

Games Junior data analyst

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Recreate the DNA Chart from the article with the data provided

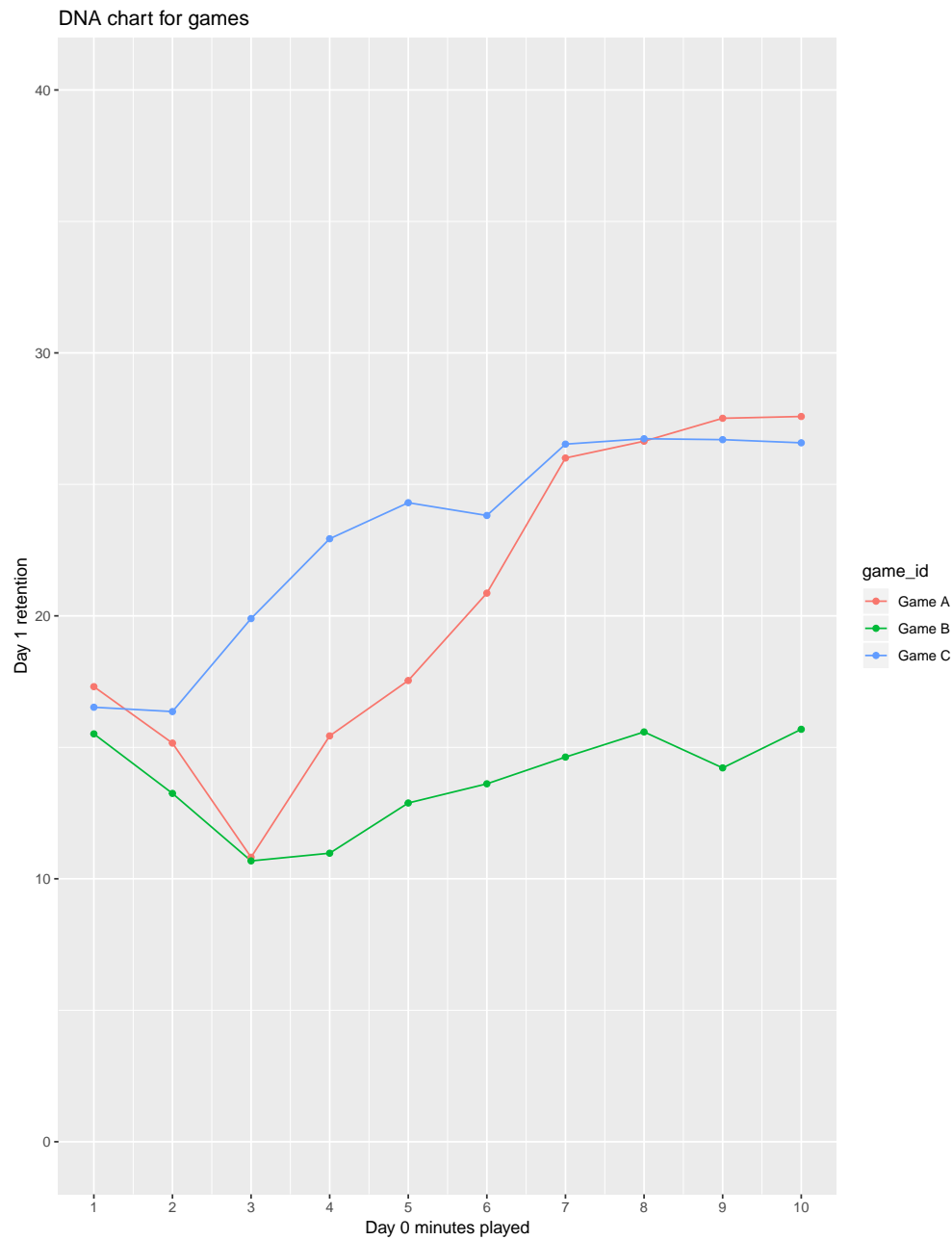


Figure 1: DNA chart

a. What conclusions would you make from the games based on the article?

Purpose of DNA : to evaluate the potential as opposed to the current state of a project.

The overall retention level of the players who completed the first 10 minutes of Game A, Game B, and Game C were 26%, 21% and 25% respectively. The cohort size of the registered players who played for a maximum of 10 minutes were similar across three games. The time period of evaluation is ≈ 4 months.

Game A : Retention level of the players who played for the first minute was at 17%, which is greater than Game B and Game C. However the retention rate declined considerably after the first minute dropping to the lowest of 10% at minute 3. However, the game showed a steep climb in retention rate from minute 3 to minute 7 with maximum difference between 6th (20%) and 7th (26%) minute. The retention rate remained almost constant from minute 7 to 10 minute. The retention growth for this game was 59% (1-10 min).

Game B: Retention level of the players who played for the first minute was the lowest among the three games at 15%. Similar to Game A, the retention rate for game B steadily declines to 10% for players who played 3 min, which was its lowest point. Although the retention improved slightly from there, overall the retention growth compared to minute 1 was almost zero.

Game C : Retention level of players was at 16% at minute 1 and it showed a concave down growth from minute 2 to minute 5. Although there was a minor decrease/drop in retention for players who played for 6 minutes, it recovered and remained constant from 7 to 10 minutes. The overall growth rate for Game C was 60%.

Analysis:

According to the DNA methodology, since the retention rate of Game C was growing at every minute of gameplay, it can be considered as a game with high potential. The overall retention growth is also high at 60%. On the other hand, Game B has the least first minute retention among the three games and it continued to drop in the first three minutes. Although retention shows slight improvement after the third minute the overall retention growth is null. Not only it fails to engage or excite the existing players and with the steep fall in the first three minutes it might lose a lot of new audiences. So it does not appear to be a game of high potential. In the case of Game A, there is a wormhole after the first minute, which indicates the game is losing a lot of attracted audience in the initial few minutes. However, the retention rapidly climbs from that point to record an overall growth of 59% at 10 minutes of game play, surpassing Game C which has a retention growth of 60%. It looks like Game A has very high potential as Game C or even better, if the reasons for the gorge (example: loading issues, bugs, wrong audience) is identified and fixed.

To conclude, based on DNA methodology, it is worthwhile to invest further in Game C and Game A. Despite the huge gorge in the retention curve of Game A, it has shown growing retention from that point and appears to continue the trend even beyond 10 minutes of game play, in comparison to Game B which flat lines after 7 minutes.

On a side note, in the case of Game A, immediate attention should be given to investigate and fix the gorge to maximise its potential.

b. What would you like to look at further, outside the data provided?

Outside of the data provided, it would be beneficial to look at;

- 1) Click through rate (and Install rate) to understand the desirability of the game from a marketing point of view. Can the creatives generate sufficient interest on the targetted users?
- 2) The market segment the games are attracting (for eg; age and country of the players) to understand the audience, and
- 3) Return on investment (revenue after acquisition cost). This is because from the data given there are four

category through which the players were acquired. And the number of paid players are more in Game B and Game C (graphs in appendix) compared to Game A. So it would be good to evaluate if the revenue produced tallies with the cost of acquisition.

c. What are some flaws in this logic?

1. Game specific factors are not considered.

DNA methodology does not take into consideration the game specific factors such as loading time (Best fiends vs Jurassic world alive), effectiveness of the tutorial and game milestones. The cutoff value of initial retention or retention growth in 10 minutes might depend on the genre of the game.

2. How game monetises.

It discounts how well a game monetises. This is evident when we compare the IAP revenue for the three games. DNA chart shows that Game C has a higher retention growth, but as against our expectation the IAP revenue for that game (for the given interval) is the least when compared to the other games, as seen from the table below. Game B does not show any retention growth and seems to be declining or slightly growing in the first 10 minutes. However IAP for it seems to be the best of the three games.

Table 1: IAP revenue by origin category for four months

Game id	Network Users	Organic	Paid	X-Promo	total amount
Game A	5156	15048	18901	2959	42064
Game B	5284	14391	27195	7531	54402
Game C	184	2497	0	53.9	2734

3. Player acquisition

The chart does not take into consideration the cost of acquiring new users. This should also be integrated into the equation to truly assess the potential of the game in terms of ROI. For example, from the graph below, it can be seen that high influx of players in Game A and B are through paid category. So it would be good to evaluate the ROI of the games.

4. Market segments

It also fails to assess the market segment the game attracts. For example, Game C has very high virality. Despite very high retention growth, it fails to monetize which might be because the players are in the age group or location who do not spend much on games.

2.Improve the DNA methodology with a better way to look at it

a. Explain your changes and why?

Apart from measuring only the first 10 minutes spend on the games, it would paint a bigger picture if we focus on the following :

- 1) Creating a first time user experience (FTUE) funnel, to analyse what is causing the drop in retention would help us to investigate, if the player retention can be improved. If there are fundamental flaws in the game play then improving or investing more time on the game will be a waste of time and skill.

However if the drop is caused by minor issues which can be easily rectified, then spending more time will make sense in the long run.

- 2) Take into account the marketability and cost of acquiring the users.
- 3) Monetisation of the game. Even if the game has a high retention rate, if the game does not have a good monetisation, then it cannot be considered as a success, although it would be seen as a high potential game according to DNA methodology.
- 4) The stage of the game in its lifecycle should be accounted. The game at different stages will have different ROI and retention depending on the quality of users.

3) Please create a short report or presentation and be prepared to present it

Introduction:

The given article provides a methodology to analyse the potential of a game based on the retention level during the first ten minutes of the game play. This analysis was developed based on Google Play's data which suggested that, **Stronger the startin point and growth in the first minutes of a game, the higher the game's potential popularity.** In this assignment, we analyse the potential of three games based on the correlation between retention level of players on the day after installation and the time spend (upto maximum 10 minutes) on day of installation.

Observation:

The three games-Game A, Game B and Game C, were analysed for a time period of four months. The size of the cohort was similar across the games (100k each). The day 1 retention rate was 35%, 26% and 34% and day 7 was 12%, 6.9% and 6.7% for Game A, B and C, respectively (table 2).

Table 2: Retention of players on day 1, day 7, day 14 and day 28

Game id	Day 1	Day 7	Day 14	Day 28
Game A	100000	11.5%	6.89%	3.78%
Game B	100000	6.85%	4.16%	2.22%
Game C	100000	6.68%	3.5%	1.63%

Time spent by players for the first 10 minutes on the day of registration was available for 78k, 98k and 98k for Game A, B and C, respectively. Players for the games were acquired through four categories: Network users, Organic, Paid and X-Promo. Majority of the players of Game A and Game B was acquired through Organic and paid category. For Game A, the number of organic players were 44% greater than paid users, while it was only 14% greater in Game B. 72% of the Game C players were organic, which made it the most viral game of the three. The number of paid users for Game C was negligible.

Table 3: Players divided by origin category

Game id	Network Users	Organic	Paid	X-Promo
Game A	7.79%	51.69%	35.93%	4.59%
Game B	16.22%	36.55%	32.35%	14.88%
Game C	23.90%	72.17%	0.14%	3.789%

Total IAP revenue for the three games during the four months showed that Game A and Game B made comparatively high IAP at 42k and 54k, compared to Game C which only made 2k. IAP revenue based on their origin category showed that for both Game A and B, the majority of the revenue was from paid users at 44.9% and 49.9%, respectively. On the other hand, players acquired organically were the highest contributors of IAP revenue for Game C (91.31%), which is as expected as it's majority of the user base were organic.

Table 4: IAP revenue by origin category for four months

Game id	Network Users	Organic	Paid	X-Promo
Game A	12.25%	35.77%	44.93%	7.04%
Game B	9.7%	26.45%	49.99%	13.84%
Game C	6.71%	91.31%	0	1.97%

Based on the amount of time spend by the player on the day of installation (day0) and the retention on day 1, DNA chart for the three games was created. The retention for the first minute was similar for all the three games, however they followed very distinct trend for the rest of the 10 minutes. Inspite of having the highest retention at minute 1 (17%), Game A had a steep drop in retention in the next two minutes. However, game was able to recover the retention, showing a steady growth which continued beyond 10 minutes. The game showed a retention growth of 59% but the presence of a wormhole at the initial minutes of game play brings uncertainty about the project. Similar to Game A, Game B also had a “gorge” in retention in the first three minutes. Although retention started to climb back, the growth was not very significant leading to almost zero retention growth by the end of minute 10. There is high retention growth in Game C between minute 2 to 7, but the retention after minute 7 is steady. The overall growth rate for this game is 60%.

Results and Discussion

Based on DNA analysis, Game C has the highest growth potential as it showed steady growth in retention in the first 10 minutes. Moreover, majority of the players were organic which shows that the game has high virality. Game A is the next ideal choice, since it has a retention growth similar or greater than Game C, although it had a wormhole in the initial few minutes of gameplay. Before investing heavily into the project it would be advisable to look into the reason for the wormhole and the ease of rectifying it. If the wormhole is caused due to serious flaws in game play then this project will fail to retain acquired players. Among the three games, Game B is the least preferable choice based on DNA chart. Game B not only had a wormhole but also failed to show any retention growth based on the first ten minutes. Both Game A and B, has considerable organic installs.

However, when IAP revenue of the games were analysed, it was contradictory to the insights of the DNA chart. As opposed to the expectation from DNA chart, Game B made the maximum revenue followed by Game A. Comparatively, Game C made very low IAP revenue, inspite of high retention. This could be either because Game C attracts a market segment which does monetize or it fails to monetize the retained players. It was also very interesting to notice that Game B which was the least potential project according to DNA analysis, had the highest IAP revenue. However, it is not possible to fully ascertain its potential without taking into consideration the cost of installation as it had sizeable number of paid players.

Conclusion:

From the above analysis, it can be concluded that DNA chart alone cannot predict the success or potential of a game. However, when tailored with marketing metrics such as Cost of installation, Install rate and game monetisation metrics, it could act as a reliable indicator for further investment.

Task 2. Interpretation

1. Study charts on the next page

a. What conclusions would you draw from them?

Graph 1: A stacked bar chart explaining hard currency (HC) spend by three categories: Energy refill, gacha chest and Extra moves for a period of 17 weeks (\approx 4 months). HC spend on energy refill remains almost constant during the 4 months. Although the HC spend on Gacha boxes did not show much deviation in the first 10 weeks, a steady increase was evident from week 11 to week 17. On the other hand, HC spend on extra moves saw a sudden spike in week 4, but it has reverted back to the initial value of week 1 by week 10. However, after week 11 there has been a significant drop in HC used for extra moves, with week 17 registering the lowest HC spend (dropped by 50% in week 1).

Graph 2: Bar chart showing the weekly active users (WAU). The number of WAU on week 1 was slightly more than 2 millions and continues to maintain a steady WAU for three weeks. However in line with the spike in HC spend for extra moves the WAU showed a sudden boost of 45% in week 3. However this sudden boost in WAU did not last for the successive weeks as there was a steady decline in WAU from week 4. WAU was seen to be at the lowest point on week 17 \approx 20% compared to week 1.

Graph 3: Bar chart showing Average revenue per daily active users (ARPDau) for weekly average. The ARPDau is highest during the first three weeks with the highest in week 2 at 0.25. There is a sudden drop in ARPDau in week 3. However in the subsequent weeks the ARPDau climbs and stabilises from week 6 to week 10. Week 11 to week 13 saw a steep decline in ARPDau, with week 13 registering lowest at < 0.15 weekly average. Although the number was seen to be climbing in the successive weeks the growth was modest.

Analysis:

- 1) The drop in ARPDau in week 4 correlates with the very high number of weekly active users during the same time period and increase in HC spend on extra moves. Very high influx of non-paying (new) user might be the reason for this trend. A new advertisement campaign or app store featuring might have caused many new players to download the game.
- 2) One can assume that many of the new players, mostly less interested players might have churned out after the third week, which explains the drop in the weekly active users and increase in ARPDau. From the graph it is not possible to say if the number of payers have increased after week 3 influx.
- 3) The steady but slow decrease in average weekly users does not correlate with the level of ARPDau from week 10 to week 17. But the HC spend on gacha box seems to have increased considerably during the time though the opposite trend was seen for extra moves. This might be because of some events where players gained more HC or additional gacha boxes. It could also be because of some issue/bug which gave players a lot of HC. The ARPDau after week 13 shows improvement, which shows possible identification and rectification of the issue.

b. What would you look at next?

Next it would be advisable to investigate what caused the sharp drop in ARPDau from week 10 to 13 although there was no comparable change in weekly active users. The ARPDau was seen recovering after week 13 but the growth has not been commendable, which might indicate the issue was not solved entirely. It would be also good to see what is the reason for the drop in WAU across four months. Is the drop due to high churn rate of users or decline in the new users. The spending habits of HC on extra moves and gacha chest are showing a reverse pattern. What is the sudden popularity for the gacha box? Has it been cannibalising

the the interest for extra moves? It is important to analyse because HC spend remains constant although there has been a considerable increase in purchase of gatcha box.

Task 3. Questionnaire

1. What are your favorite games and why?

Clash royale, Candy crush saga, Best Fiends, Pokemon go.

Clash royale- Easy tutorial, competitive game play, likeable characters, easy to upgrade and social aspects (Was part of a clan, and was assigned the leader in a clan of strangers).

Best Fiends- currently playing at level 209. I like the puzzle element and problem solving. Do not find the characters and meta-game appealing.

Candy crush saga- Played during 2012 to 2014 (level 250). I like the challenges, puzzle and problem solving and the art and visual effect polish.

Pokemon go- Plays occasionally with my son. Like the social element.

2. You have 10 points to divide between the following three categories

- a. data science
- b. knowledge of games and game mechanics
- c. influencing business

2. What's the distribution of your current strengths?

5:3:2

3. Divide the points again thinking about what excites you and where would you want your career to move in a few years time?

4:3:3

My reason is that, I want to know more about the industry and the business aspect of it. However, I would want to develop data science as my core skill set.

Appendix

Table 5: Retention of players on day 1 by game id

Game id	Total installation	Timeline	retention day1
Game A	100000	4	26%
Game B	100000	4	21%
Game C	100000	4	25%

Table 6: players who made iap on day of installation

Game id	players who made iap	Network Users	Organic	Paid	X-Promo	total amount
Game A	334	23	146	156	9	2121
Game B	316	36	113	131	36	3298
Game C	14	3	11	0	0	192

Table 7: IAP by origin category

Game id	Network Users	Organic	Paid	X-Promo	total amount
Game A	211	788	983	140	2121
Game B	202	1178	1476	442	3298
Game C	16	176	0	0	192

Table 8: IAP for four months

Game id	players who made iap	Network Users	Organic	Paid	X-Promo	total amount
Game A	4179	329	1772	1897	181	42064
Game B	3276	390	1004	1460	422	54402
Game C	215	35	169	0	11	2734

Table 9: IAP revenue by origin category for four months

Game id	Network Users	Organic	Paid	X-Promo	total amount
Game A	5156	15048	18901	2959	42064
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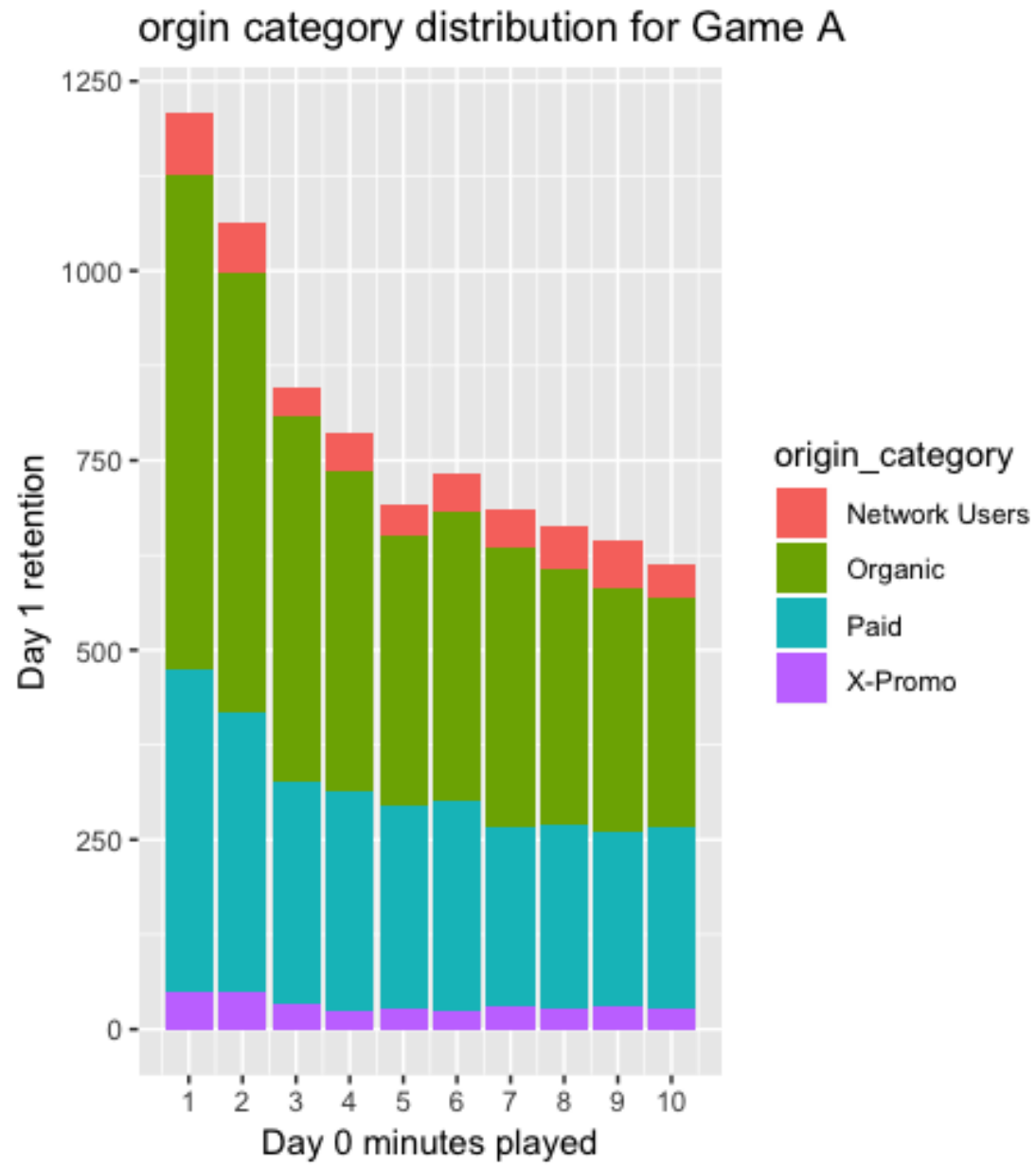


Figure 2: DNA chart

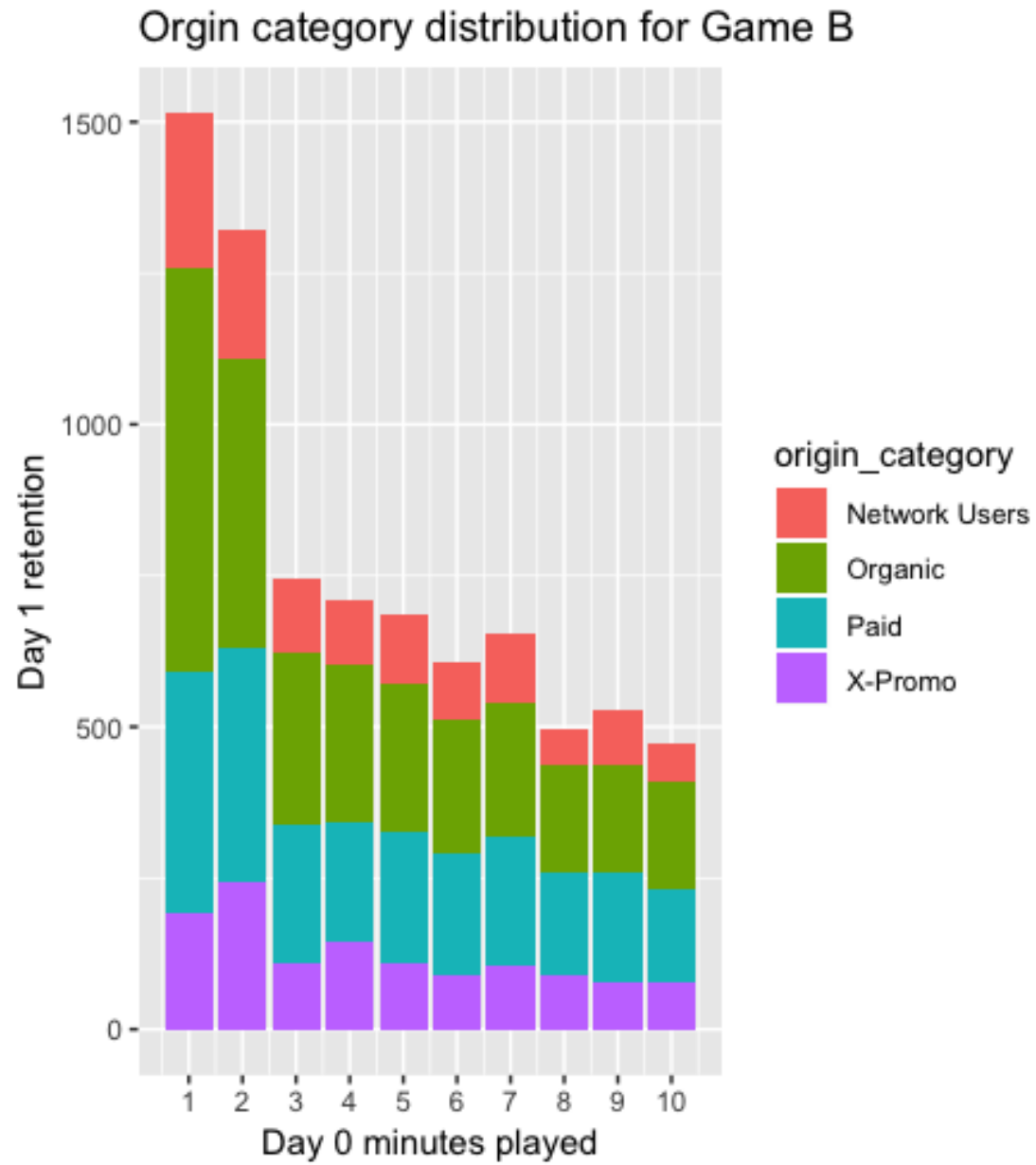


Figure 3: DNA chart

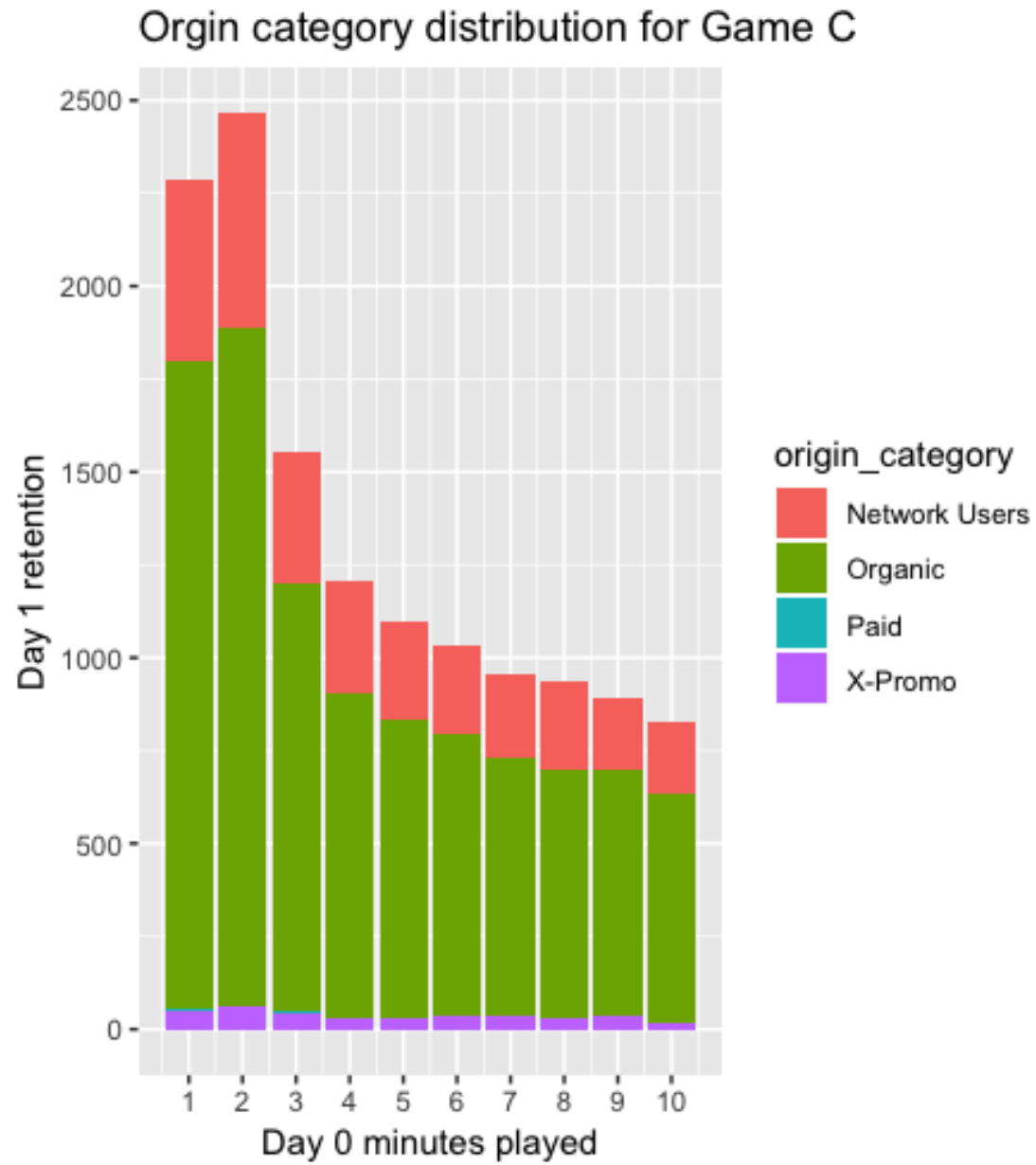


Figure 4: DNA chart