

Designing and executing a cross-sectional study of gaming and mobility behavior: demographic, sociocultural and psychological factors.

Mussanova Anel BD-2001,
Abdireshov Zhandos BD-2004

Adviser: Aidana Zhalgas

Relevance

- The computer industry market is rapidly developing
- No research on this topic was found in Kazakhstan
- Technologies used in the gaming industry and developed for it can be used not only by gamers

Goal

Designing the image of players by developing personalized and effective clusters with similar characteristics, based on their psychological, demographic, cultural, and social factors.

Objectives

1. Collect data on the gaming behavior, demographic characteristics, and social factors of players through surveys.
2. Analyze the impact of video and mobile games on various sectors (demography, culture, sociology, and psychology).
3. Identify the critical demographic, psychological, cultural, and social factors that are most relevant to gaming behavior and preferences.
4. Develop a clustering machine learning system that utilizes this information to group players into clusters with similar characteristics.
5. Provide insights and recommendations for improving the accuracy and usefulness of the clustering system.

Literature review

Author	Title	Methods used	Findings of study
Hamari, J., Sjöblom, M., & Tikka, P.	What is eSports and why do people watch it?	Qualitative content analysis	Identified three main motives for watching eSports: game enjoyment, interest in the community, and interest in the competition.
Hussain, Z., & Griffiths, M.D.	The attitudes, feelings, and experiences of online gamers: A qualitative analysis	Semi-structured interviews	Explored the attitudes, feelings, and experiences of online gamers and found that gaming provided a sense of escapism and a way to cope with stress.
López-Fernández , O., & Kuss, D.J.	Video gaming addiction in children and adolescents: A systematic review of literature	Systematic literature review	Identified several risk factors for video game addiction in children and adolescents, including depression, anxiety, and poor academic performance.

Problem statement

Input:

The data collected in Excel from a questionnaire, where there are 53 questions, compiled by us based on the analysis of literary reviews.

Output:

Creating a system using machine learning that displays a portrait of a player in Kazakhstan

Methods:

- Conduct survey (Google Form with 53 questions).
- Use clustering machine learning algorithms (K-Means, hierarchical clustering) to build models that can cluster gamers' behavior based on demographic, cultural, social, and psychological factors.
- Use data visualization tools (Power BI) to present the findings, results in an easy-to-understand format and to visualize the players' portrait.

Data Collection

350 ответов

What is your gender? *

Каков Ваш пол?

☐ Female / Женский

☐ Male / Мужской

Hello, dear!

This survey is being conducted for the purposes of exploring the demographic, cultural, social, and psychological factors of gaming. The information collected from this survey will be used to better understand the attitudes, behaviors, and experiences of gamers, as well as to identify any potential challenges or opportunities that may arise from gaming culture. The results of the survey will be used to inform future research and interventions related to gaming, with the ultimate goal of promoting positive outcomes for individuals and communities who engage in this popular pastime.

All responses to the survey will be kept confidential and used solely for research purposes. Your participation in this survey is voluntary, and you may withdraw your response at any time. The information collected from this survey will be used to better understand the attitudes, behaviors, and experiences of gamers, as well as to identify any potential challenges or opportunities that may arise from gaming culture. The results of the survey will be used to inform future research and interventions related to gaming, with the ultimate goal of promoting positive outcomes for individuals and communities who engage in this popular pastime.

Этот опрос проводится с целью изучения демографических, культурных, социальных и психологических факторов игр. Информация, собранная в ходе опроса, будет использоваться для лучшего понимания взглядов, поведения и опыта игроков, а также для выявления любых потенциальных проблем или возможностей, связанных с игровой культурой. Результаты опроса будут использоваться для информирования будущей исследовательской работы и вмешательств, связанных с играми, с конечной целью содействия положительным результатам для отдельных лиц и сообществ, вовлеченных в эту популярную деятельность.

Все ответы на опрос будут сохранены в строгом соответствии с политикой конфиденциальности и использоваться исключительно в исследовательских целях. Ваше участие в опросе является добровольным, и вы можете в любой момент отозвать свой ответ. Информация, собранная в ходе опроса, будет использоваться для лучшего понимания взглядов, поведения и опыта игроков, а также для выявления любых потенциальных проблем или возможностей, связанных с игровой культурой. Результаты опроса будут использоваться для информирования будущей исследовательской работы и вмешательств, связанных с играми, с конечной целью содействия положительным результатам для отдельных лиц и сообществ, вовлеченных в эту популярную деятельность.

AITU Mailing
Привет!

Ответить

На данный момент мы, студенты 3 курса специальности Big Data Analysis, пишем дипломную работу по теме "Исследование социальных, культурных, демографических и психологических факторов видеоигр" и исследуем геймеров по этим факторам в Казахстане. Данный опрос ценен тем, что хороших и структурированных данных по этой тематике нет, так сказать мы первопроходцы.

Мы хотим понять портрет игрока в Казахстане с помощью машинного обучения, который будет обучаться, основываясь на данных этого опроса. Опрос включает в себе 53 вопроса и занимает порядка 7-10 минут, так как охватывает 4 большие сферы, и если ты уделишь нам это время, то мы будем невероятно рады.

Опрос полностью анонимный.

Ракмет!

Вот ссылка:
<https://forms.gle/nQt1wHoZMQsjNEF18>

Google Docs

Hello, dear!

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12:32

Questions we used:

Demography.

1. What is your age?
2. What is your gender?
3. What is your nationality?
4. Do you study work?
5. What is your educational background?
6. What region of Kazakhstan were you born in?
7. If you were not born in Kazakhstan, where exactly? (Write with a capital letter)

Game.

8. Have you ever played video games?
9. What types of video games do you play? (multiplayer/single player)
10. How do you communicate with your teammates during the game?
11. What types of games do you prefer? (e.g., action, puzzle, strategy, sports, etc.)
12. Do you have specific days or play games whenever you want?
13. What time of day do you usually play?
14. How often do you play video games?
15. Why do you play games?
16. Why do you like to play as different characters?
17. What platforms or devices do you use to play games?
18. Do you think video games can be used to teach skills and knowledge?

19. If yes, what skills?

20. What factors influence your decision to buy or play a game? (e.g., graphics, storyline, price, reviews, etc.)

Culture.

21. Is the nation/religion/ethnicity of your teammates important?

22. Do you play exclusively with people from your nation?

23. Do you belong to clubs, sections, university/school clubs?

24. Do you think video games can be used to bring people from different cultures and backgrounds together?

25. Have you ever attended a gaming convention or event?

26. What language do you play the video game in?

27. Is there a language (or another) barrier that prevents you from playing certain games?

28. If there is, what is the barrier?

29. In what language do you communicate with teammates?

30. In which games does this barrier occur?

Society.

31. Do games affect relationships with your friends/family? (If you play together)

32. How do you discover new games? (e.g., recommendations, social media, ads, etc.)

33. How often do you get sick?

34. Are you a member of the gaming community?

35. What is the name of your community?

36. What game is your community in?

37. Do you have trouble sleeping?

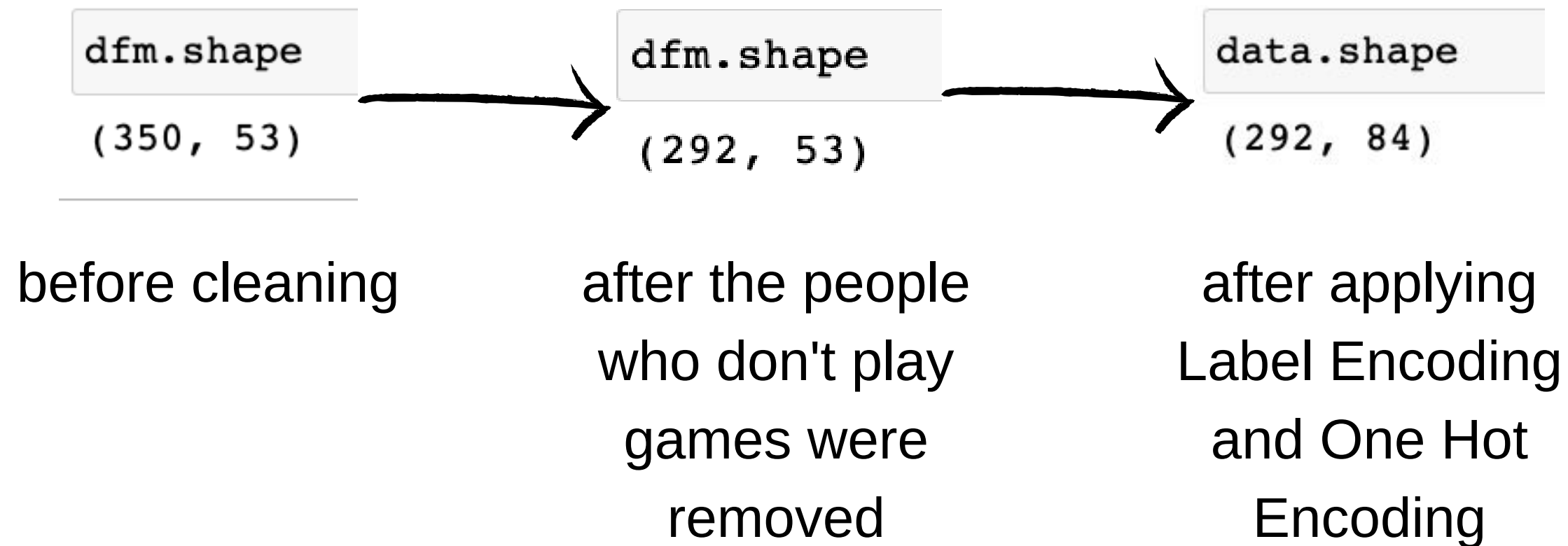
Social-relationship.

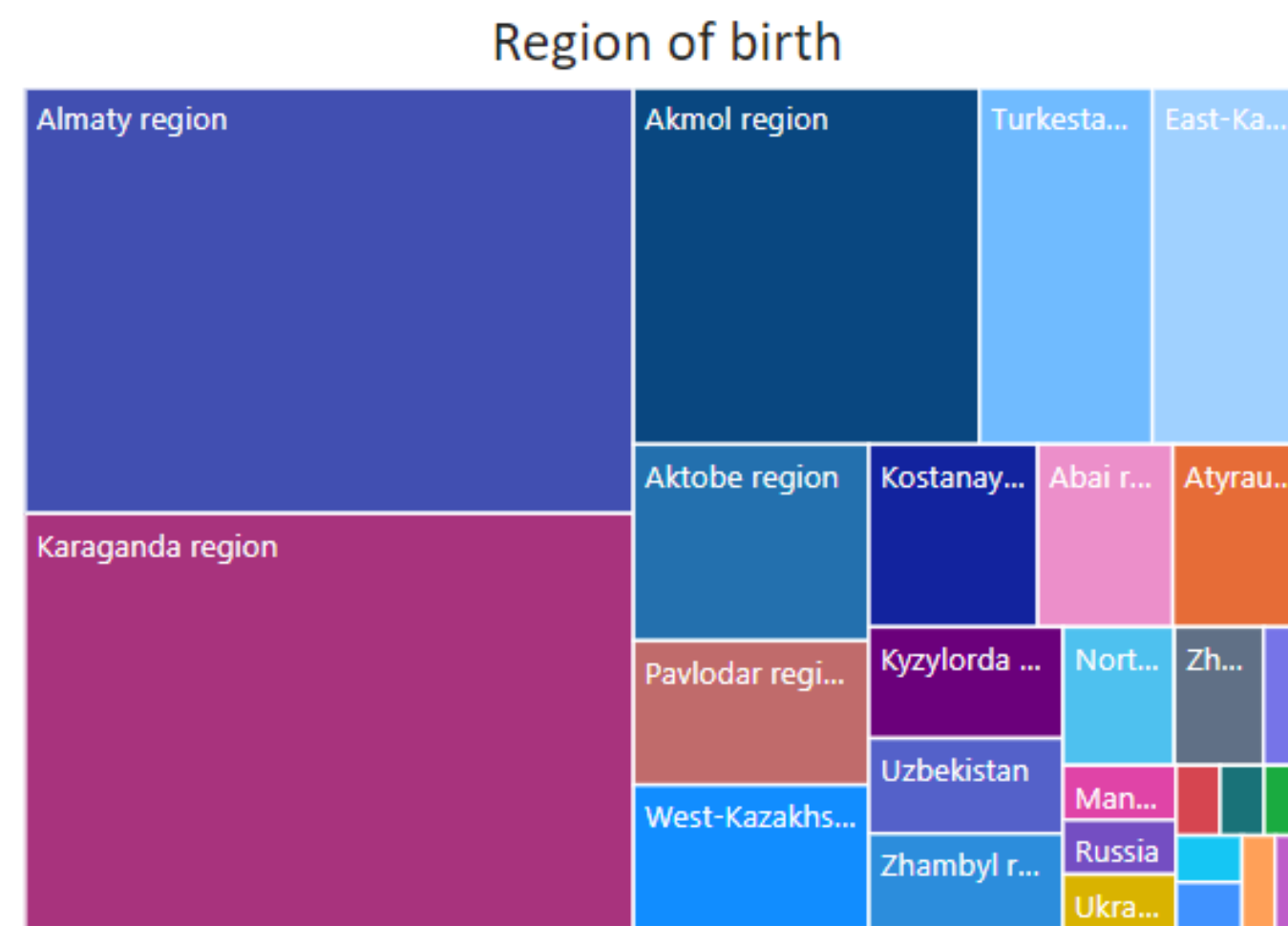
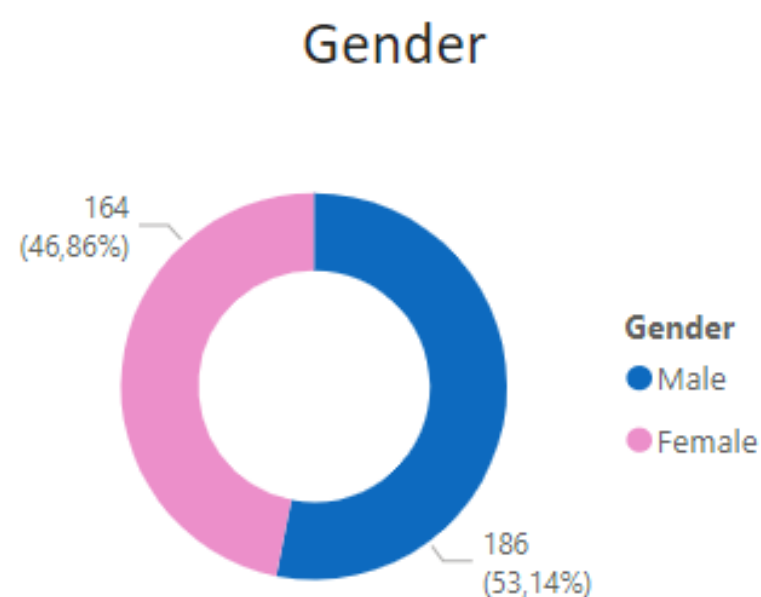
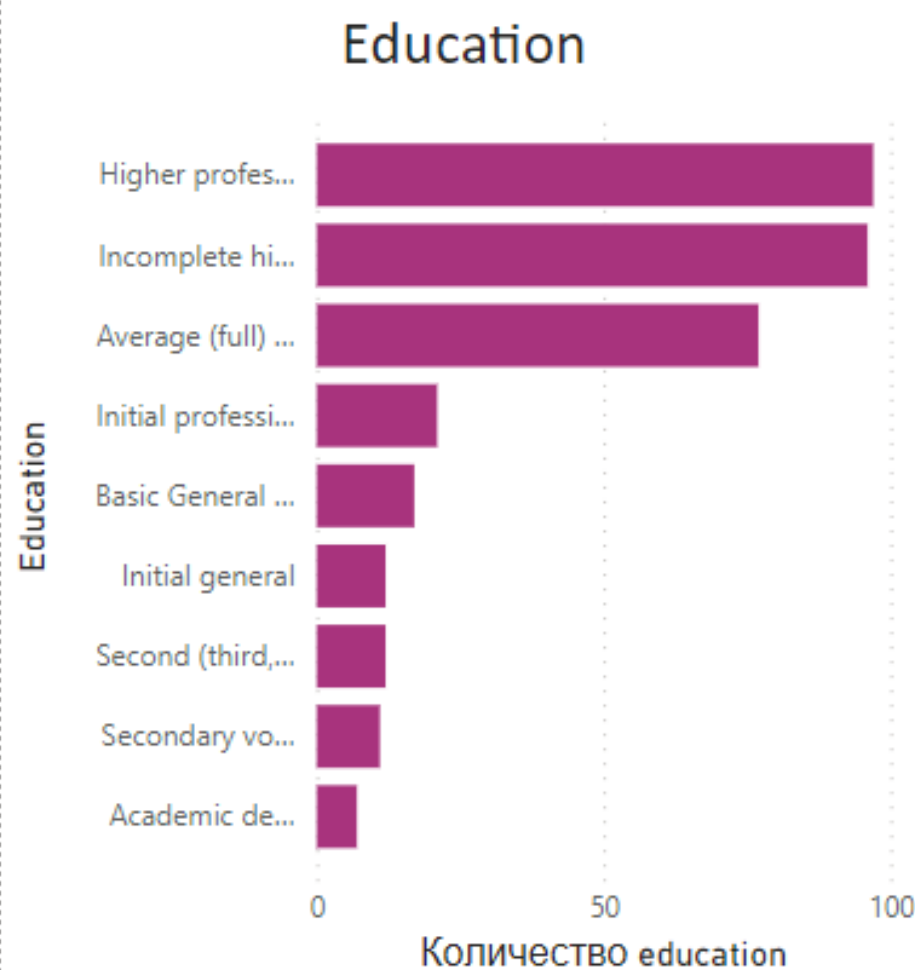
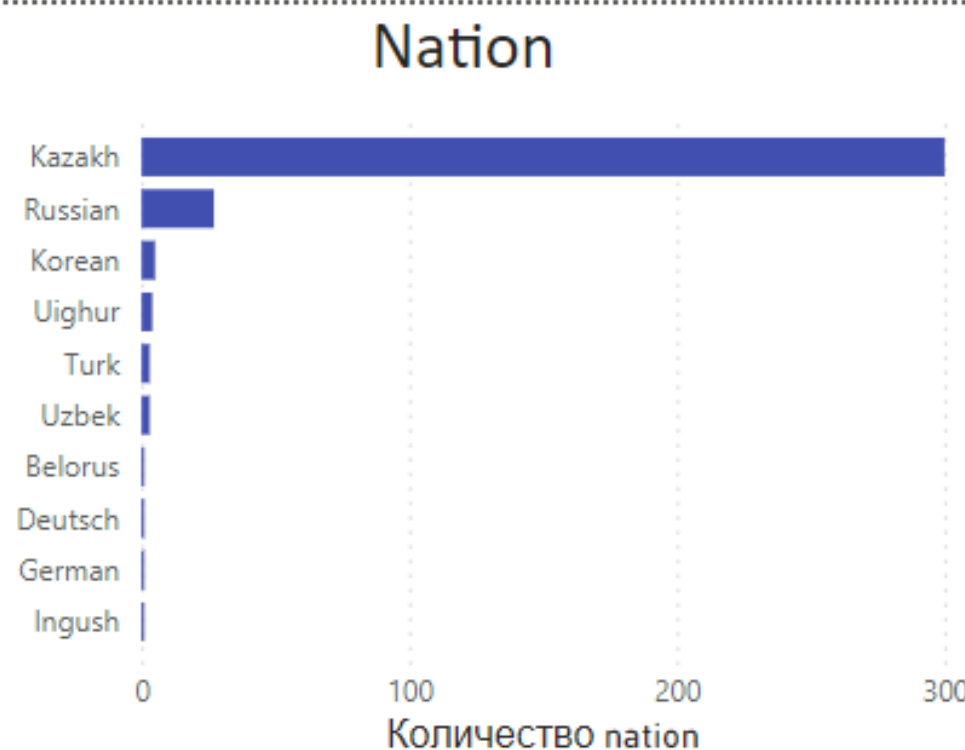
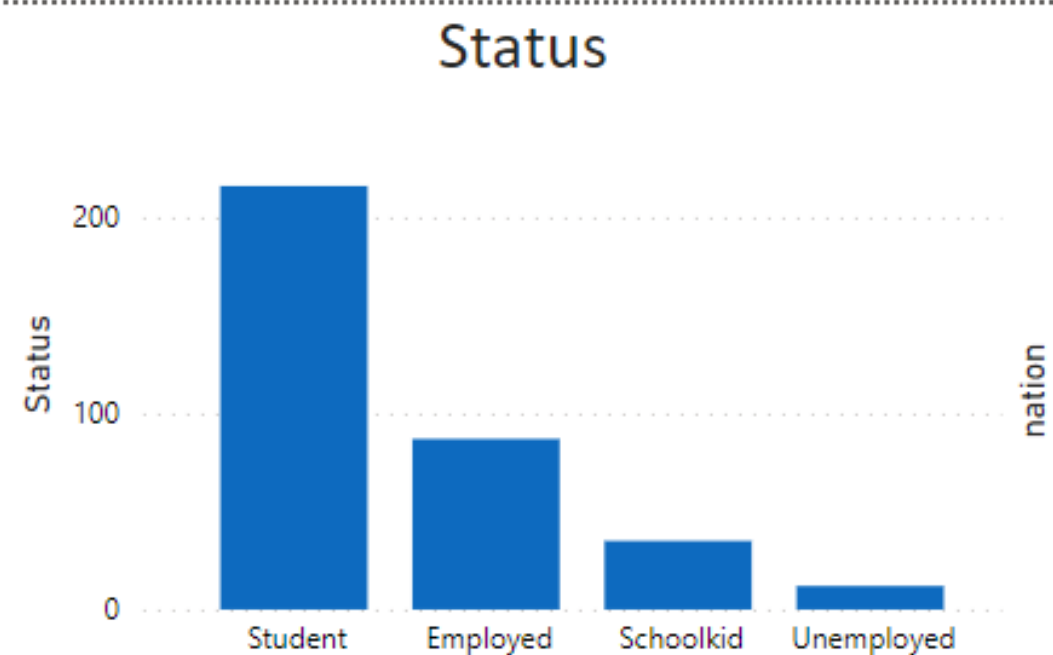
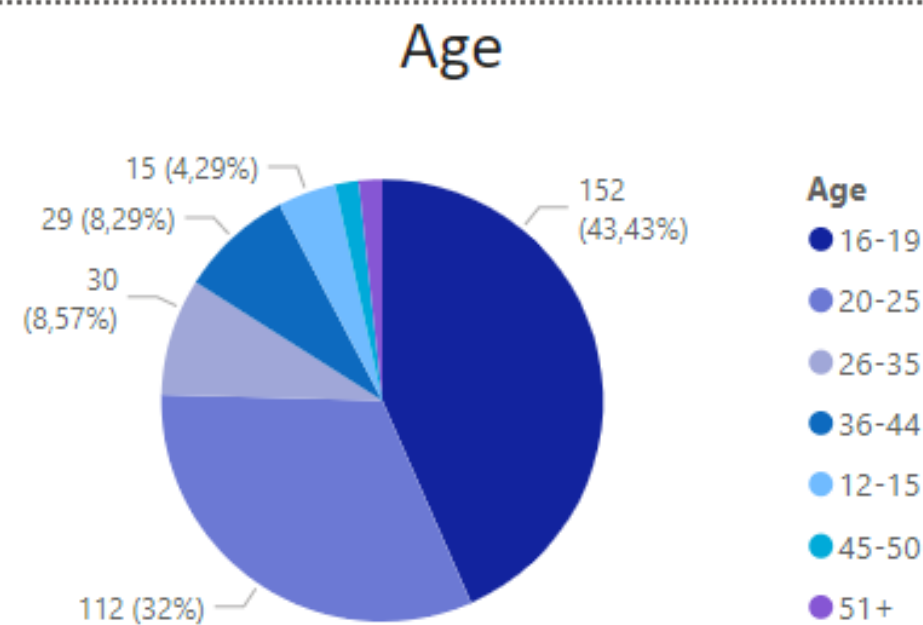
- 38. Do you feel closer to your teammate friends after the game?
- 39. How do you think gaming affects your social and psychological well-being?
- 40. Do you discuss games with your loved ones?
- 41. Do you play games more with friends, the community, or a family member?
- 42. Do you prefer to play video games alone or with others?

Psychology.

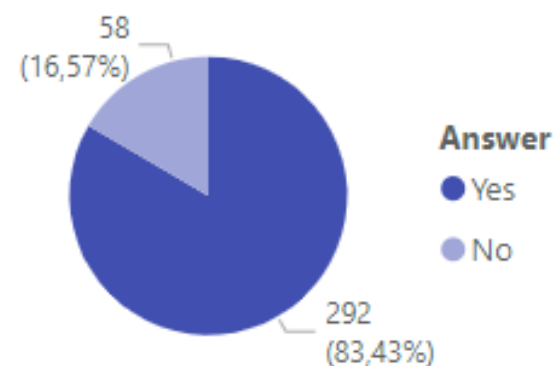
- 43. What motivates you to continue playing these games?
- 44. Do you play for the sake of competition?
- 45. How do you feel when you play games?
- 46. How do these emotions affect you when playing?
- 47. Were there any consequences after the game?
- 48. Were these effects positive or negative?
- 49. What were they like? Describe in detail
- 50. How do video games affect your mental health?
- 51. How exactly?
- 52. I feel drained after the game.

Processing of input data





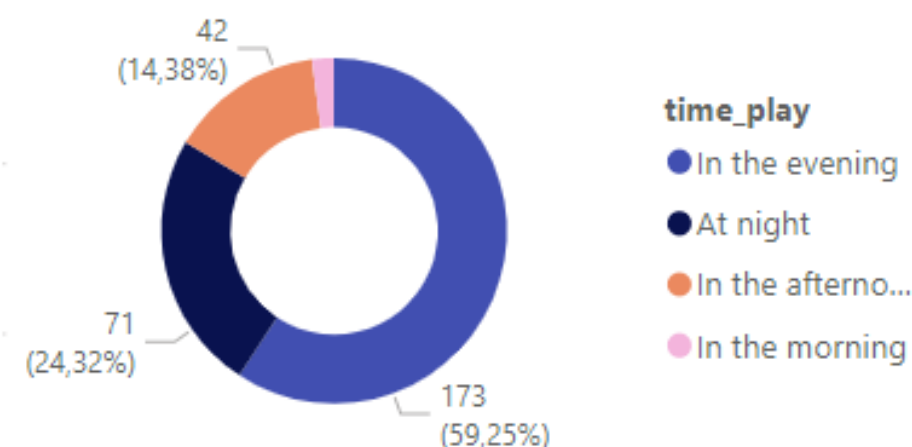
Have you ever played videogames?



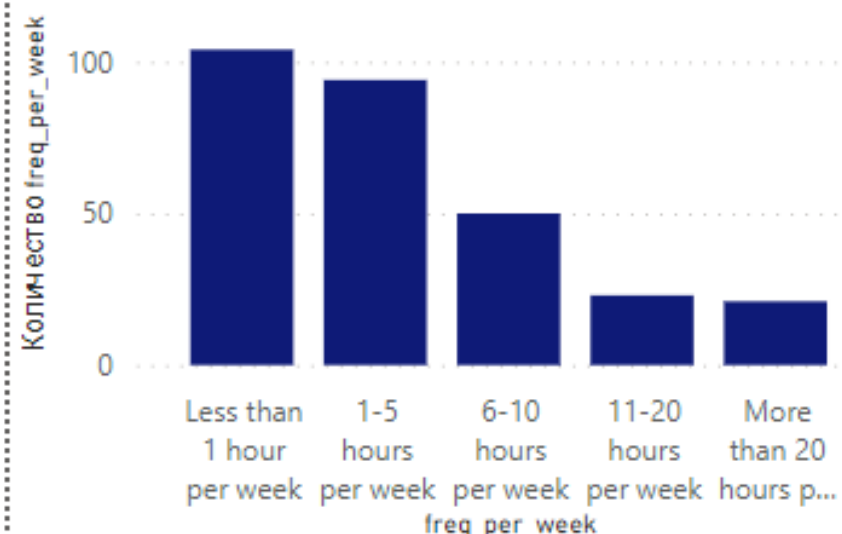
Do you play games on certain days or whenever you want?



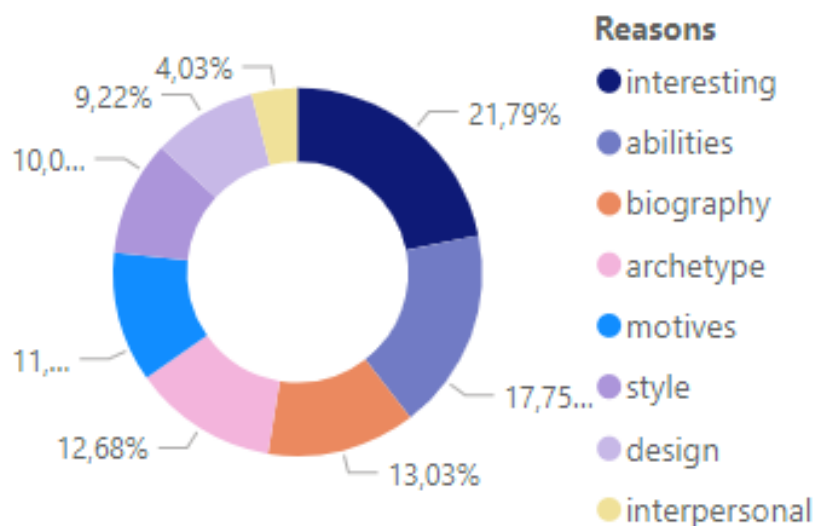
What time of day do you usually play?



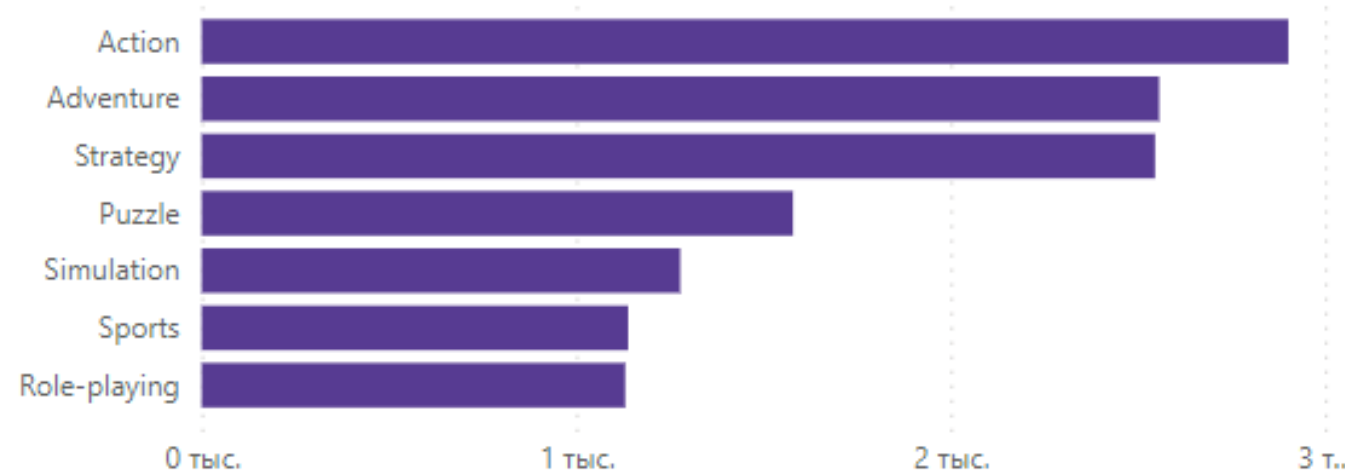
How often do you play video (mobile) games?



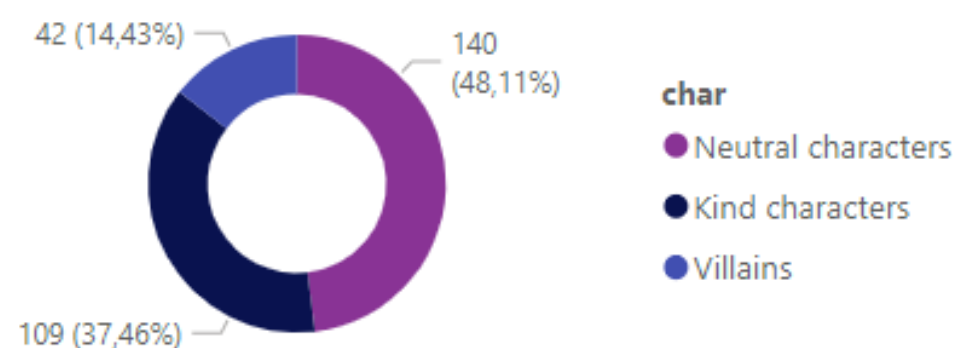
Why do you like to play for this or that character?



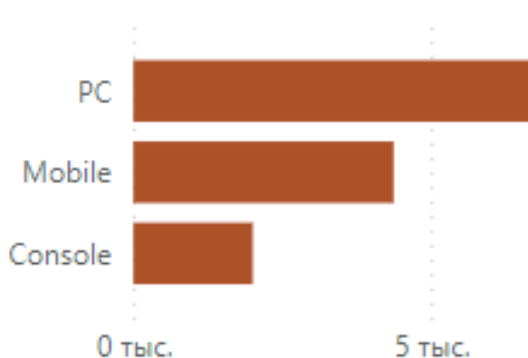
What types of games do you prefer (e.g., action, puzzle, strategy, sports, etc.)?



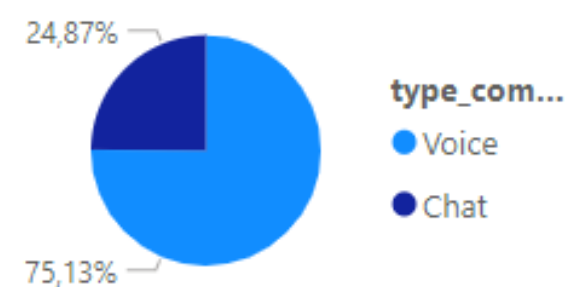
Who do you like to play for?



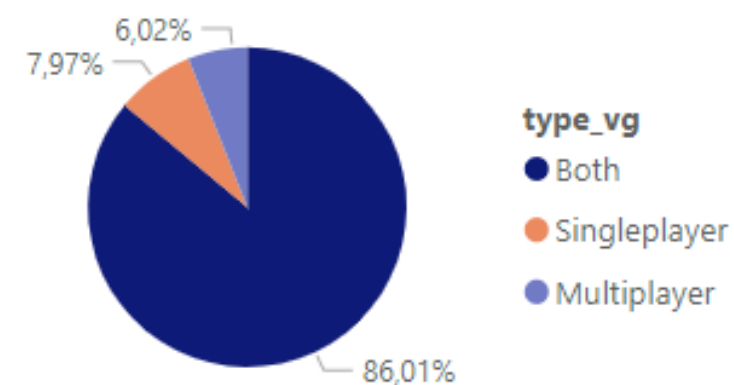
What platforms or devices do you use to play games?



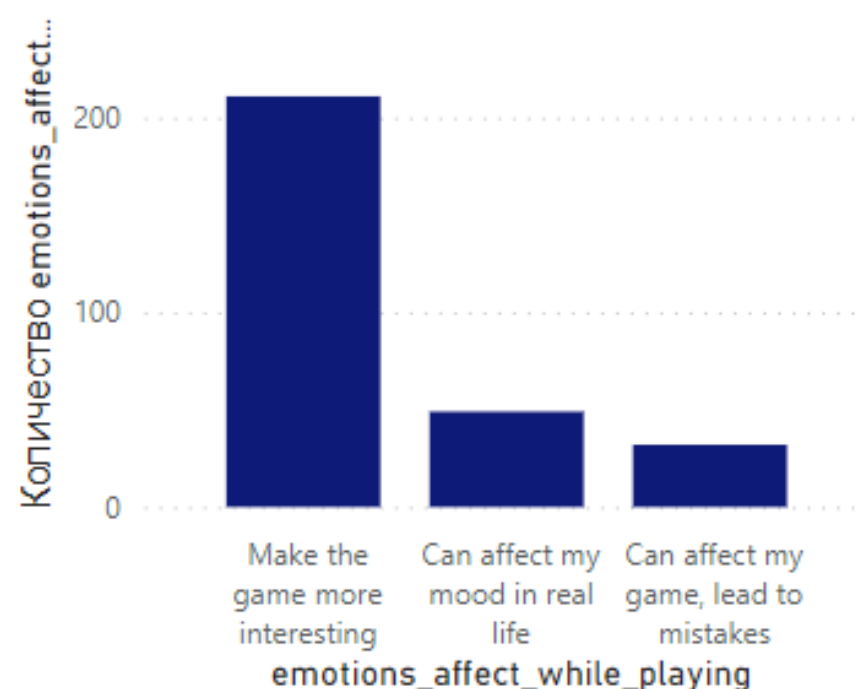
How do you communicate with your teammates during the game?



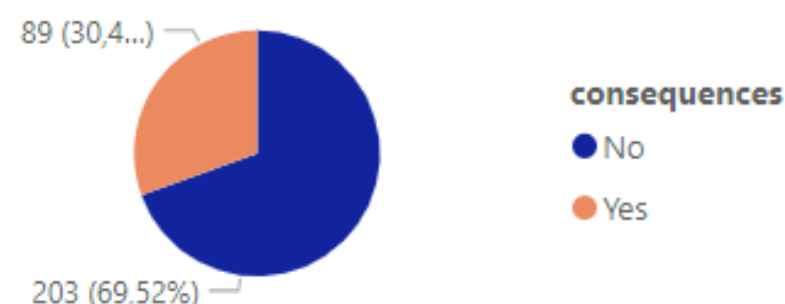
What types of video games do you play?



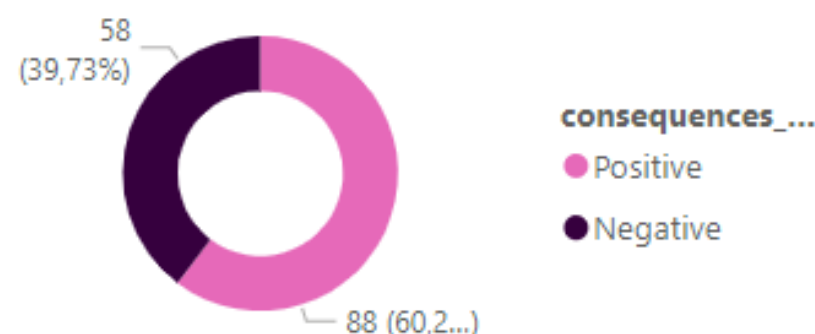
How do these emotions affect you when playing?



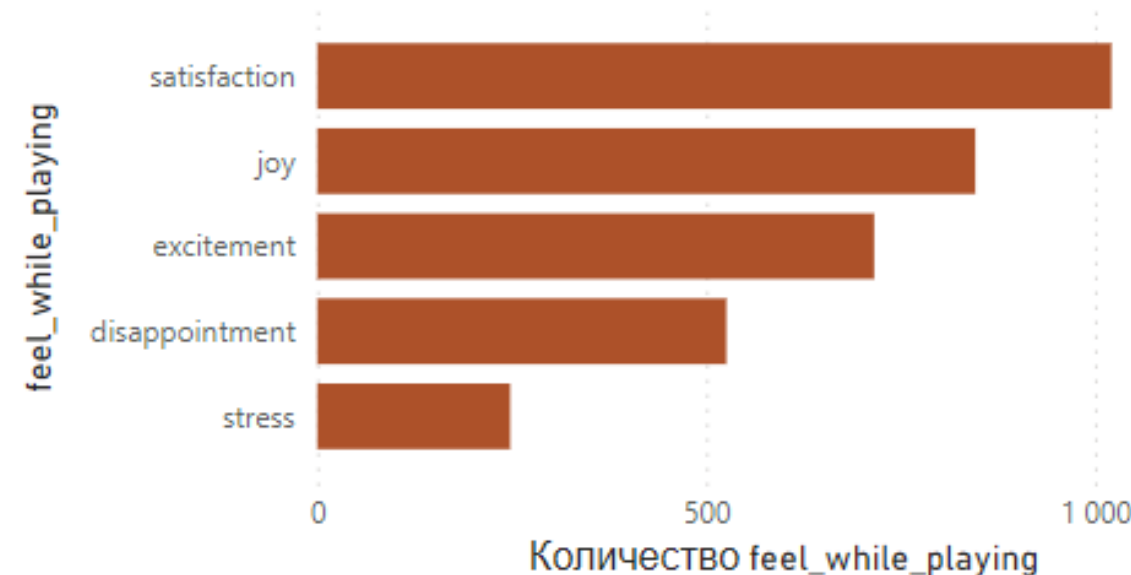
Were there any consequences after the game?



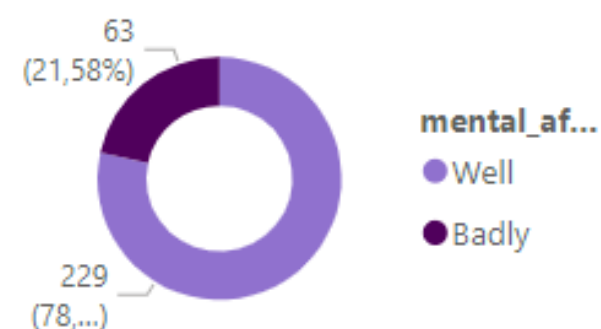
Were these effects positive or negative?



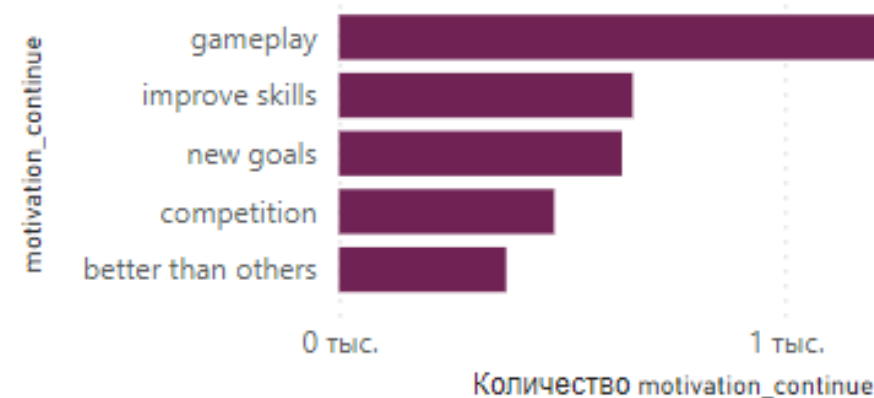
How do you feel when you play games?



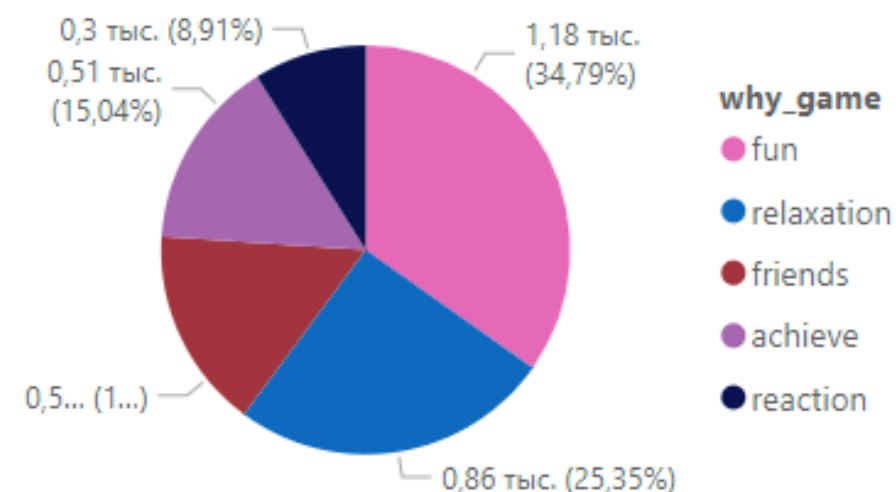
How do video games affect your mental health?



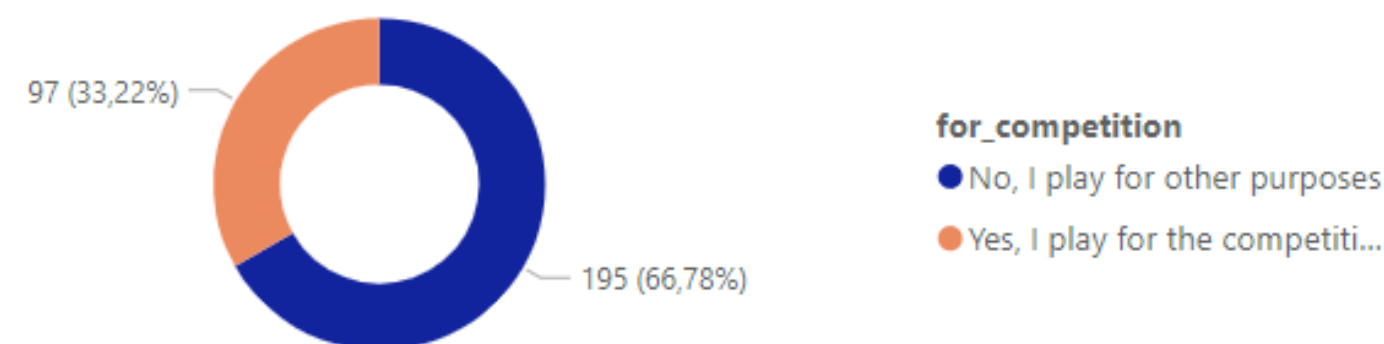
What motivates you to continue playing these games?



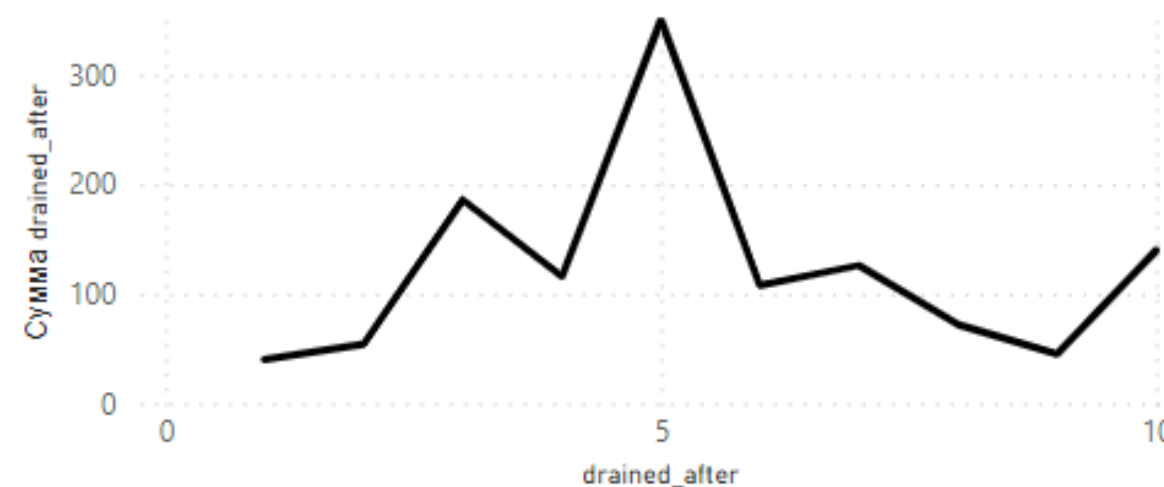
Why do you play games?



Do you play for the sake of competition?



I feel drained after the game.



Results. Silhouette score and demographical portrait.

	Demography	Social	Game	Psychology	Cultural
K-Means	0.3	0.07	0.08	0.1	0.22
Hierarchical clustering	0.28	0.05	0.02	0.06	0.21

	K-Means	Hierarchical clustering
age	22	22
gender	Male	Male
nation	Kazakh	Kazakh
status	Student	Student
education	Higher professional education	Higher professional education
region	South KZ	South KZ

Demographical portrait

Results. Gaming and psychological portrait.

	Hierarchical clustering	K-Means
type of videogame	Multiplayer	multiplayer and singleplayer
genre	Action, Adventure	Action
platfrom	PC	PC. mobile
factor to play	personal interest, graphics, storyline	graphics
character in videogame	neutral	neutral
why they choose the character	interesting style of game	interesting style of game

Gaming portrait

	Hierarchical clustering	K-Means
how games affect to wellbeing	positively	positively
do they play for competition	no	no
how emotions affect while playing	make the game more interesting	make the game more interesting
are there any consequences	no	no
do video games affect to their mental health	Well	Well
how much they feel themselves drained after the game	5	4
why they play games	for fun and relaxation	for fun and relaxation
what is the motivation to continue to play the games	gameplay is interesting	gameplay is interesting
what they feel while playing	satisfaction and joy	satisfaction

Psychological portrait

Results. Social and cultural portrait.

	Hierarchical clustering	K-Means
nation	Kazakh	Kazakh
region	North KZ	North KZ
game can bring cultures together	yes	yes
have they attended gaming events	no	no
do they belong to clubs	No, but before yes	No, but before yes
nation is important while gaming	no	no
play only with teammates from their nation	no	no
language of videogame	Russian	Russian
language of communication	Kazakh, Russian	Kazakh

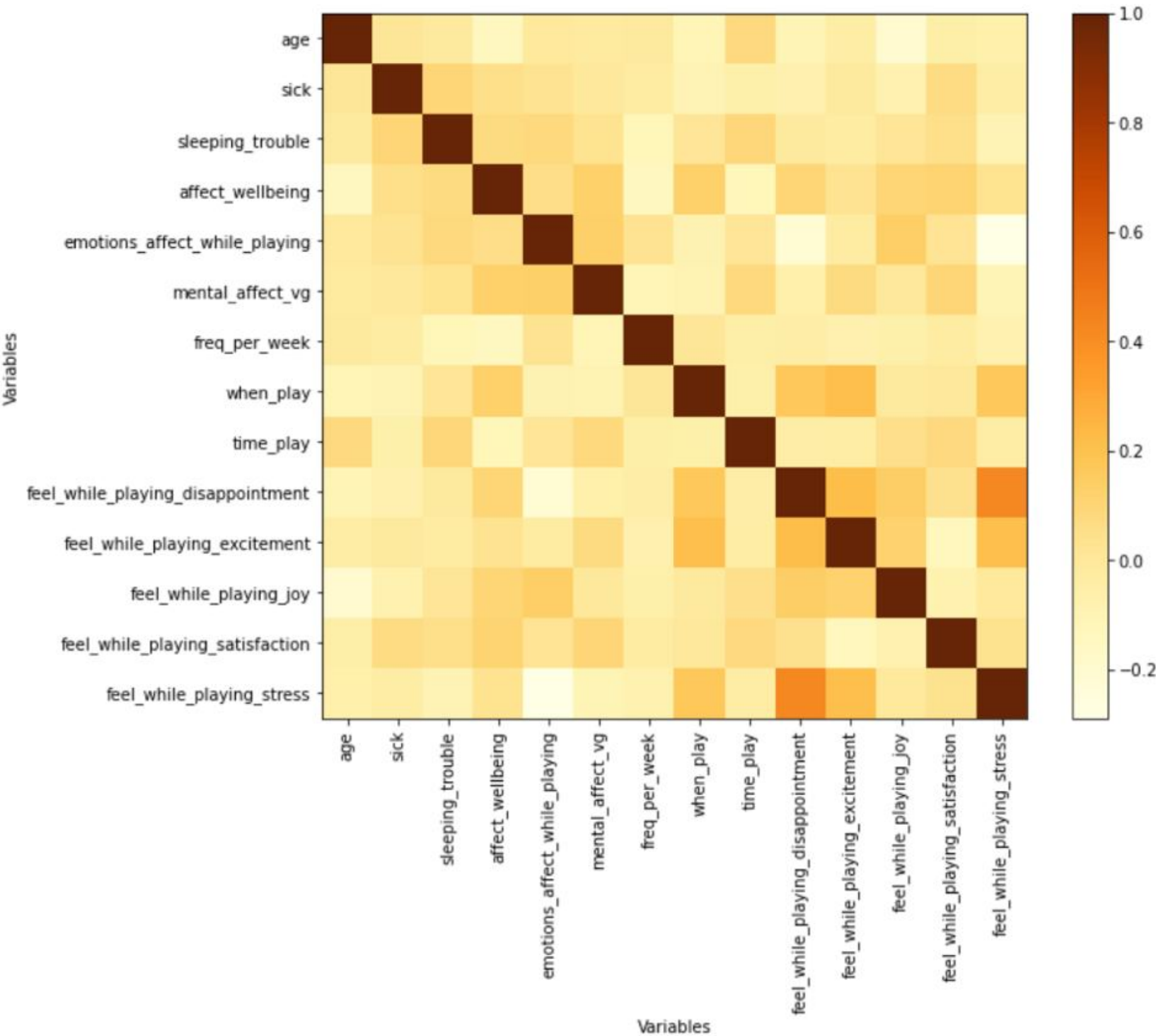
Cultural portrait

	Hierarchical clustering	K-Means
belong to clubs	no, but before yes	no, but before yes
communication of language in games	Russian	Russian
gaming affect to relationship	No	No
feel closer to teammates	yes	yes
discuss the videogame	yes	yes
belong to gaming communities	no	no
sleeping trouble	no	no
how often they get sick	Rarely, once or twice a year	Rarely, once or twice a year
language of videogames	Russian	Russian
with who they prefer to play	Alone/Friends	Friends
how often they play games	6-10 hours per week	6-10 hours per week
when they play games	on certain days	whenever they want
at what part of the day they play game	in the afternoon	in the evening
how they discover videogames	recommendations/social media	recommendations/social media

Social portrait

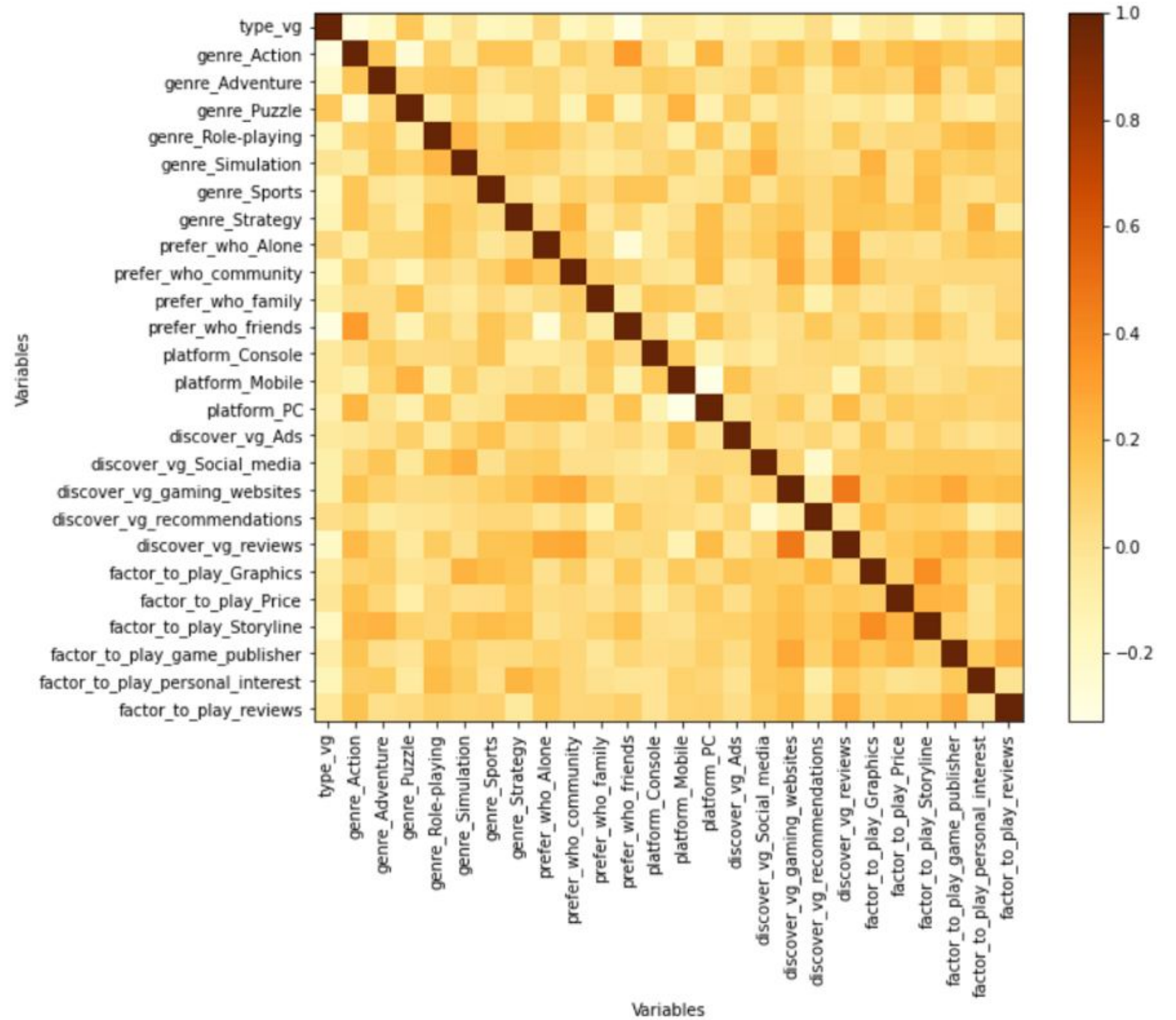
Results. Mental health.

	kmeans 1	kmeans 2	hierarchial
age	21	23	23
sick	rarely, 1-2 times per year	rarely, 1-2 times per year	rarely, 1-2 times per year
sleeping_trouble	no	no	no
affect_wellbeing	no effect	no effect	no effect
emotions_affect_while_playing	Can affect my mood in real life	Make the game more interesting	Can affect my mood in real life
mental_affect_vg	well	well	well
freq_per_week	6-10 hours per week	11-20 hours per week	6-10 hours per week
when_play	certain days	certain days	certain days
time_play	in the afternoon	in the evening	in the afternoon
feel_while_playing_disappointment	no	no	no
feel_while_playing_excitement	no	yes	yes
feel_while_playing_joy	yes	no	yes
feel_while_playing_satisfaction	yes	yes	yes
feel_while_playing_stress	no	no	no
silhouette score	-0,05		0,06



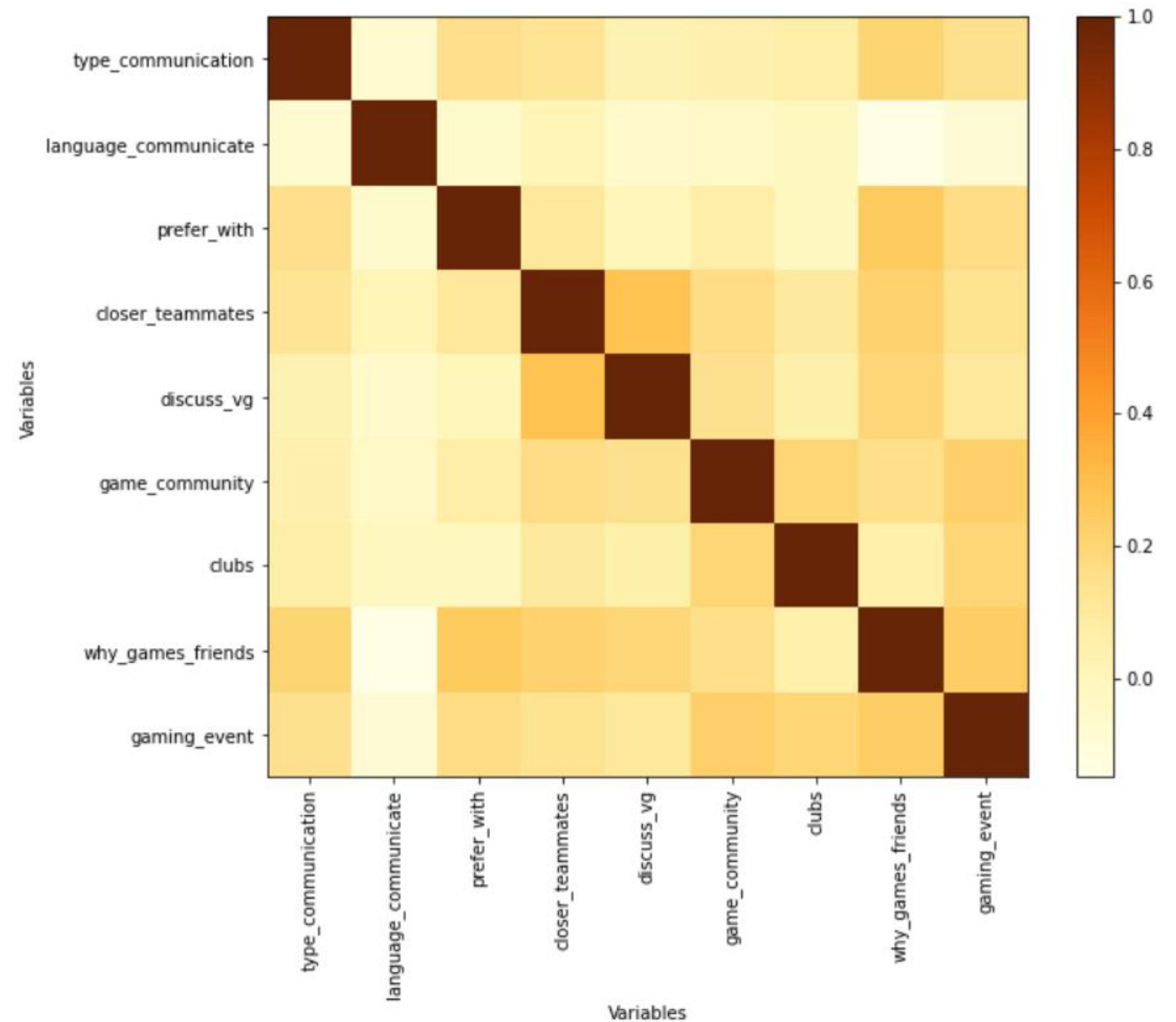
Results. Gaming.

	kmeans	hierarchical
type_vg	multiplayer	singleplayer
genre	Action	Adventure, Strategy
prefer_who_Alone	yes	yes
platform_PC	yes	yes
discover_vg_Social_media	yes	yes
discover_vg_recommendations	yes	yes
factor_to_play_Graphics	yes	no
factor_to_play_Storyline	yes	yes
factor_to_play_personal_interest	yes	yes
silhouette score	0.07	0.02



Results. Community.

	kmeans	kmeans 2	hierarchial	hierarchial 2
type_communication	voice	voice	voice	voice
language_communicate	Russian	Russian	Kazakh	Russian
prefer_with	both	alone	both	both
discuss_vg	yes	yes	yes	no
closer_teammates	yes	yes	yes	yes
game_community	no	no	no	no
clubs	no, but before yes	no	no	no
why_games_friends	yes	yes	yes	no
gaming_event	no	no	no	no
Silhouette score	0,08		0,06	



Conclusion

- Data were collected from a survey of 350 respondents, covering 53 questions on gaming behavior, demographics, and social factors.
- Five different data sets were analyzed, focusing on factors related to the dissertation topic.
- A correlation matrix was used to assess the relationships between columns in each data set. The results showed weak correlations, leading to the identification of potential relationships based on other studies. Three distinct sectors, namely mental, social, and gaming, were identified.
- A clustering machine learning system was developed to group players into clusters based on similar characteristics. The findings aligned with previous research, indicating that gaming, regardless of the amount of play, can enhance interpersonal relationships without significant impacts on sleep, health, and illness.
- Given the limited representation of individuals from various demographic sectors, future plans involve expanding the respondent pool to obtain a more accurate portrait of gamers in Kazakhstan.

Thanks for your attention!

