App Trader Project Report (DDA8 Almond_Joy)

- To help AppTrader identify which apps would be most profitable to purchase the rights for, we began by inner joining the two app stores given to us. Since one of our base assumptions was that AppTrader could save money on advertisement by owning the rights to an app in both stores, those apps located in both the app and play stores had higher potential to be more profitable than those in only one app store.

- We created a CTE with this inner join, adding on average values (average price for the consumer, rating, cost to purchase for AppTrader, since the two tables were not organized in similar fashions) and aliasing column names that were shared between play_store_apps and app_store_apps. This allowed us to consolidate all the information we were using into a single table for ease of reference.

- To calculate the estimated gross costs, gross profits, and net profits of these apps, we needed to calculate the estimated longevity of each app, which is predicated on each app's rating. Because each individual app had potentially different ratings in both app stores, our average values were not calculated in increments of 0.25. This was crucial because the calculation for estimating app longevity was based on factors of 0.25, as per our base assumptions. Thus, our average rating values were rounded appropriately to compensate. Our formula for estimated longevity was then [(avg_rating)/0.25]*0.5 + 1, as an app is expected to last 6 months (or 0.5 years) for every 0.25 points in rating, and 1 year with a rating of 0 (thus +1). This formula reduces down further to simply 2*avg_rating + 1.

- The gross cost to maintain an app was determined by multiplying the app's cost to purchase (minimum $25k) by the estimated longevity in months times 1000- i.e., the cost to purchase and cost to market. Since all of our apps we are looking at are in both stores, there is only the single cost of $1000 to market each monthly

- The gross profit was determined by multiplying their estimated monthly income with estimated longevity in months. Estimated net profit was determined by taking the difference between the two.

- Since the costs, profits, and longevity are all contingent on the average rating, ordering our table by any of these factors essentially orders by all of them.

- To further filter our table down, and to establish a list of recommendations to offer AppTrader, we looked at the ordered list of most profitable and highest rated apps in both stores, with the overwhelming majority cost between $0.00 and $1.99 from the consumer's perspective. Furthermore, we queried each app store individually to see what the app market looked like. We determined that in terms of content rating, 80% of play store apps were listed as "Everyone", while 60% of app store apps fell under the "4+" category. Similarly, a genre analysis of the play store showed that 20% of apps were in the "family" genre, with "games" constituting 11%, whereas "games" made up more than 50% of Apple's app store.

- Thus, our recommendations for the type of app to purchase are as follow:
    - Consumer Price: below $2.00
    - Genre: Games
    - Content Rating: Everyone (play store) or 4+ (app store)

- Using these recommendations as filters yielded the following apps in our top 10:

Profitable Apps

name	gross_cost	gross_profit	net_profit
Cytus	$151,000.00	$630,000.00	$479,000.00
Geometry Dash Lite	$151,000.00	$630,000.00	$479,000.00
AJ Jump: Animal Jam Kangaroos!	$145,000.00	$600,000.00	$455,000.00
Angry Birds Rio	$145,000.00	$600,000.00	$455,000.00
Angry Birds Star Wars	$145,000.00	$600,000.00	$455,000.00
Candy Crush Saga	$145,000.00	$600,000.00	$455,000.00
Candy Crush Soda Saga	$145,000.00	$600,000.00	$455,000.00
Cooking Fever	$145,000.00	$600,000.00	$455,000.00
Doodle Jump	$145,000.00	$600,000.00	$455,000.00
Dude Perfect 2	$145,000.00	$600,000.00	$455,000.00

- In order to identify Halloween themed apps, we removed the recommendation filters such that our dataset still contained highly profitable apps regardless of price, genre, etc. and instead filtered by name using keywords such as "zombie", "candy", etc:

Halloween Debut Apps

name	gross_cost	gross_profit	net_profit
Candy Crush Saga	$145,000.00	$600,000.00	$455,000.00
Temple Run	$145,000.00	$600,000.00	$455,000.00
Zombie Catchers	$145,000.00	$600,000.00	$455,000.00
Zombie Tsunami	$145,000.00	$600,000.00	$455,000.00
Five Nights at Freddy's	$149,900.00	$600,000.00	$450,100.00