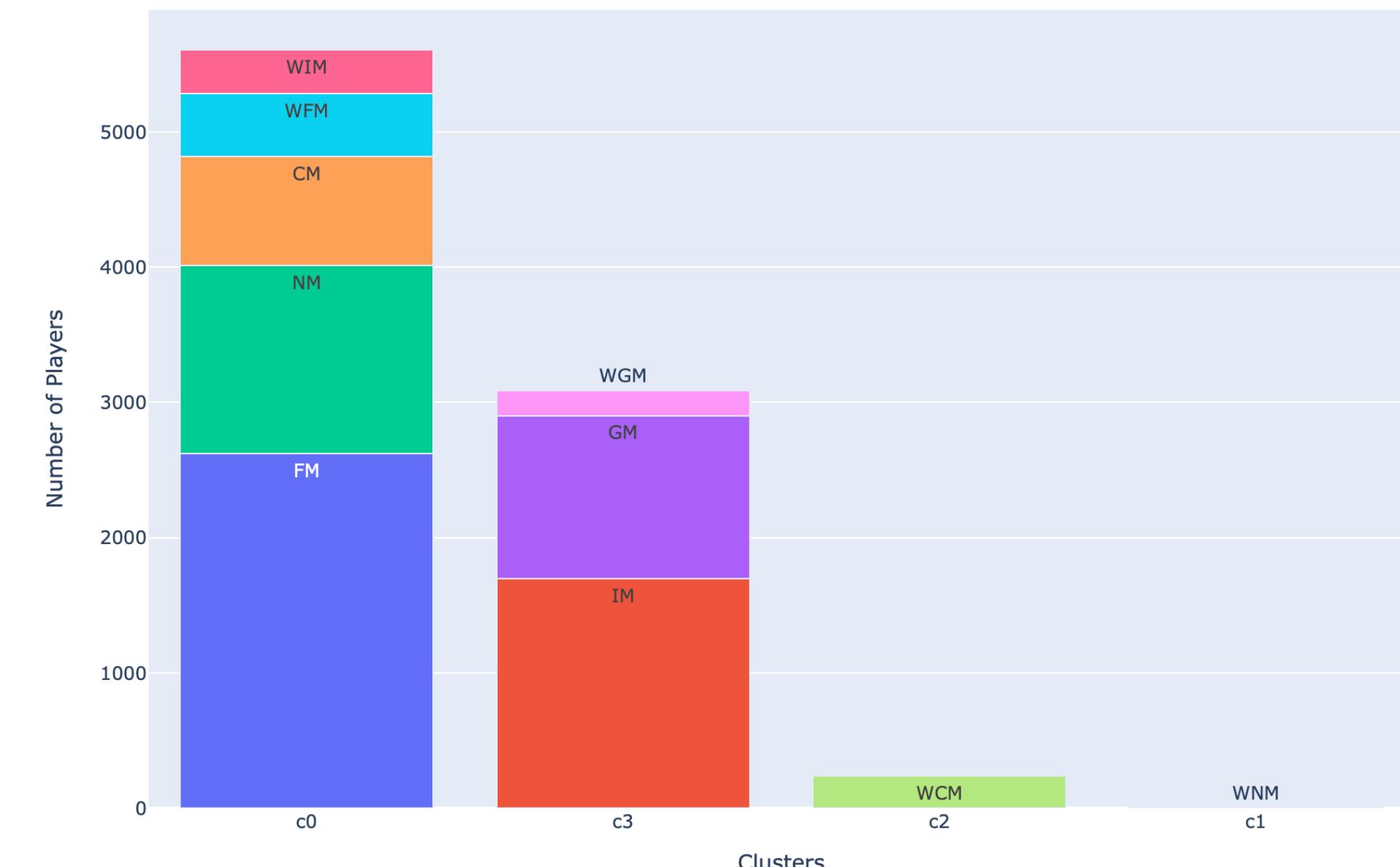
openings_grouped																
	title	A00	A01	A02	A03	A04	A05	A06	A07	A08	...	E90	E91	E92	E93	E94
0	CM	0.029717	0.015202	0.002642	0.001971	0.021871	0.006946	0.006149	0.008691	0.001068	...	0.001861	0.001304	0.000527	0.000038	0.000595
1	FM	0.026866	0.014430	0.002490	0.001689	0.019993	0.007088	0.005476	0.009575	0.001097	...	0.001986	0.001522	0.000561	0.000021	0.000549
2	GM	0.022754	0.013825	0.001583	0.001413	0.021721	0.009450	0.007716	0.014815	0.000979	...	0.002558	0.001064	0.000579	0.000007	0.000741
3	IM	0.026362	0.015855	0.002049	0.001505	0.020704	0.008416	0.005291	0.011650	0.001024	...	0.002389	0.001402	0.000616	0.000013	0.000567
4	NM	0.026913	0.013048	0.003515	0.002299	0.015972	0.005410	0.003878	0.006127	0.000846	...	0.001991	0.001150	0.000687	0.000031	0.000694
5	WCM	0.021518	0.006889	0.002477	0.002554	0.007702	0.003483	0.005379	0.004141	0.000735	...	0.001355	0.001819	0.000851	0.000077	0.000387
6	WFM	0.028096	0.009051	0.002641	0.002116	0.016033	0.005221	0.004078	0.005993	0.000850	...	0.002039	0.001282	0.000293	0.000046	0.000479
7	WGM	0.018832	0.008158	0.001591	0.002285	0.017762	0.006682	0.007232	0.012613	0.001389	...	0.001851	0.001996	0.000174	0.000029	0.000579
8	WIM	0.023945	0.007576	0.002058	0.002198	0.014701	0.006423	0.003975	0.007795	0.001559	...	0.001497	0.001808	0.000343	0.000031	0.000702
9	WNM	0.000000	0.000000	0.000000	0.000000	0.060000	0.040000	0.000000	0.000000	0.000000	...	0.000000	0.000000	0.000000	0.000000	0.000000

10 rows × 480 columns

8935 Titled Players Clustered in 4 groups

Clusters:

- ▶ Cluster c0: Most of the titled players are in this group.
- ▶ Cluster c3: It has the strongest players GM, IM, WGM. With similar openings repertoire.
- ▶ Cluster c1,c2: Few titled women in these two groups.



3.4 METHODOLOGY: MOST COMMON BLITZ-OPENINGS

Most Common ECO

- In more than 3 millions Blitz-games there were 479 unique ECO openings played by 10 titled players
- Based on the results ECO-A45 is the most common Opening among Titled Players.

	title	nPlayers	Chess Title	Gender	Cluster	1st Common	2nd Common	3rd Common	4th Common	5th Common	6th Common	7th Common	8th Common	9th Common	10th Common
0	FM	2619	FIDE Master	Male	c0	A45	A40	A00	B23	D02	B01	D00	B06	B07	A04
1	IM	1695	International Master	Male	c3	A45	A40	A00	B06	D02	D00	A04	A46	D30	B23
2	NM	1392	National Master	Male	c0	A45	A40	A00	B01	D00	D02	B07	B23	C00	B06
3	GM	1207	Grandmaster	Male	c3	A45	D30	B06	D02	A40	A00	A04	A15	B23	B07
4	CM	804	FIDE Candidate Master	Male	c0	A45	A40	A00	D00	D02	B01	A04	A46	B07	C00
5	WFM	468	FIDE Master	Female	c0	A45	A40	A00	D02	B06	D00	B23	A46	B01	B22
6	WIM	323	International Master	Female	c0	A45	A40	B01	A00	D30	D00	B07	D02	B12	B06
7	WCM	237	FIDE Candidate Master	Female	c2	D00	D02	B06	B23	A40	A45	B01	C00	A00	B40
8	WGM	185	Grandmaster	Female	c3	A45	D00	B12	D02	B01	B07	A00	B23	D30	A04
9	WNM	5	National Master	Female	c1	D30	B06	A04	B50	D70	E60	B20	D85	D11	B80

Grandmasters GM:

- From the Grandmaster category, the two most common blitz-opening are Indian Game ECO-A45 and The Queen's Gambit ECO-D30.
- For chess curiosity, these are the first moves

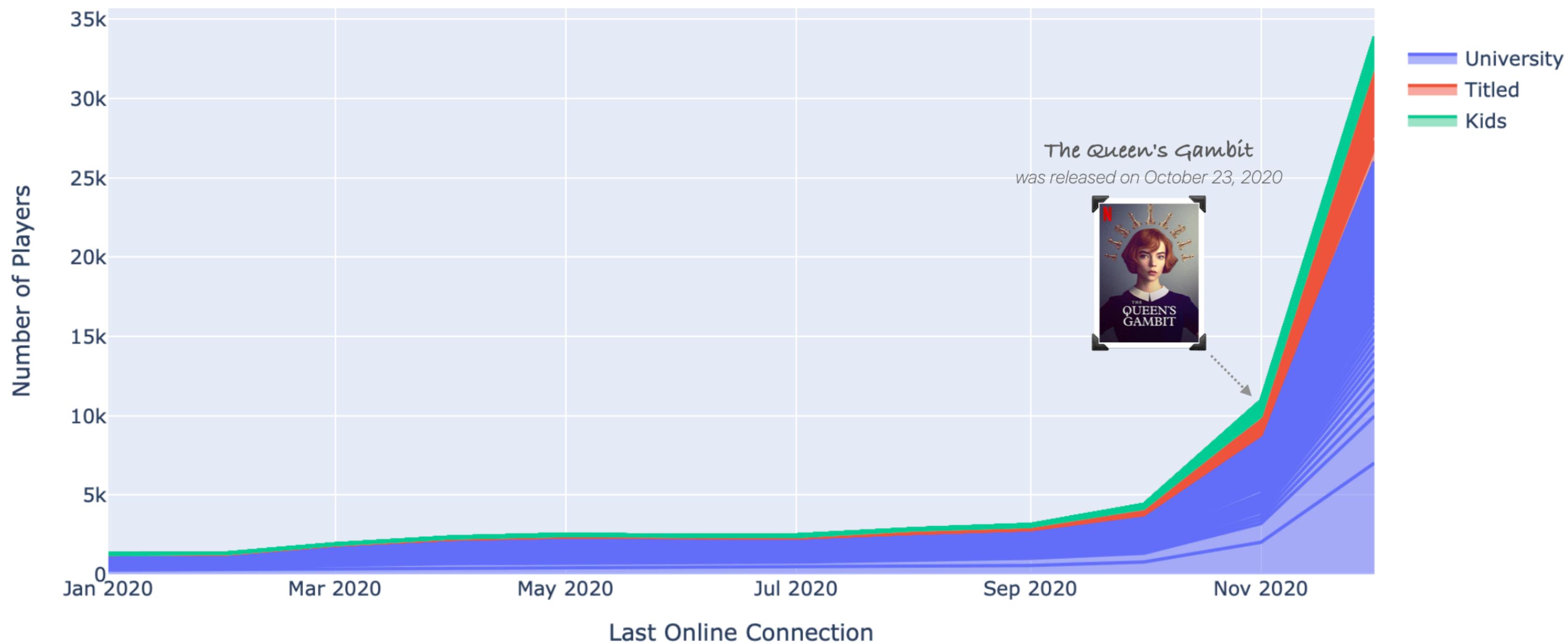


4. RESULTS: QUEEN'S GAMBIT EFFECT

Chess Popularity

- ▶ This significant spike of new users is attributed to the new series from Netflix "The Queen's Gambit" released on October 23.
- ▶ The series became the most-watched scripted limited series, attracting 62 million account viewers during its first month.
- ▶ After the show's debut, multiple chess websites have gained thousands of new users.

Players from Kids, University and Titled Clubs in Chess.com

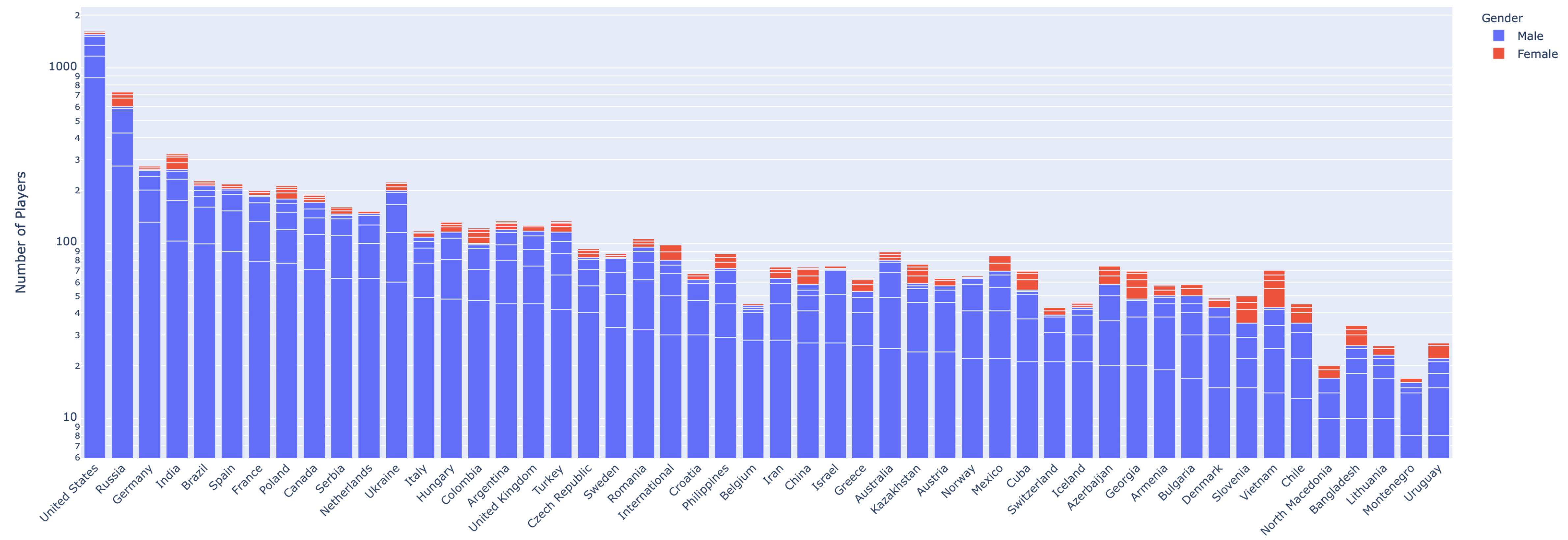


- ▶ Titled Players, University and ChessKids had a big spike of new users during the last two months.

4. RESULTS: WOMEN IN CHESS

- ▶ Chess remains a male dominated sport.
- ▶ There is a significant gap between the number of Titled women vs men from around the world.

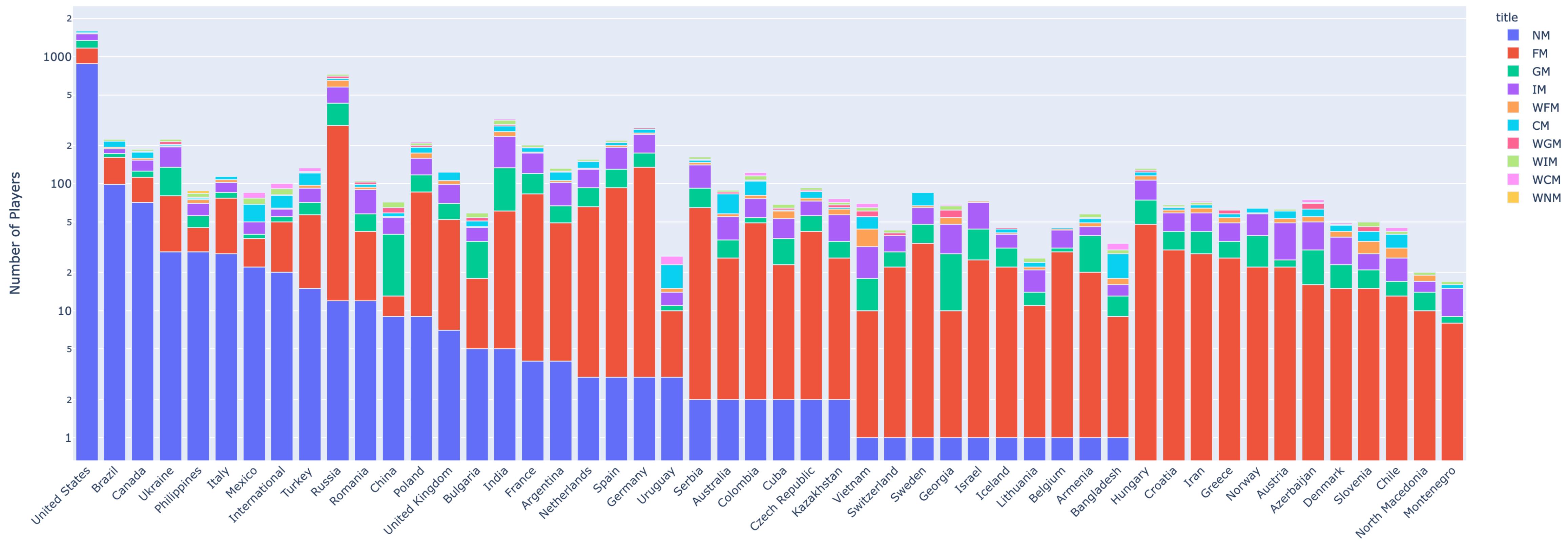
50-Top Countries from 872-Women vs 6498-Men Titled Players in Chess.com



4. RESULTS: TITLED PLAYERS

- We analyzed 10 Titled players from National (NM), Candidate (CM), FIDE (FM), International (IM) and Grandmasters (GM) for both Women and Men.
- National and FIDE Masters are the biggest groups among titled players and the most common among different countries.

50-Top Countries from 7370 Titled Players in Chess.com



5. CONCLUSION

On December 12, 2020, the online chess.com platform had around 15million players. Three main groups were analyzed: Titled players, University and ChessKids with more than 130k players, 228 locations from around the globe.

Observations:

- ▶ The number of titled men players is almost 7 times more than women. This small number of women in chess, is a resemblance of the disparity we see in other fields such as STEM.
- ▶ From the thee three groups, there was a remarkable growth in the number of new users during the last two months.
- ▶ The spike of interest in chess from around the world is due to The Queen's Gambit series
- ▶ The series had a transcendental impact that many of us would have not predicted.

NOTE:

- ▶ As a woman grandmaster from Colombia, (although "retired" from competitive chess), I have never seen the popularity that Chess is having nowadays, such as reports from New York Times, Washington Post, Bloomberg among others.
- ▶ This is a great opportunity to look for new sponsors, promote chess in the schools, encourage new girls to learn and achieve master levels.
- ▶ Chess could be portrayed not only as sport but as an educational tool, especially in low income areas with sociocultural disadvantages.
- ▶ Chess could bring opportunities and change the course of many lives. -like it did with me.