

Games Popularity Analysis

GROUP 4
Information Engineering
KMITL

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Report: The International 10 sets audience records

By FIELD LEVEL MEDIA

2 MIN READ



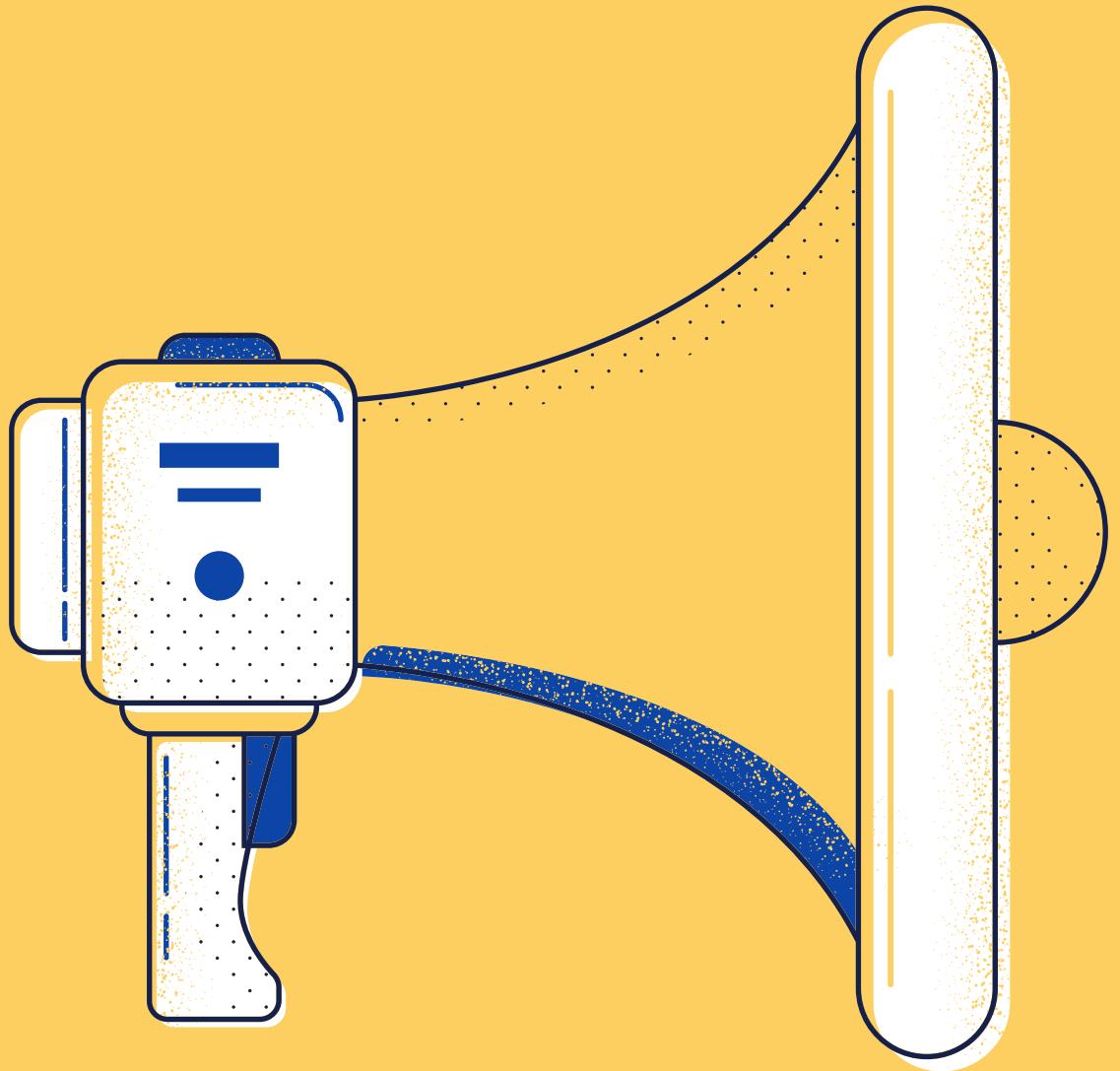
The grand final peaked at 2.7 million viewers (across all platforms excluding China), making it the most watched Dota 2 event ever. The figure represented a 37 percent increase over its peak in 2019. (The event wasn't held in 2020 due to the coronavirus pandemic).

Place	\$ USD	Percent	Team
1st	\$18,208,300	45.5%	Team Spirit
2nd	\$5,202,400	13%	PSG.LGD
3rd	\$3,601,600	9%	Team Secret
4th	\$2,401,100	6%	Invictus Gaming
place 5 to 18 ^			
5th-6th	\$1,400,600	3.5%	Virtus.pro
7th-8th	\$1,000,500	2.5%	Vici Gaming
9th-12th	\$800,400	2%	OG
			T1
			Fnatic
			Quincy Crew
			Alliance
			Evil Geniuses
			Team Undying
13th-16th	\$600,300	1.5%	Team Aster
			beastcoast
			Elephant
17th-18th	\$100,000	0.25%	Thunder Predator
			SG esports

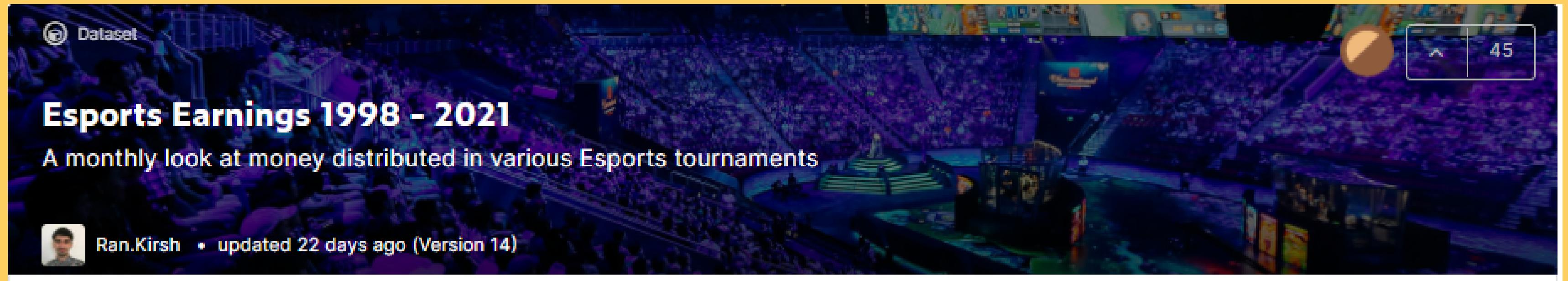


MOTIVATION

นำข้อมูลในวงการเกมส์ มา
วิเคราะห์หา Insight และ^{เพื่อ}
แบ่งกลุ่มของเกมส์ เพื่อนำ^{เพื่อ}
ไปใช้ในด้านผลประโยชน์ใน
ภาคธุรกิจ และ อื่นๆ

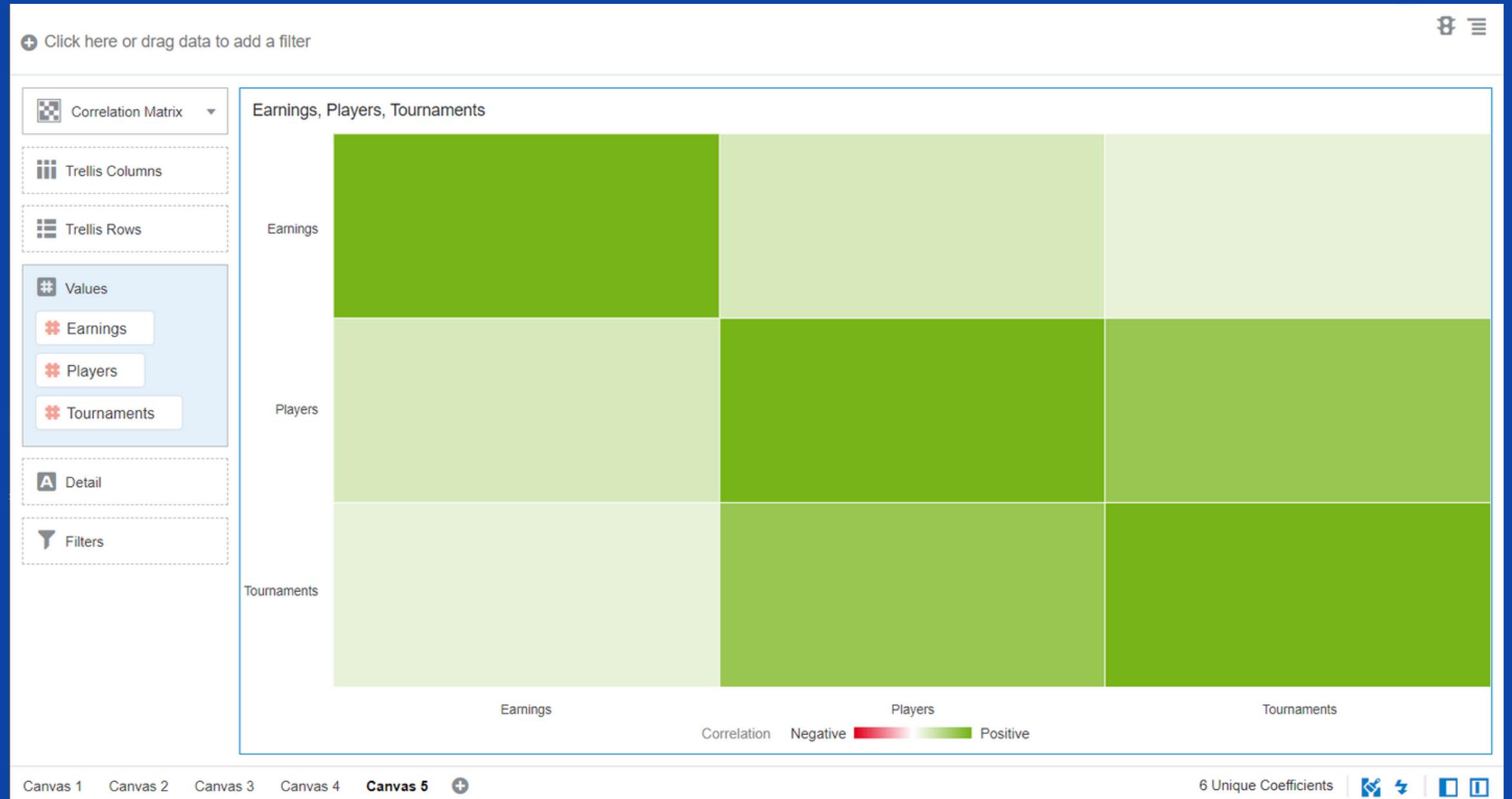


DATASETS



Date	Game	Earnings	Players	Tournaments
Month	Game	Earnings	Players receiving earnings	Tournaments
1Jan98	StarCraft: Brood War	3%	36.7m	1699
	WarCraft III	3%	0	1
	Other (6599)	94%	0	172

Ref : kaggle.com/rankirsh/esports-earnings



เลือกใช้ตัวแปร

**Earnings - ปริมาณเงินรางวัล
บ่งบอกถึงความยึดหยุ่นของการ
แข่งขัน**

**Tournaments - จำนวนการแข่งขัน
บ่งบอกถึงความเห็นใจและนิยมของคน
ดู, นักกีฬา, ฝ่ายจัดการแข่งขัน (ถ้า
ขาดอะไรไป การแข่งขันก็ไม่เกิด)**

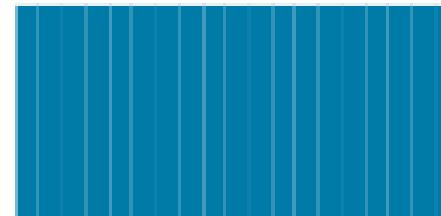
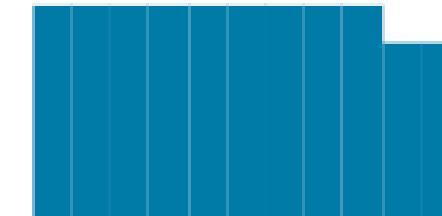
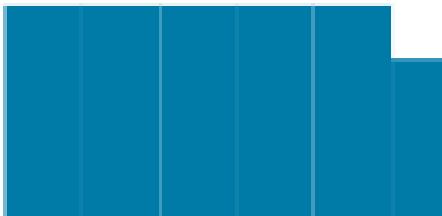


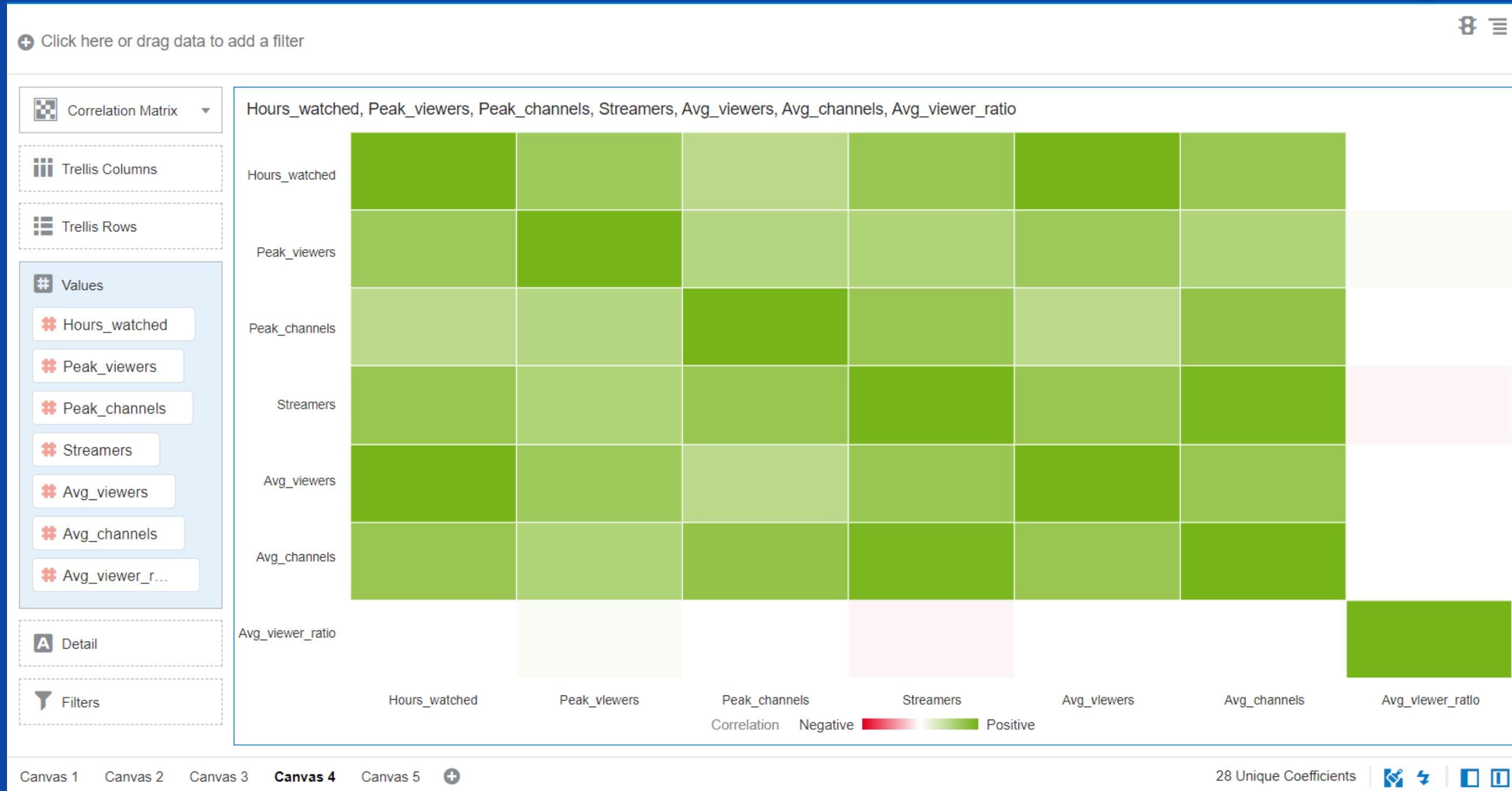
Top games on Twitch 2016 - 2021

Monthly top 200 games on the platform



Ran.Kirsh • updated 22 days ago (Version 9)

# Rank	A Game	# Month	# Year	# Hours_watched	A Hours_Streamed
Name of game or category	Rank in the month (1 - 200)	Month in question	Year in question	Hours watched on twitch	Hours streamed on twitch
 1 200	1738 unique values	 1 12	 2016 2021	89.8k 345m	 12814 unique values
# Peak_viewers	# Peak_channels	# Streamers	# Avg_viewers	# Avg_channels	# Avg_viewer_ratio
Maximum viewers at one instant	Maximum channels at one instant	Amount of streamers who streamed the game	Average viewers	Average amount of channels	Average amount of viewer per channel
441	3.12m	1	130k	0	1.01m
120	479k	120	479k	0	13.8k
2.27	2.27	1.01m	1.01m	0	13.6k



เลือกใช้ตัวแปร

Hour_watched - จำนวนชั่วโมงสะสมของการดูในเกมนั้นๆ จะบ่งบอกถึง กิจกรรมผู้ชม, ปริมาณcontent, ปริมาณผู้สร้างสื่อ และอื่นๆอีกมากมาย

DATA MUNGING

BEFORE



PROBLEMS

1. เกมส์ที่ควรจะนับเป็นซีรีย์เดียวกัน โดยแยกออกจากกัน เพราะการเก็บข้อมูล
2. ค่าจริงๆ เมื่อนำมา Visualize แล้วอ่านยาก
3. วิธีการเก็บเวลาจาก 2 dataset ใช้ไม่เหมือนกัน

SERIES CLUSTERING

```
!pip install fuzzywuzzy
from fuzzywuzzy import fuzz

def difscore(string1,string2):
    temp1 = ""
    for s in string1.lower():
        if ord('a')<=ord(s)<=ord('z'):
            temp1 += s
    temp2 = ""
    for s in string2.lower():
        if ord('a')<=ord(s)<=ord('z'):
            temp2 += s
    return max(fuzz.token_set_ratio(temp1,temp2),fuzz.partial_ratio(string1,string2))
```

```
print(difscore('Ultra Street Fighter IV','Street Fighter V'))
print(difscore('Animal Crossing: New Horizons','Animal Crossing: New Leaf'))
print(difscore('FIFA 07','FIFA 21'))
print(difscore('Counter-Strike: Global Offensive','Counter-Strike: Condition Zero'))
```

94

84

100

63

```
game_cluster = []
thereshould = 88
cc = 0
for g in sorted(tour.keys()):
    cc += 1
    if cc%500 == 0:
        print('i = ',cc)
    clusterno = 0
    if not game_cluster:
        game_cluster.append([g])
    else:
        is_clustered = False
        for i in range(len(game_cluster)):
            gc = game_cluster[i]

            score = 0
            for each in gc:
                score = max(difscore(g,each),score)
            if score>=thereshould:
                is_clustered = True
                gc.append(g)
                clusterno = i
                break
        if not is_clustered:
            game_cluster.append([g])
            clusterno = len(game_cluster)-1
    tour[g]['cluster no.'] = clusterno
```

```
[ 'Counter-Strike',
  'Counter-Strike Online',
  'Counter-Strike: Condition Zero',
  'Counter-Strike: Global Offensive',
  'Counter-Strike: Source'],
['CraftStanislav']
```

```
[ 'Call Of Duty: Modern Warfare',
  'Call of Duty',
  'Call of Duty 2',
  'Call of Duty 4: Modern Warfare',
  'Call of Duty: Advanced Warfare',
  'Call of Duty: Black Ops',
  'Call of Duty: Black Ops 2',
  'Call of Duty: Black Ops 4',
  'Call of Duty: Black Ops Cold War',
  'Call of Duty: Black Ops II',
  'Call of Duty: Black Ops III',
  'Call of Duty: Blackout',
  'Call of Duty: Ghosts',
  'Call of Duty: Infinite Warfare',
  'Call of Duty: Mobile',
  'Call of Duty: Modern Warfare',
  'Call of Duty: Modern Warfare 2',
  'Call of Duty: Modern Warfare 3',
  'Call of Duty: Modern Warfare Remastered',
  'Call of Duty: Vanguard',
  'Call of Duty: WWII',
  'Call of Duty: Warzone',
  'Call of Duty: World War II',
  'World War 3',
  'World War Z',
  'World War Z: Aftermath'],
[10, 5, 11, 12]
```

```
[ 'FIFA 03',
  'FIFA 04',
  'FIFA 05',
  'FIFA 06',
  'FIFA 07',
  'FIFA 08',
  'FIFA 09',
  'FIFA 10',
  'FIFA 11',
  'FIFA 12',
  'FIFA 13',
  'FIFA 14',
  'FIFA 15',
  'FIFA 16',
  'FIFA 17',
  'FIFA 18',
  'FIFA 19',
  'FIFA 20',
  'FIFA 2000',
  'FIFA 2001',
  'FIFA 2002 World Cup',
  'FIFA 21',
  'FIFA 22'],
[ 'FIFA Online 3', 'FIFA Online 4'],
```

```
[ 'Hyper Street Fighter II',
  'Street Fighter IV',
  'Street Fighter V',
  'Street Fighter V: Arcade Edition',
  'Street Fighter V: Champion Edition',
  'Street Fighter X Tekken',
  'Super Street Fighter II Turbo',
  'Super Street Fighter II Turbo HD Remix',
  'Super Street Fighter IV',
  'Super Street Fighter IV Arcade Edition',
  'Ultra Street Fighter IV'],
```

```
game_cluster_name = []
cc = 0
import re
for cluster in (game_cluster):
    #print(cluster)
    if len(cluster) == 1:
        game_cluster_name.append(cluster[0])
    else:
        arr_of_dict = []

        for g in cluster:
            gsplit = re.split(" |'|,|:", g)

            #print(gsplit)
            for i in range(len(gsplit)):
                gsplit[i] = gsplit[i].upper()
                if len(arr_of_dict)<=i:
                    arr_of_dict.append({'sumword':0})
                if gsplit[i] not in arr_of_dict[i]:
                    arr_of_dict[i][gsplit[i]] = 1
                    arr_of_dict[i]['sumword'] += 1
                else:
                    arr_of_dict[i][gsplit[i]] += 1
                    arr_of_dict[i]['sumword'] += 1
seriesname = ""
for i in range(len(arr_of_dict)):
    d = arr_of_dict[i]
    templ = sorted([[dk,d[dk]]for dk in d.keys() if dk!='sumword'],key = lambda x:(x[1]))[::-1]
    if templ[0][1]/d['sumword']>0.5 and d['sumword'] != 1:

        seriesname += templ[0][0]+ ' '
    else:
        if seriesname == '':
            seriesname = min(cluster, key=len) + ' '
        break
game_cluster_name.append(seriesname+"Series")
if seriesname == '':
    print(arr_of_dict)
cc += 1
```

BORDERLANDS Series',
Batman: The Telltale Series',
CALL OF DUTY Series',
CAPCOM VS. SNK Series',
CAR MECHANIC SIMULATOR Series',
CASTLEVANIA Series',
CATHERINE Series',
COMMAND & CONQUER Series',
COUNTER-STRIKE Series',
CRASH BANDICOOT Series',
CRUSADER KINGS Series',
Casino Series',
Chess Series',
Crea Series',
DARK SOULS II Series',
DARKSIDERS Series',
DAY OF DEFEAT Series',
DEAD BY DAYLIGHT Series',
DEAD OR ALIVE Series',
DEAD RISING Series',
DEAD SPACE Series',

MONSTER HUNTER Series',
NORDHAU Series',
MORTAL KOMBAT Series',
COUNT YOUR FRIENDS Series',
Mario Party 10 Series',
MARAKA BLADEPOINT Series',
NARUTO SHIPPUDEN ULTIMATE NINJA STORM Series',
NASCAR HEAT Series',
NASCAR THUNDER Series',
NBA Series',
NED FOR SPEED Series',
NFL Series',

AFTER

AGGREGATION

Aggregate

Aggregate	Function	New column name	Group by
tournament_raw	Sum ▾	tournament_raw Sum	cluster_name
hourswatched_raw	Sum ▾	hourswatched_raw Sum	+ Add Group
money_raw	Sum ▾	money_raw Sum	

APPLY MODEL

HIERARCHICAL CLUSTERING FOR MODEL TRAINING

The screenshot shows a data processing interface with a blue header bar containing icons for back, forward, search, and other functions. The main area features a flow diagram with nodes: 'agreet' (an oval with a plus sign), 'Select Columns' (a blue rounded rectangle with three horizontal bars), 'Train Clustering' (a grey rounded rectangle with a cluster icon), and 'Save Model' (a grey rounded rectangle with a save icon). A checkmark box labeled 'Show labels' is checked. Below the flow diagram is a table with columns: '99 tournament_ra...', '99 hourswatched...', '99 money_raw Sum', and 'ab cluster_name'. The table contains 15 rows of data, including entries for Dota 2, MINECRAFT Series, SUPER SMASH BROS. Series, SMITE Series, Yu-Gi-Oh! Duel Links, Gears 5, F1 Series, STARCRAFT Series, POKK<U+00E9>N TOURNAMENT Series, Sea of Thieves, and UNO. At the bottom of the table are buttons for 'Remove all' and 'Remove selected'.

Train Clustering

Model Training Script: Hierarchical Clustering for model training

Number Of Clusters: 8

Linkage Criterion: Ward

Metric Used To Compute Linkage: Euclidean (or L2)

Categorical Column Imputation: Most Frequent

Numerical Column Imputation: Mean

Categorical Encoding Method: Indexer

Maximum Null Value Percent: 80

Standardization: True

Train Partition Percent: 80

raw_cluster

The screenshot shows the 'Train Clustering' configuration window. It includes fields for 'Number Of Clusters' (set to 8), 'Linkage Criterion' (set to 'Ward'), 'Metric Used To Compute Linkage' (set to 'Euclidean (or L2)'), 'Categorical Column Imputation' (set to 'Most Frequent'), 'Numerical Column Imputation' (set to 'Mean'), 'Categorical Encoding Method' (set to 'Indexer'), 'Maximum Null Value Percent' (set to 80), 'Standardization' (set to 'True'), and 'Train Partition Percent' (set to 80). The window also displays the title 'Model Training Script: Hierarchical Clustering for model training' and a logo for 'raw_cluster'.

CLUSTERED
(FROM RAW DATA)

TIME - WEIGHT CALIBRATION

Name

f(x)

```
(EXP (year-2015) / (EXP (2021-2015) + EXP (2020-2015) + EXP (2019-2015) + EXP (2018-  
2015) + EXP (2017-2015) + EXP (2016-2015)) * 6)
```

Name

```
money_raw * filter_e^y
```

Name

```
tournament_raw * filter_e^y
```

Name

```
hourswatched_raw*filter_e^y
```

Name

f(x)

```
LOG (year-2014) / (LOG (2021-2014) + LOG (2020-2014) + LOG (2019-2014) + LOG (2018-2014) +  
LOG (2017-2014) + LOG (2016-2014)) * 6
```

Name

```
money_raw*filter_logy
```

Name

```
tournament_raw*filter_logy
```

Name

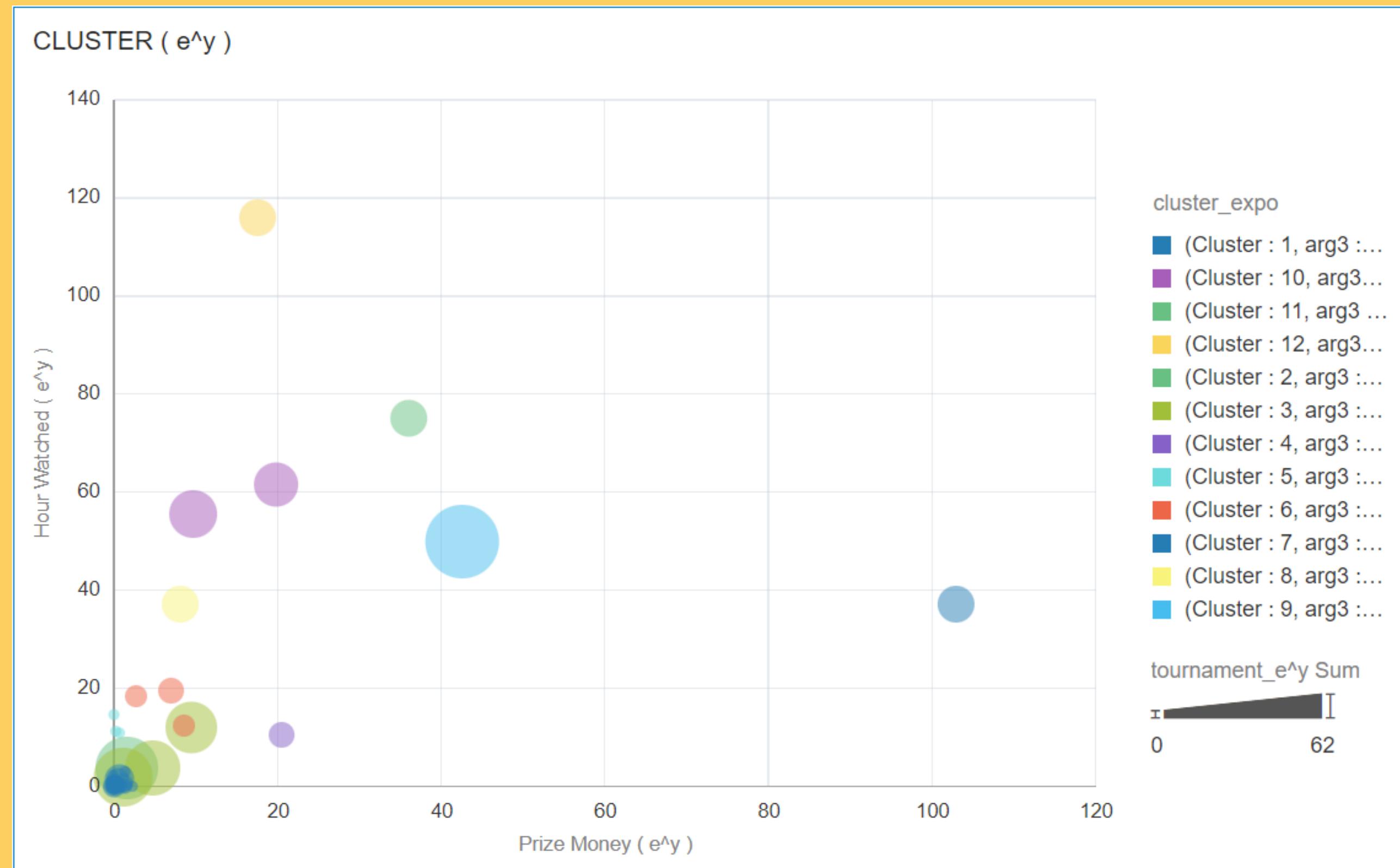
```
hourswatched_raw*filter_logy
```

FILTER FUNCTION

INSIGHT & ACTION PLANS

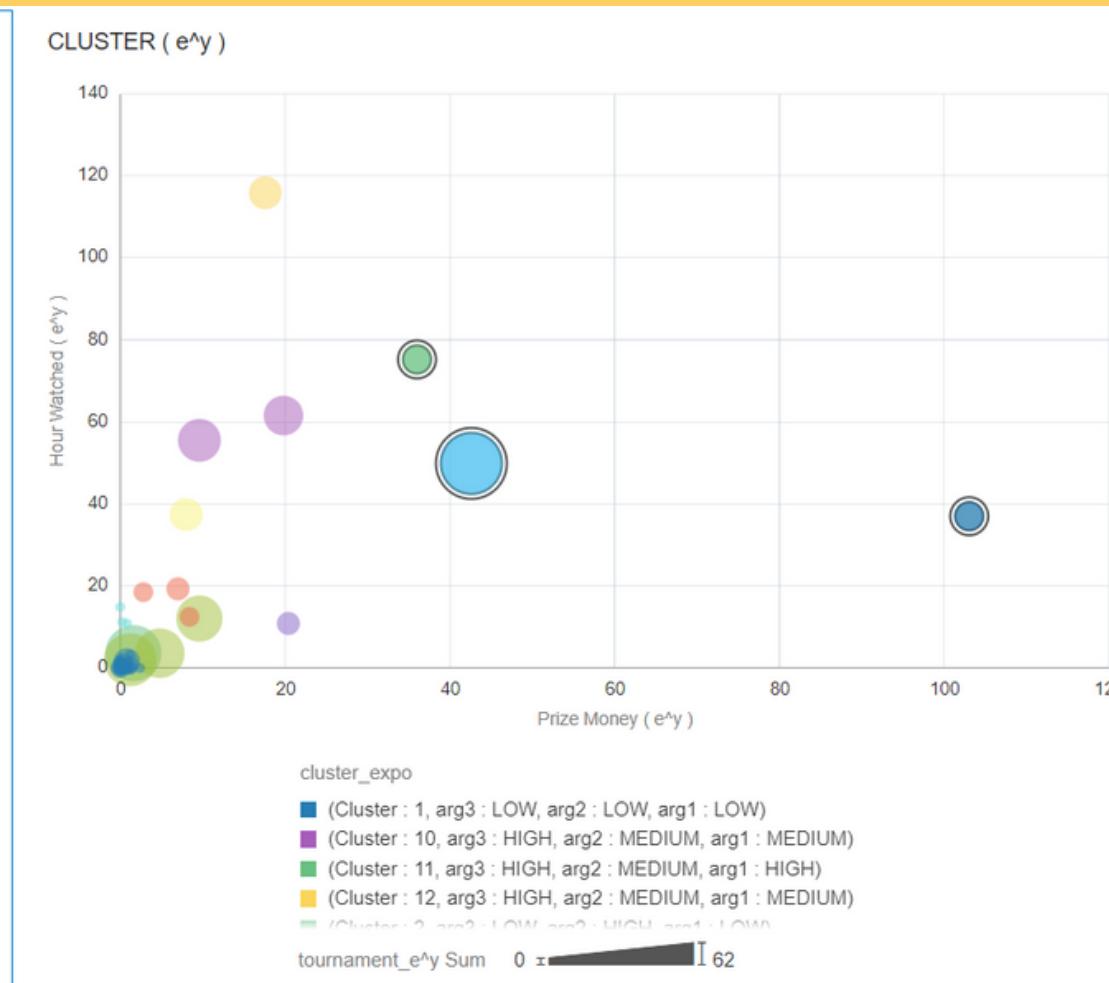
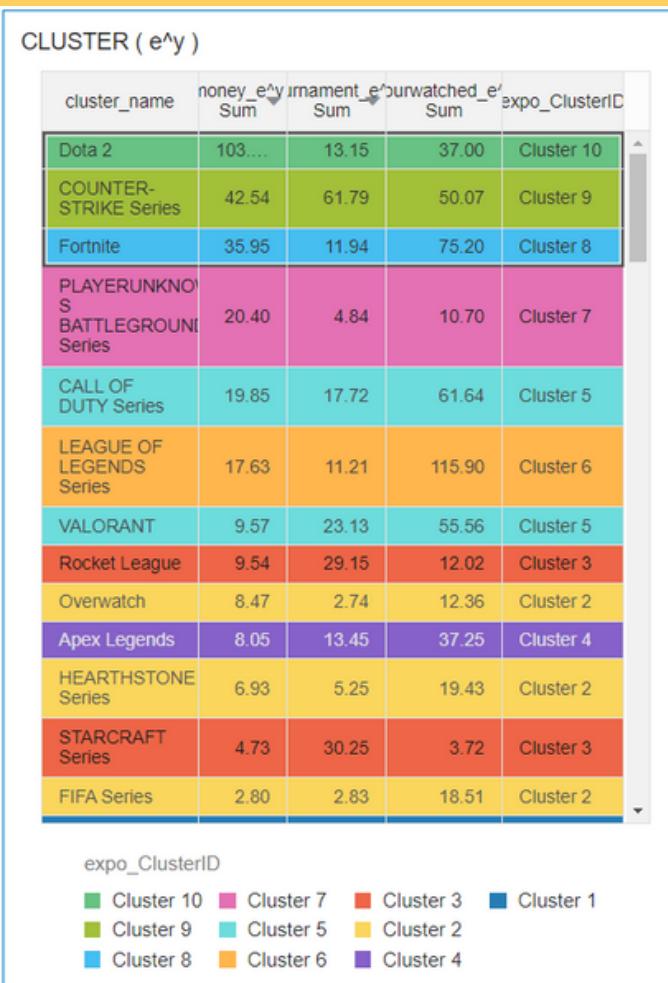
GAMES INDUSTRY

CLUSTERED (EXPO FUNCTION)

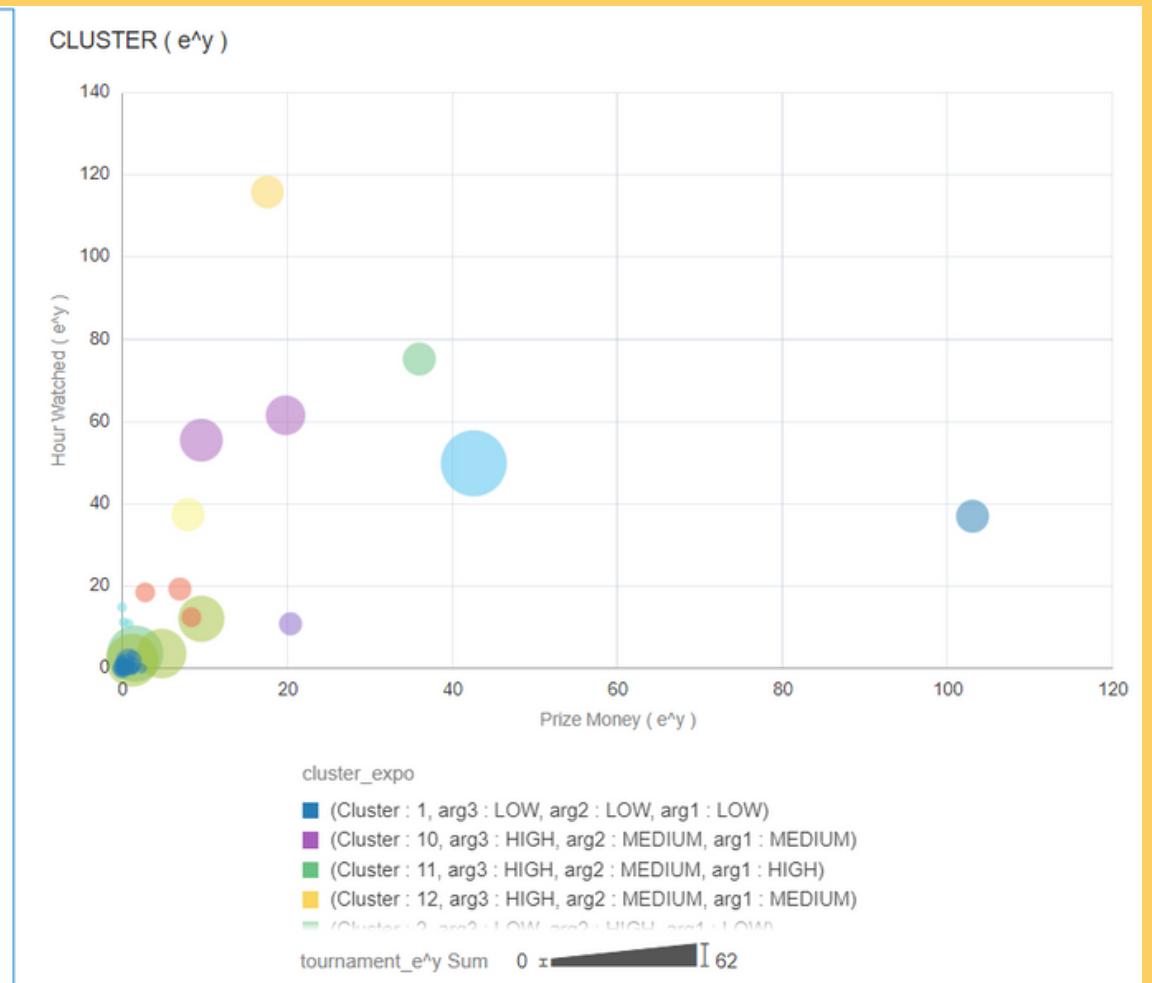


ESPORTS

TOP PRIZE POOL CLUSTER(S)



TOP TOURNAMENT CLUSTER(S)



MiTH เปิดตัว Line-up ทีม Valorant แบบยกชุดที่นำทัพโดยอดีต IGL ฝีมือดีของวงการ CS:GO อย่าง TOR พร้อมผู้เล่นตัวท็อปอีกเพียบ !!

ไลน์อัพนี้บอกเลยว่าเข้ม !!

2021-04-09 22:32 By 9hos7y

หลังจากเมื่อไม่กี่วันก่อนทาง MiTH ได้ประกาศปล่อยผู้เล่นภายในสังกัดแบบยกชุด ไปเมื่อไม่นาน ซึ่งพวกเค้าได้ออกมาประกาศว่าได้มีทีมที่เตรียมจะตามเท้าเข้าสู่สังกัดเป็นที่เรียบร้อยแล้ว และล่าสุดพวกเค้าก็ได้ประกาศเปิดตัวผู้เล่นยกทีมแบบเป็นทางการที่นำทัพโดย Tor อดีต IGL ตัวท็อปของวงการ CS:GO



รู้จักกับทีม OG จากทีมแห่งมิตรภาพสู่ราชากองเชิงโลก DOTA2

ลงวันที่ 04/09/2019



Dota 2 [แก้]

ID	ชื่อ	สัญชาติ
Sumail	Sumail	ปากีสถาน
Topson	Topias Taavitsainen	ฟินแลนด์
Ceb	Sébastien Debs	ฝรั่งเศส
Saksa		ฟินแลนด์
N0tail	Johan Sundstein	เดนมาร์ก

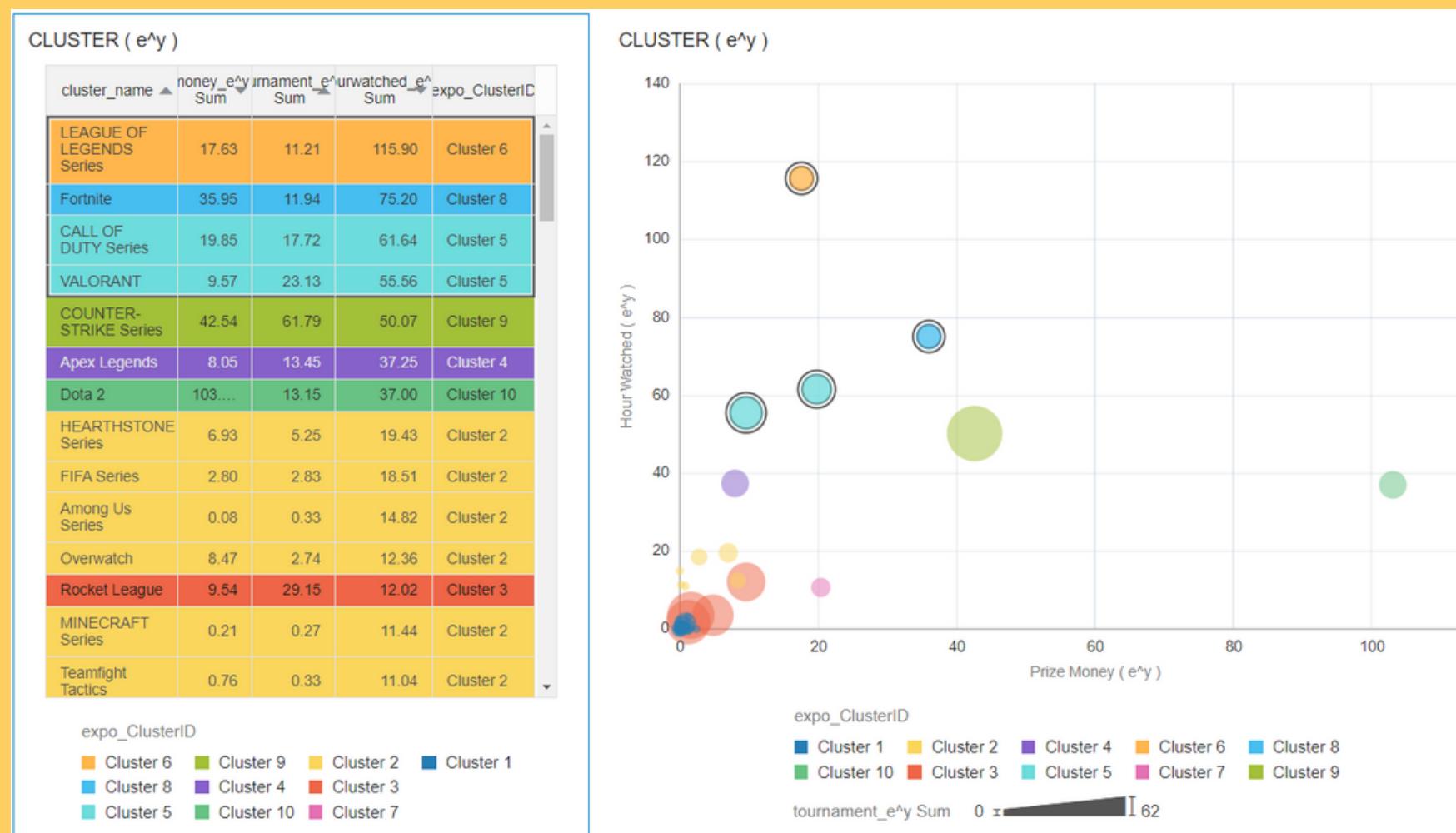
Counter-Strike: Global Offensive [แก้]

ID	ชื่อ	สัญชาติ
NBK-	Nathan Schmitt	ฝรั่งเศส
valde	Valdemar Bjørn	เดนมาร์ก
ISSAA	Issa Murad	จอร์แดน
mantuu	Mateusz Wilczewski	โปแลนด์
Aleksib	Aleksi Virolainen	ฟินแลนด์

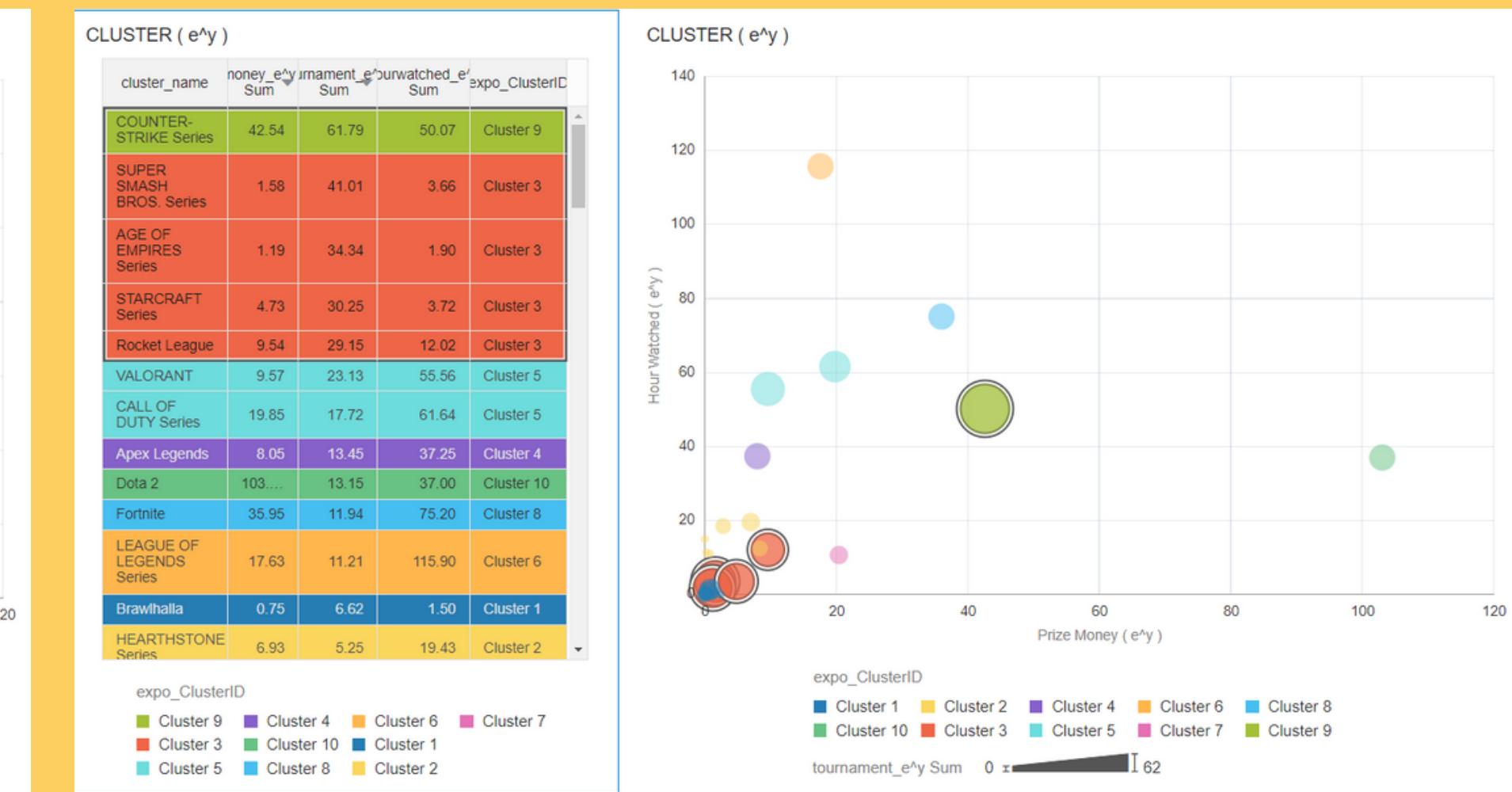


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TOP HOUR WATCHED CLUSTER(S)



TOP TOURNAMENT CLUSTER(S)





100 Thieves 100 Thieves @100Thieves

100 Thieves x @Gucci
Coming soon.
capsule.gucci.com/100ThievesXGuc...
#100ThievesxGucci

100 THIEVES x GUCCI

2.6M views 0:12 / 0:15

From gucci 11:43 PM · Jul 12, 2021 · Twitter for iPhone

3,382 Retweets 1,992 Quote Tweets 46.8K Likes



Louis Vuitton @LouisVuitton

Unveiling the #LVxLoL Collection.
#LouisVuitton presents a @LeagueofLegends capsule designed by @TWNGhesquiere and in partnership with @RiotGames. Discover the collaboration at on.louisvuitton.com/60191TdXZ

12:54 AM · Dec 10, 2019 · Sprinklr

210 Retweets 84 Quote Tweets 1,033 Likes

Q&A SESSION

Our mistake, please try again!



It looks like we did something wrong. Please try again, but if the problem persists know that we are trying hard to make the product perfect.

► Show Details

OK

THANK YOU FOR LISTENING
GROUP 4