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ANALYSIS OF THE KAZAKH CYBER TOURNAMENTS PLATFORM "PINGER.KZ"

Abstract. Worldwide experts presume further growth of videogames field and suggest solutions according to the actual statistics. Despite the remarkable successes of the e-athletes from Kazakhstan in a worldwide arena, there is a lack of statistical data on the local cybersport. Therefore, the research was conducted to provide prospective researchers in fields like gamification, eSport and media with actual data. The given scientific paper uses the data collected and analysed from the largest cyber tournament platform in Kazakhstan "Pinger.kz". The analysed information is about tournaments that took place since the website launched in 2019 to 2021. The libraries of Python for data analysis as BeautifulSoup, requests, matplotlib and Apache tools were used. The aim of the work is to collect and make data analysis for future research. The paper identifies the most popular games among kazakh players in order to use this data in the research on gamification. Parsed data results show the development of the local cybersport and confirm worldwide trends.

Keywords: videogames, kazakh cybersport, pinger.kz, esport big data analysis, gamification

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Аңдатпа. Әлемдік сарапшылар бейне ойындар саласының одан әрі өсуін болжайды және статистикаға сәйкес өз шешімдерін ұсынады. Қазақстанның киберспортшыларының әлемдік аренадағы тамаша жетістіктеріне қарамастан, жергілікті киберспорт туралы статистикалық деректер жетіспейді. Сондықтан бұл зерттеу гемификация, киберспорт және медиа сияқты салалардағы болашақ зерттеушілерді нақты деректермен қамтамасыз ету үшін жүргізілді. Бұл ғылыми мақалада "Pinger.kz" атты Қазақстандағы ең ірі кибертурнирлер платформасынан жиналған және талданған деректер пайдаланылады. Талданған ақпарат 2019-2021 жылдары веб-сайт іске қосылғаннан бері болған турнирлерге қатысты. BeautifulSoup, requests, matplotlib сияқты Python кітапханалары және Apache құралдары сияқты деректерді талдау үшін пайдаланылды. Жұмыстың мақсаты - болашақ зерттеулер үшін деректерді жинау және талдау. Геймификация бойынша басқа зерттеуде осы деректерді пайдалану үшін бұл мақалада қазақстандық ойыншылар арасында ең танымал ойындар анықталды. Деректерді талдау нәтижелері жергілікті

киберспорттың дамуын көрсетеді және жалпы әлемдік үрдістерді растайды.

Түйін сөздер: ойындар, қазақ киберспорты, pinger.kz, esports үлкен деректерін талдау, геймификация

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Аннотация. Мировые эксперты прогнозируют дальнейший рост индустрии видеоигр и предлагают свои решения согласно статистике. Несмотря на выдающиеся достижения киберспортсменов Казахстана на мировой арене, статистические данные о местном киберспорте отсутствуют. Поэтому это исследование было проведено для обеспечения будущих исследователей в таких областях, как гемификация, киберспорт и медиа, реальными данными. В этой научной статье используются данные, собранные и проанализированные с крупнейшей в Казахстане платформы кибертурниров “Pinger.kz”. Анализируемая информация касается турниров, которые проводились с момента запуска сайта в 2019-2021 годах. Библиотеки Python такие как BeautifulSoup, requests, matplotlib и инструменты Apache были использованы для анализа данных, таких как. Цель работы - сбор и анализ данных для будущих исследований. В этой статье были определены самые популярные игры среди казахстанских игроков чтобы использовать эти данные в другом исследовании по геймификации. Результаты анализа данных отражают развитие локального киберспорта и подтверждают общемировые тенденции.

Ключевые слова: видеоигры, казахстанский киберспорт, pinger.kz, анализ больших данных киберспорта, геймификация

Introduction

Cybersport (eSport) is a form of competition that involves playing videogames on a competitive basis. One of the fastest-growing sources of entertainment has already been recognized by multiple countries as an ordinary sports discipline [1]. Pursuant to the statistics by 2021, the income came from sponsorships and advertising totalled 641 million U.S. dollars, while media rights gathered 192 million U.S. dollars. The global market revenue of the eSports industry was forecast to grow to 1.62 billion U.S. dollars in 2024 [2]. However, since it is a relatively new and rapidly developing field, there is a lack of studies worldwide in the scientific area. Especially cybersport in Kazakhstan which was recognized as an official sport only in 2018 [3].

In 2019 with the support of Qazaq Cybersport Federation was launched a platform for kazakh eSport tournaments “Pinger.kz”. After just three months the website brings together 12000 active users from Kazakhstan, Russia, Uzbekistan, Kyrgyzstan, Turkmenistan and Tajikistan and other countries. The website provides users with access to participating or monitoring online cyber

tournaments and events. The growing popularity of the website attracts young athletes to whom it is important to declare themselves [4].

The findings will be valuable for prospective researchers in game-related fields. For instance, the research field of gamification which implies using game mechanics in a non-game context. Gamification grows as a significant research field last decade. The findings of this paper might be useful as statistical data for the researchers in the field. In order to develop appropriate gamification mechanics, it is important to know the audience and their gaming habits. The researchers demonstrated that personality has an effect on player types and player preferences of different game genres. Therefore, they try to develop personalised gameful systems [5]. Incidentally, they might find implementations in the field of education. According to the literature review of the field of gamification, new age learners need new methods of education and there is a sense in using gamification methods [6]. Moreover, the circumstances of COVID-19 showed us the significant problems with the lack of motivation and engagement among students during E-learning. The recent research provided as a literature review on the field of gamification in E-learning recognized that there is a lack of data from local sources [7]. Official data given on the website of Qazaq Cybersport Federation is out of date and does not illustrate statistics in a fully comprehensive way [8]. Hence, the work was conducted in order to provide prospective researchers in the field of gamification and game development with the actual statistical data. Furthermore, the research findings might be useful for further studies related to cybersport and the field of videogames.

Main part

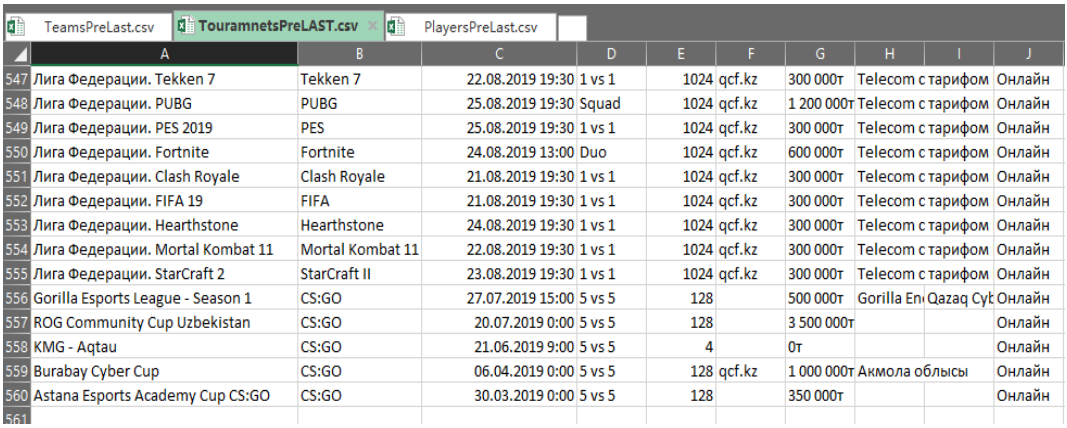
Dataset

The dataset was obtained from the largest platform for providing cyber tournaments in Kazakhstan “Pinger.kz”. This data contains 161021 user accounts’ records and 560 rows of cybersport tournaments data. While the number of participants in solo tournaments is 18309, the number of team participants is 24121 records. The data of tournaments consists of all necessary information about the event such as title, discipline, date, format, award amount, organizers, location. Similarly, records of users, teams and team members have all the necessary data for analysing them by country, dates of registration and ranks. However, the study focused more on the tournament data set because it described the state of the industry in a more comprehensive way. The description of the datasets is showed in the following comparison chart below.

Table 1. Description of gathered data

Dataset	Tournaments	Team Tournament Participants	Solo Tournament Participants
Rows	560	24121	18309

Columns	Tournament, Discipline, Date, Format, Maximum Participants, Organisator, Prize fund, General Partner, Other Partners, Online/LAN, Location	Team, Status, Altel CG, Division, Country, Tournament	Participant, Country, Status, Tournament



TeamsPreLast.csv | TouramnetsPreLAST.csv | PlayersPreLast.csv

	A	B	C	D	E	F	G	H	I	J
547	Лига Федерации. Tekken 7	Tekken 7	22.08.2019 19:30	1 vs 1	1024	qcf.kz	300 000т	Telecom с тарифом		Онлайн
548	Лига Федерации. PUBG	PUBG	25.08.2019 19:30	Squad	1024	qcf.kz	1 200 000т	Telecom с тарифом		Онлайн
549	Лига Федерации. PES 2019	PES	25.08.2019 19:30	1 vs 1	1024	qcf.kz	300 000т	Telecom с тарифом		Онлайн
550	Лига Федерации. Fortnite	Fortnite	24.08.2019 13:00	Duo	1024	qcf.kz	600 000т	Telecom с тарифом		Онлайн
551	Лига Федерации. Clash Royale	Clash Royale	21.08.2019 19:30	1 vs 1	1024	qcf.kz	300 000т	Telecom с тарифом		Онлайн
552	Лига Федерации. FIFA 19	FIFA	21.08.2019 19:30	1 vs 1	1024	qcf.kz	300 000т	Telecom с тарифом		Онлайн
553	Лига Федерации. Hearthstone	Hearthstone	24.08.2019 19:30	1 vs 1	1024	qcf.kz	300 000т	Telecom с тарифом		Онлайн
554	Лига Федерации. Mortal Kombat 11	Mortal Kombat 11	22.08.2019 19:30	1 vs 1	1024	qcf.kz	300 000т	Telecom с тарифом		Онлайн
555	Лига Федерации. StarCraft 2	StarCraft II	23.08.2019 19:30	1 vs 1	1024	qcf.kz	300 000т	Telecom с тарифом		Онлайн
556	Gorilla Esports League - Season 1	CS:GO	27.07.2019 15:00	5 vs 5	128		500 000т	Gorilla En	Qazaq Cyb	Онлайн
557	ROG Community Cup Uzbekistan	CS:GO	20.07.2019 0:00	5 vs 5	128		3 500 000т			Онлайн
558	KMG - Aqtau	CS:GO	21.06.2019 9:00	5 vs 5	4		0т			Онлайн
559	Burabay Cyber Cup	CS:GO	06.04.2019 0:00	5 vs 5	128	qcf.kz	1 000 000т	Акмола облысы		Онлайн
560	Astana Esports Academy Cup CS:GO	CS:GO	30.03.2019 0:00	5 vs 5	128		350 000т			Онлайн
561										

Fig. 1. Gathered data appearance

Methods

The data were obtained from the website “pinger.kz” by using data scraping methods of python libraries such as BeautifulSoup and requests. Data manipulations are provided by importing and using of pandas libraries. Apache big data analysis technologies are used for parsing a big amount of collected data. Matplotlib library was used for illustrating graphs based on the gathered datasets. All manipulations were performed in Jupyter Notebook.

pinger.kz

In [1]:
```
import requests
import re # regular expressions
from bs4 import BeautifulSoup
from selenium import webdriver
import pandas as pd
import json
import time
from datetime import date
from datetime import datetime, timedelta
import numpy as np
import csv
```

In [2]:
```
HEADERS = {'user-agent': ('Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5)'
                          'AppleWebKit/537.36 (KHTML, like Gecko)'
                          'Chrome/45.0.2454.101 Safari/537.36'),
                          }
```

In [3]:
```
def parse_links(l_url):
    try:
        html = parse(l_url)
        bs = get_content(html)
        buttons = bs.find_all(class_='t-card_button')
        if(len(buttons)==0):
            return False
        for b in buttons:
            a = b.find('a')['href']
            links.append(a)

        return True
    except:
        return False


def parse(l_url):
    html = requests.get(l_url, headers=HEADERS)

    return html

def get_content(html):
    bs = BeautifulSoup(html.text, 'html.parser')
    return bs
```

In [4]:
```
url = 'https://pinger.kz'
links = []

is_true = True
i=0
while is_true:
    i=i+1
    try:
        #print('page '+str(i))
        url_new = url+'/tournaments?page='+str(i)
        is_true = parse_links(url_new)

    except:
        break
```

Fig. 2. Parsing the website “Pinger.kz”

```
In [1]:
spark = SparkSession.builder.appName('dataframe-api').getOrCreate()

Picked up _JAVA_OPTIONS: -Dawt.useSystemAAFontSettings=on -Dswing.aatext=true
Picked up _JAVA_OPTIONS: -Dawt.useSystemAAFontSettings=on -Dswing.aatext=true
21/12/20 09:03:28 WARN Utils: Your hostname, kali resolves to a loopback address: 127.0.1.1; using 10.0.2.15 inste
ad (on interface eth0)
21/12/20 09:03:28 WARN Utils: Set SPARK_LOCAL_IP if you need to bind to another address
Using Spark's default log4j profile: org/apache/spark/log4j-defaults.properties
Setting default log level to "WARN".
To adjust logging level use sc.setLogLevel(newLevel). For SparkR, use setLogLevel(newLevel).
21/12/20 09:03:30 WARN NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-j
ava classes where applicable

In [42]:
from pyspark.sql import SparkSession
from pyspark.sql.functions import col, asc,desc

In [2]:
users = spark.read.csv('PingerUsersFinal.csv', sep=';',
                       inferSchema=True, header=True)

df = users.toPandas()
df.head()
```

Out[2]:

	id	Player	Registration Date	Country
0	1	Zhuman	09.10.2018	None
1	3	juman	09.10.2018	None
2	4	39ma	09.10.2018	None
3	5	artm	09.10.2018	None
4	6	aleksandr	09.10.2018	None

Fig. 3. Apache spark tools

Results

The main purpose of the paper was to identify Kazakhstan's cybersport trends and overall analyse the field. In order to give prospective researchers, the actual data about our eSport we parsed the website "Pinger.kz" and focused on videogames, their popularity and sponsors.

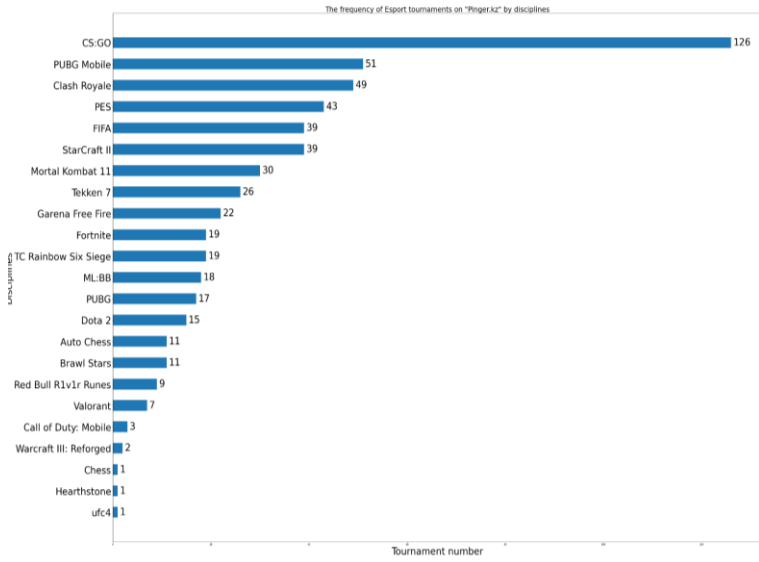


Fig. 4. The number of tournaments on "Pinger.kz" by disciplines

As shown in the chart above, the most popular game is “Counter-Strike: Global Offensive”, also known as “CS:GO”. The chart demonstrates the number of tournaments held by different disciplines. There is a point in considering “PUBG Mobile” and just “PUBG” as one discipline, and overall, there would be 68 events of “PlayerUnknown's Battlegrounds”.

However, the number of events provided may not be the only significant measure of the popularity of disciplines. Hence, the chart below was given to illustrate video games by the amount of prize fund that was allocated to each discipline overall. Generally, the picture remains similar, except for some differences. While “CS:GO” is still at the top of the list, Dota2 turned out as at least the third highest funded discipline after popular competitive shooters. Generally, the allocated prize fund amount of the discipline is directly proportional to its popularity and increases the significance of the videogame.

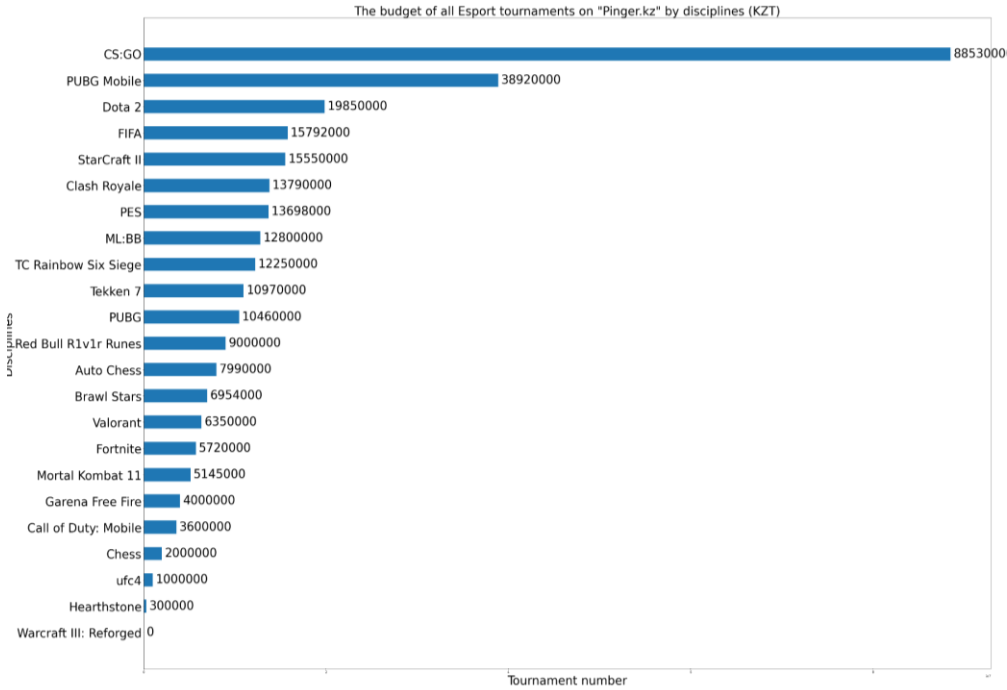


Fig. 5. Prize funds of tournaments on “Pinger.kz” by disciplines

Furthermore, there is a probability of having wrong conclusions because of highly funded eSport events of less popular games in the short term. “Red Bull R1v1r Runes” is a custom map for Dota2, hence, we can consider them as one game. According to the table below, roughly, we could measure the average fund prize for each event for a specific discipline. By this measure, Dota2 is a leader in all video games that had at least 6 events. The number 6 as the minimum number of events to consider the discipline data as significant, got from 5% of the maximum value, which is 126 (CS:GO). Thus, we can avoid eSport

tournaments that were held only several times and only because they have a high prize fund amount per event.

Table 2. The disciplines that sorted by their prize fund per event

Discipline	Prize fund (KZT)	Event number	Prize fund / Event number
Dota 2	19850000	15	1323333.33
Red Bull R1v1r Runes	9000000	9	1000000.0
Valorant	6350000	7	907142.85
PUBG Mobile	38920000	51	763137.25
Auto Chess	7990000	11	726363.63
ML:BB	12800000	18	711111.11
CS:GO	88530000	126	702619.04
TC Rainbow Six Siege	12250000	19	644736.84
Brawl Stars	6954000	11	632181.81
PUBG	10460000	17	615294.11
Tekken 7	10970000	26	421923.07
FIFA	15792000	39	404923.07
StarCraft II	15550000	39	398717.95
PES	13698000	43	318558.14
Fortnite	5720000	19	301052.63
Clash Royale	13790000	49	281428.57
Garena Free Fire	4000000	22	181818.18
Mortal Kombat 11	5145000	30	171500.0

These results are available for comparison with the similar data provided by Qazaq Cybersport Federation on its official website. Nevertheless, it should be noted that their data is out of date and have no additional information that we gathered from the “pinger.kz” [8].

As it showed from the plot below, most of the events either were not sponsored or corresponding information was not given to the website. However, eSport tournaments are mainly sponsored by telecommunication and tech companies such as “Kazakhtelecom”, “Activ”, “Beeline” etc.

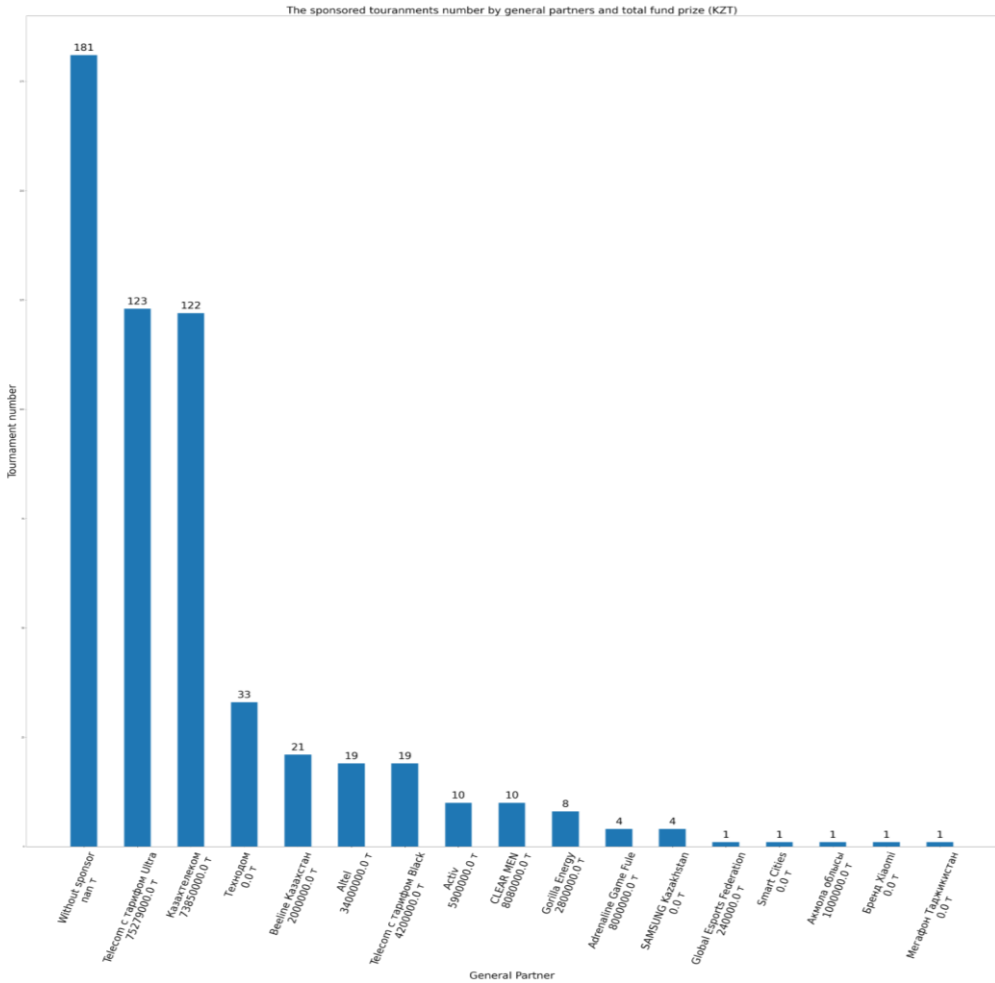


Fig. 6. The number of tournaments on “Pinger.kz” by disciplines

The chart constructed by the dataframe data shown below showed the significant growth of the website users from 2019 when the website has just launched. It shows the number of new users of the website per month.

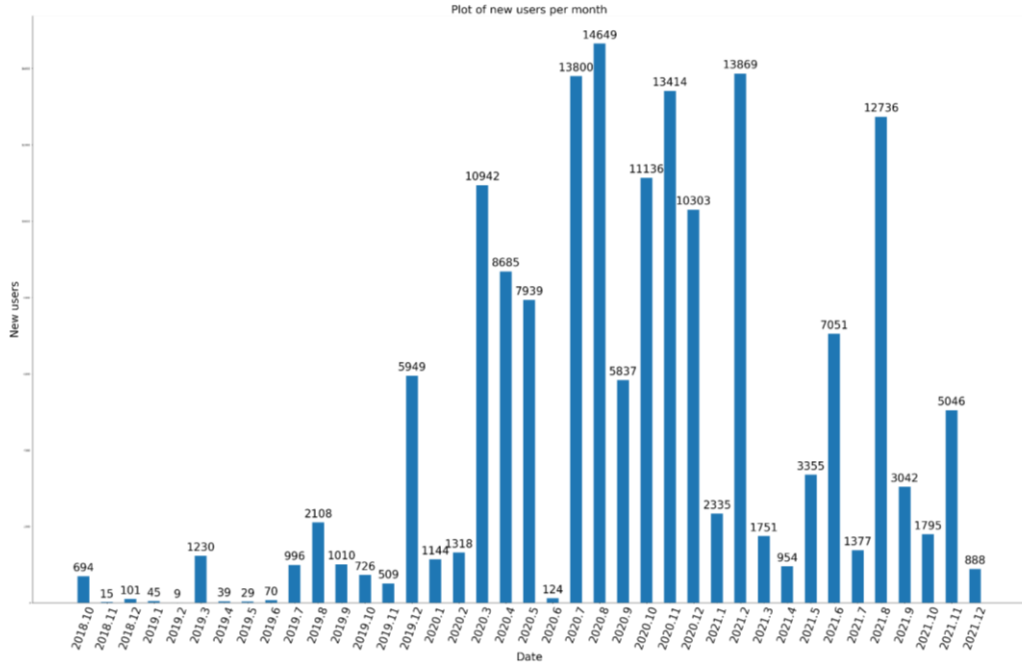


Fig. 7. The plot of new users per month on “Pinger.kz”

Conclusion

The field of cybersport grows rapidly worldwide and eventually become a serious tournament type. Researchers around the world noticed the trend and try to predict the future of society by making experiments and analysing the data. This article tried to find the actual data about local cybersport which confirmed the worldwide trend. The results of experiments with Apache’s big data technologies confirmed the hypothesis that cybersport in Kazakhstan grows.

There may be some possible limitations in this study. The information given on the website might not totally describe the right information about eSport events. There is always the possibility of a human factor in inserting the info into the website. For instance, it is hardly believed that the company “Технодом” sponsored at least 33 events without any prize fund. Also, the researchers admit that not all data gathered from the platform was used for illustrating and analysing. The idea of analysing all data that was available turned out too ambitious and unnecessary. The columns such as “Format”, “Maximum Participants”, “Country”, “Altel CG”, “Division”, and “Other Partners” weren’t properly analysed and displayed.

The findings moderately illustrated the state of development of kazakh eSport. Based on the results we can conclude that generally CS:GO, PUBG, Dota 2, Fifa are the most popular video games among kazakh players. Therefore, gamification methods developers should focus on these games in order to build proper working gamify elements. The analysis of the kazakh cyber tournament

platform “pinger.kz” provided actual statistics to prospective researchers in the field of cybersport.

References

1 Team G Style. Cybersport as a new direction of development for teenagers Gstylemag.com. Last modified August 20, 2020. URL: https://gstylemag.com/2020/08/20/cybersport-as-a-new-direction-of-development-for-teenagers/

2 Gough, C. eSports market revenue worldwide from 2019 to 2024. Statista.com. Last modified August 6, 2021. URL: https://www.statista.com/statistics/490522/global-esports-market-revenue/

3 Khalyk D., Myssayeva K.N. Esport in journalism: commentator of eSport as a modern profession. *Herald of journalism*, [S.l.], v. 54, n. 4, ISSN 2617-7978. (dec. 2019). pp. 77-85

4 Платформа Pinger.kz собрала 12 тысяч киберспортсменов. Tengrinews.kz. Last modified January 7, 2020. URL: https://tengrinews.kz/kazakhstan_news/platforma-pingerkz-sobrala-12-tyisyach-kibersportsmenov-388158/

5 Tondello G., Wehbe R., Diamond L., Busch M., Marczewski A., Nacke L., The Gamification User Types Hexad Scale, *The ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play (CHI PLAY 2016*), (2016), 10.1145/2967934.2968082.

6 Saxena M., Mishra D. Gamification and Gen Z in Higher Education: A Systematic Review of Literature. *International Journal of Information and Communication Technology*. 17 (2021): pp 1-22. 10.4018/IJICTE.20211001.oa10.

7 Alimanova, M., Karazhan, B.S. The lack of Gamification methods in E-learning. *Proceedings of International Young Scholars Workshop*. v. 10, ISSN 2709-1120. (Jun 27. 2021), pp. 395-406.

8 QCF statistics on tournaments held. QCF.com. Last modified October 1, 2020. URL: https://qcf.kz/en/statistics