

How can we increase revenue
from
Catch the Pink Flamingo?

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Problem Statement

How can we use the following data sets to understand options for increasing revenue from game players?

Notable datasets related to revenue generation:

Datasets:

ad-clicks.csv
buy-clicks.csv
users.csv
team.csv
team-assignments.csv
level-events.csv
user-session.csv
game-clicks.csv

ad-clicks.csv	A line is added to this file when a player clicks on an advertisement in the Flamingo app.
buy-clicks.csv	A line is added to this file when a player makes an in-app purchase in the Flamingo app.

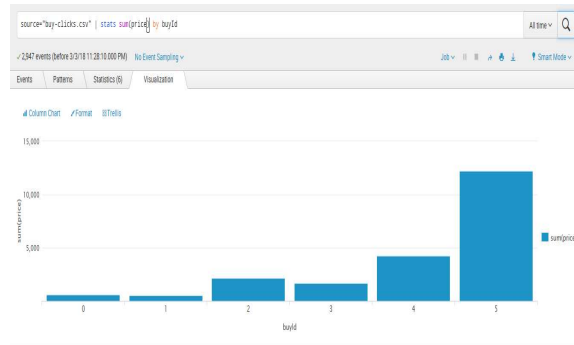
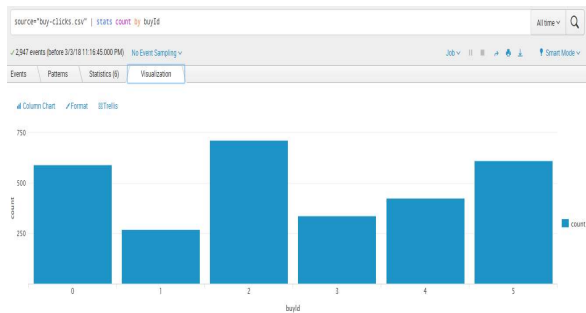
Various datasets have been collected on game player activity that, when analyzed, can lead Eglence to identify new revenue opportunities.

Some notable data fields we have collected are those that monitors each user's advertisement clicks and in-app purchases.

Also, not only is data collected for each individual player, but data is also collected regarding their engagement within a team and the game. So we can correlate a user's gameplay strategy with how much money they tend to spend.

Data Exploration Overview

Considering item 2 is the most purchased yet made little money, raising the price of item 2 could lead to increased profits.



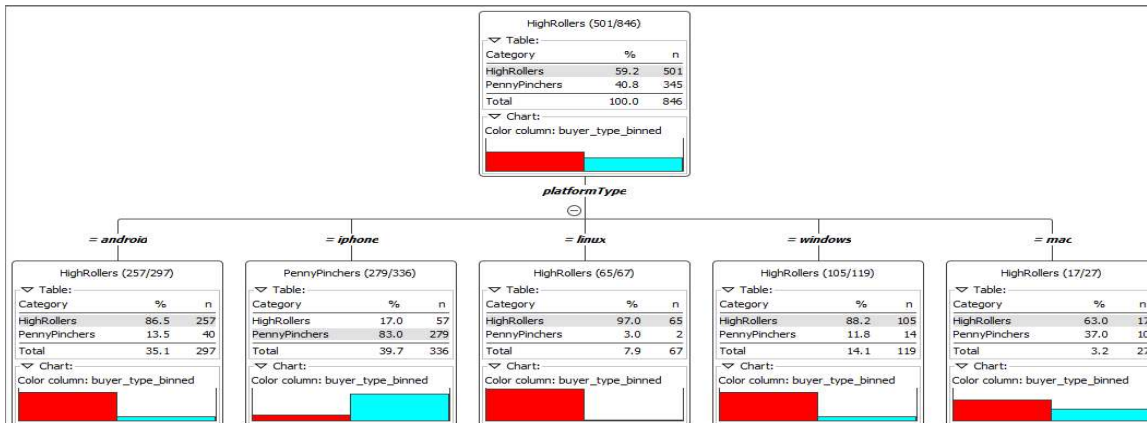
From exploring the initial data, the average amount spent for the 6 items available was \$21407.00

Looking at the histograms, item 2 was the most purchased, followed by item 5. However item 5 made more money while item 2 (the most purchased) was the 4th. Considering it's the most purchased, raising the price of item 2 could lead to increased profits.

What have we learned from classification?

“HighRollers” were those who spent over \$5, “PennyPinchers” were those who spend \$5 or less.

Users with iPhone platform types appear to be mostly PennyPinchers (at 83%), while users with other Platform Types (android, linux, windows,...) appear to be mostly HighRollers.



Next I engaged in classification analysis. I grouped users into 2 categories depending on the average price they spent. “HighRollers” were those who spent over \$5, “PennyPinchers” were those who spend \$5 or less. Then I did classification analysis to determine if any common features of the players were identified as correlating with money sent.

The results were that users with iPhone platform types appear to be mostly PennyPinchers (at 83%), while users with other Platform Types (android, linux, windows,...) appear to be mostly HighRollers. Revenue from iPhone users is a market we are not fully capturing. More advertisements need to be geared towards iPhone users.

What have we learned from clustering?

A notable cluster I found was for players who had many gameclicks and hits - they also spend slightly less money.

```
df.show(5)
```

count_gameclicks	count_hits	avg_price
39	0	1.0
129	9	10.0
102	14	5.0
39	4	3.0
90	10	3.0

only showing top 5 rows

```
: centers=model.clusterCenters()  
centers  
: [array([-0.31921137, -0.3124533 ,  0.02295286]),  
   array([ 2.08938349,  2.04514884, -0.1502369 ])]
```

Next I engaged in clustering analysis to determine if there are common features in users, and if these clusters of users spend money differently.

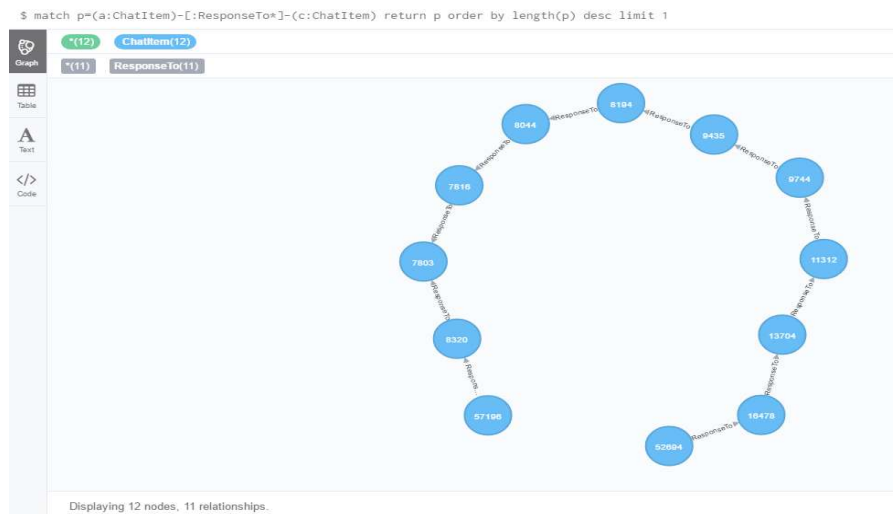
A notable cluster I found was for players who had many gameclicks and hits - they also spend slightly less money. I would label these players who have many gameclicks and hits as “top players” who are engaged in the gameplay.

To encourage them to spend more, discounts can be offered to players with the top scores. This will capture some revenue from a cluster of users who were not already spending enough, while also encouraging engagement within the game.

From our chat graph analysis, what further exploration should we undertake?

Information about chat activity can potentially be used in future analysis to correlate chat activity with purchasing tendencies

Graph showing longest length conversation (path length): **9** involved **5** users



Lastly, I engaged in graph analysis to look into chat engagement between users and teams.

I determined the “chattiest” user as engaging in 115 chats. The “chattiest” team was also identified, engaging in 1324 chats. This information can potentially be used in future analysis to correlate chat activity with purchasing tendencies.

Recommendation

There are a couple recommendations/actions I would like to make to Eglence to improve their business and increase revenue.

1. From the initial data exploration, considering item 2 is most purchased, yet made little money, raising the price of item 2 could lead to increased profits.
2. From the classification analysis, users with iPhones tend to spend less money. More marketing geared towards iPhone users can capture revenue from this untapped market.
3. From the cluster analysis, top engaged players spend slightly less. To encourage them to spend more (while also encouraging engagement in the gameplay), discounts can be offered to players with the top scores .

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