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Subject: pandas-challenge (HeroesOfPymoli)

Due Date: 03Apr2021

Introduction:

A recent free-to-play fantasy game "Heroes of Pymoli" was recently released by an independent gaming company. The game itself is free-to-play but has optional in-game purchases that can enhance their playing experience. The independent gaming company wanted to analyze the game's purchasing data and analyze any trends that can be extrapolated. A purchasing datafile (HeroesOfPymoli_data.csv) was extracted from the game and was analyzed through Jupyter Notebooks using the PANDAS module.

Analysis:

The analysis of the purchasing datafile (HeroesOfPymoli_data.csv) has extrapolated that 576 players have purchased in-game items. These purchases can be further summarized into gender groups, age groups, and breakdown of popular items purchased.

Gender Breakdown:

According to the analysis found on Table 1, male players are the majority of the purchasers at 84.03%, females make up 14.06%, while the undisclosed gender make up about 1.91%. Therefore, the in-game purchases currently appeal to the male market. However, according to Table 2, females are likely to spend on average $0.40 more per person than males. Overall, males have the highest purchase total due to volume, but females are likely to spend more on purchases.

Table 1: Gender Demographics		
	Total Count	**Percentage of Players**
Male	484	84.03%
Female	81	14.06%
Other / Non-Disclosed	11	1.91%

Table 2: Purchasing Analysis by Gender				
	Purchase Count	**Average Purchase Price**	**Total Purchase Value**	**Avg Total Purchase per Person**
Gender				
Female	113	$3.20	$361.94	$4.47
Male	652	$3.02	$1,967.64	$4.07
Other / Non-Disclosed	15	$3.35	$50.19	$4.56

<u>Age Breakdown:</u>

From the 576 player that currently plays the game and have made purchases, a large percentage of players are around the 20-24 age range at 44.79% according to Table 3. The age of the players follows a normal distribution with the largest number of players peaking at 20-24 (See table 3). According to Table 4, the age range that spends the most overall (Total Purchase Value) is also within the age range of 20-24, but the group that spend the most per person is from the age range of 35-39 at $4.76 (See Table 4). The most anyone has spent so far on the in-game purchases is $18.96 (see Table 5).

Table 3: Age Demographics		
Age Range in Years	**Total Count**	**Percentage of Players**
>10	17	2.95%
10-14	22	3.82%
15-19	107	18.58%
20-24	258	44.79%
25-29	77	13.37%
30-34	52	9.03%
35-39	31	5.38%
40+	12	2.08%

Table 4: Purchase Analysis by Age				
	Purchase Count	**Average Purchase Price**	**Total Purchase Value**	**Avg Total Purchase per Person**
Age Ranges in Years				
>10	23	$3.35	$77.13	$4.54
10-14	28	$2.96	$82.78	$3.76
15-19	136	$3.04	$412.89	$3.86
20-24	365	$3.05	$1,114.06	$4.32
25-29	101	$2.90	$293.00	$3.81
30-34	73	$2.93	$214.00	$4.12
35-39	41	$3.60	$147.67	$4.76
40+	13	$2.94	$38.24	$3.19

Table 5: Top 5 Spenders			
	Purchase Count	**Average Purchase Price**	**Total Purchase Value**
Screen Name			
Lisosia93	5	$3.79	$18.96
Idastidru52	4	$3.86	$15.45
Chamjask73	3	$4.61	$13.83
Iral74	4	$3.40	$13.62
Iskadarya95	3	$4.37	$13.10

In-game Item Purchases Breakdown

     The analysis of the in-game item purchases concludes that the most popular item with 13 purchases is the "Final Critic" (see Table 6), this item is also the most profitable which grosses $59.99 (see Table 7). The second most popular and second most grossing item is the "Oathbreaker, Last Hope of the Breaking Storm" with 12 purchases and grossing $50.76. According to tables 6 and 7, the top five most purchased items are priced around $3.53 to $4.61, while the most profitable items are all priced over $4.00.

Table 6: Top 5 Purchased Items (Most Popular)				
		Purchase Count	Item Price	Total Purchase Value
Item ID	Item Name			
92	Final Critic	13	$4.61	$59.99
178	Oathbreaker, Last Hope of the Breaking Storm	12	$4.23	$50.76
145	Fiery Glass Crusader	9	$4.58	$41.22
132	Persuasion	9	$3.22	$28.99
108	Extraction, Quickblade Of Trembling Hands	9	$3.53	$31.77

Table 7: Top 5 Most Profitable Purchased Items				
		Purchase Count	Item Price	Total Purchase Value
Item ID	Item Name			
92	Final Critic	13	$4.61	$59.99
178	Oathbreaker, Last Hope of the Breaking Storm	12	$4.23	$50.76
82	Nirvana	9	$4.90	$44.10
145	Fiery Glass Crusader	9	$4.58	$41.22
103	Singed Scalpel	8	$4.35	$34.80

Overall:

    The overall data from table 8 shows that although the most profitable items are priced over $4.00, the average amount players are willing to spend is around $3.05, which was calculated by dividing the total revenue by the number of purchases.

Table 8: Overall Purchasing Analysis from 576 Players			
Number of Unique Items	Average Price	Number of Purchases	Total Revenue
179	$3.05	780	$2,379.77

Conclusion:

Currently this game's in-game purchases cater to the male players, while a smaller percentage of females will purchase in-game items. Currently it is unknown from this datafile if the demographics of the purchases is representative of all players. However, if the data analysis shows a trend, the game could benefit from catering more of their in-game purchases to females in the age group of 20-24 in order to become more profitable. Since players purchased on average of $3.05, the pricing of any new or sale items should be priced around that number, as well as having items similar to the top 5 most popular items.