1.1 Data Set Overview

The table below lists each of the files available for analysis with a short description of what is found in each one.

File Name	Description	Fields
ad-clicks.csv	A line is added to this file when a player clicks on an advertisement in the Flamingo app.	• timestamp: when the click occurred. • txId: a unique id (within ad-clicks.log) for the click • userSessionid: the id of the user session for the user who made the click • teamid: the current team id of the user who made the click • userid: the user id of the user who made the click • adId: the id of the ad clicked on • adCategory: the category/type of ad clicked on

buy-clicks.csv	A line is added to this file when a player makes an inapp purchase in the Flamingo app.	• timestamp: when the purchase was made. • txId: a unique id (within buy-clicks.log) for the purchase • userSessionId: the id of the user session for the user who made the purchase • team: the current team id of the user who made the purchase • userId: the user id of the user who made the purchase • buyId: the id of the item purchased • price: the price of the item purchased
users.csv	This file contains a line for each user playing the game.	• timestamp: when user first played the game. • userId: the user id assigned to the user. • nick: the nickname chosen by the user. • twitter: the twitter handle of the user. • dob: the date of birth of the user. • country: the two-letter country code where the user lives.
team.csv	This file contains a line for each team terminated in the game.	teamId: the id of the team • name: the name of the team • teamCreationTime: the timestamp when the team was created • teamEndTime: the timestamp when the last member left the team

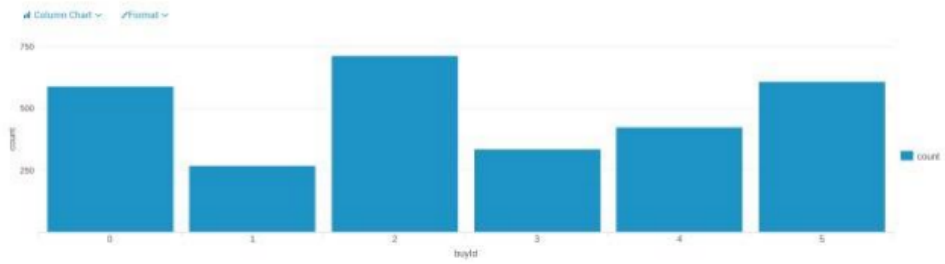
teamassignments.csv	A line is added to this file each time a user joins a team. A user can be in at most a single team at a time.	• timestamp: when the user joined the team. • team: the id of the team • userId: the id of the user • assignmentId: a unique id for this assignment
level-events.csv	A line is added to this file each time a team starts or finishes a level in the game.	timestamp: when the event occurred. • eventId: a unique id for the event • teamId: the id of the team • teamLevel: the level started or completed • eventType: the type of event, either start or end
user-session.csv	Each line in this file describes a user session, which denotes when a user starts and stops playing the game. Additionally, when a team goes to the next level in the game, the session is ended for each user in the team and a new one started	• timestamp: a timestamp denoting when the event occurred. • userSessionId: a unique id for the session. • userId: the current user's ID. • teamId: the current user's team. • assignmentId: the team assignment id for the user to the team. • sessionType: whether the event is the start or end of a session. • teamLevel: the level of the team during this session. • platformType: the type of platform of the user during this session.

game-clicks.csv	A line is added to this file each time a user performs a click in the game.	timestamp: when the click occurred. • clickId: a unique id for the click. • userId: the id of the user performing the click. • userSessionId: the id of the session of the user when the click is performed. • isHit: denotes if the click was on a flamingo (value is 1) or missed the flamingo (value is 0) • teamId: the id of the team of the user • teamLevel: the current level of the team of the user

1.2 Aggregation

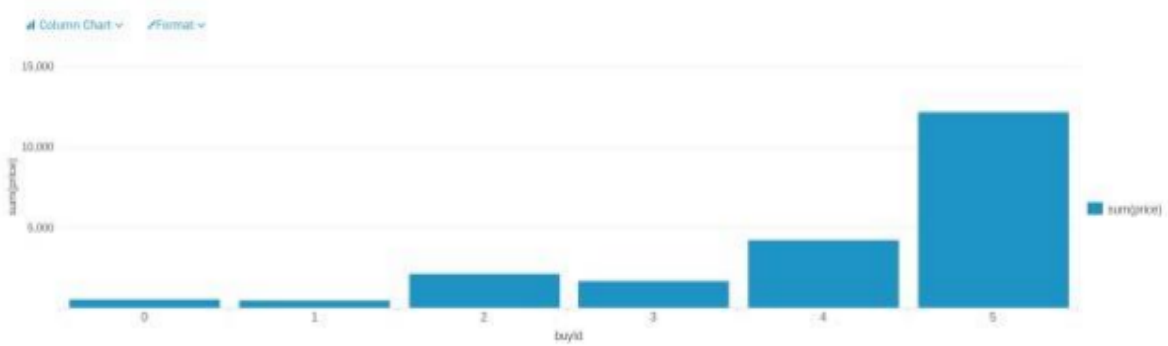
Amount spent buying items	21407
# Unique items available to be purchased	6

A histogram showing how many times each item is purchased:



Using the "buy-clicks.csv" file, we can make the histogram above, it shows the times that each item is purchased. Among six items, the item "2" is the most purchased, the item "1" is the least purchased.

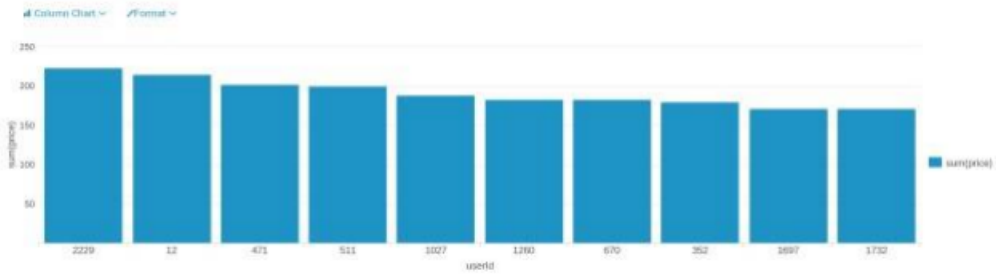
A histogram showing how much money was made from each item:



Making this histogram with the "buy-clicks.csv" file, we get different amount of money that made from each item. Among them, the item "5" made the most money, and the item "1" made the least money, which is also the least purchased, it means the item "1" is not preferred by most people. In this case, providers should think about strategies to change this situation or to solve this problem.

1.3 Filtering

A histogram showing total amount of money spent by the top ten users (ranked by how much money they spent).



Thanks to the "buy-clicks.csv" file, the histogram above could be made, it shows the top ten users according to their total amount of spending. The user whose userId is "2229" spends the most, his spending is nearly 225 units.

The following table shows the user id, platform, and hit-ratio percentage for the top three buying users:

Rank	User Id	Platform	Hit-Ratio (%)
1	2229	iphone	11.60
2	12	iphone	13.07
3	471	iphone	14.50

According to the histogram above, we know the userId of top three users are “2229”, “12” and “471”. In order to check their platform, we can use the file “user-session.csv”. Then with the file “game-clicks.csv”, we can calculate the Hit-Ratio by sum(isHit)/count(isHit) for each user.