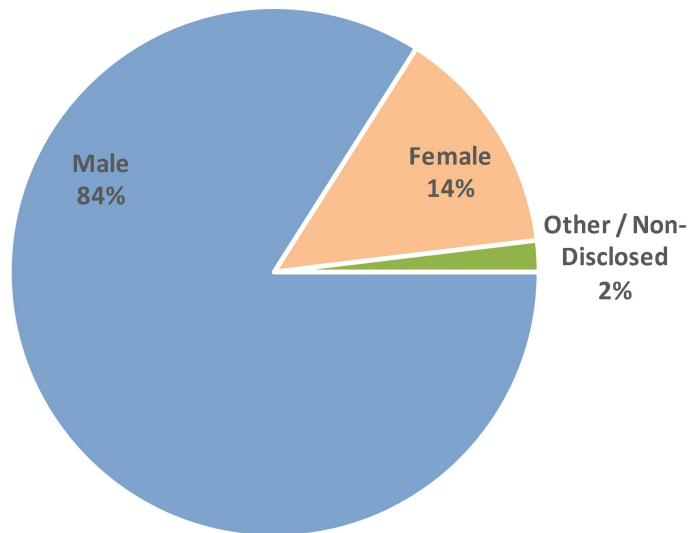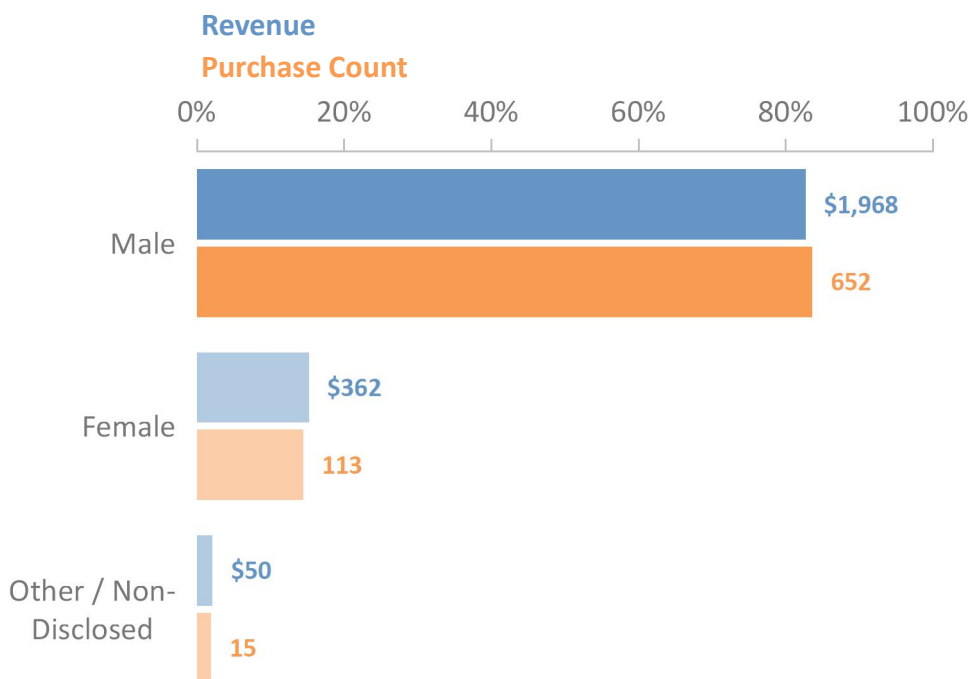# 1. Analysis by Gender

1a. Gender distribution of players:-

Out of the total 576 active players, **484 players identified as Male (84%)**. The remaining fraction of players is distributed as **Female (14%)** and **Other/Non-disclosed (2%).**

1b. Total purchase count and total revenue generated by gender:-

The players who identified as **Male** are the major contributors to the total revenue (**~80%** of **total revenue** and **count of purchases**).

Less than 20% of revenue was generated by Female players.

A total of **15 items** were bought by players who identified as **Other/Non-disclosed** which resulted in **merely 2% of total profits.**

1c. Average purchase price by gender:-

Gender	Avg. Purchase Price	Avg. Total Purchase per Person
Male	$3.02	$4.07
Female	$3.20	$4.47
Other / Non-Disclosed	**$3.35**	**$4.56**

While the players categorized as Other/Non-disclosed do not have major contribution in total revenue, **the average purchase price and mean total purchase per person is the highest among the three genders.**

2. Analysis by Age

2a. Percentage of player count and total revenue by age:-
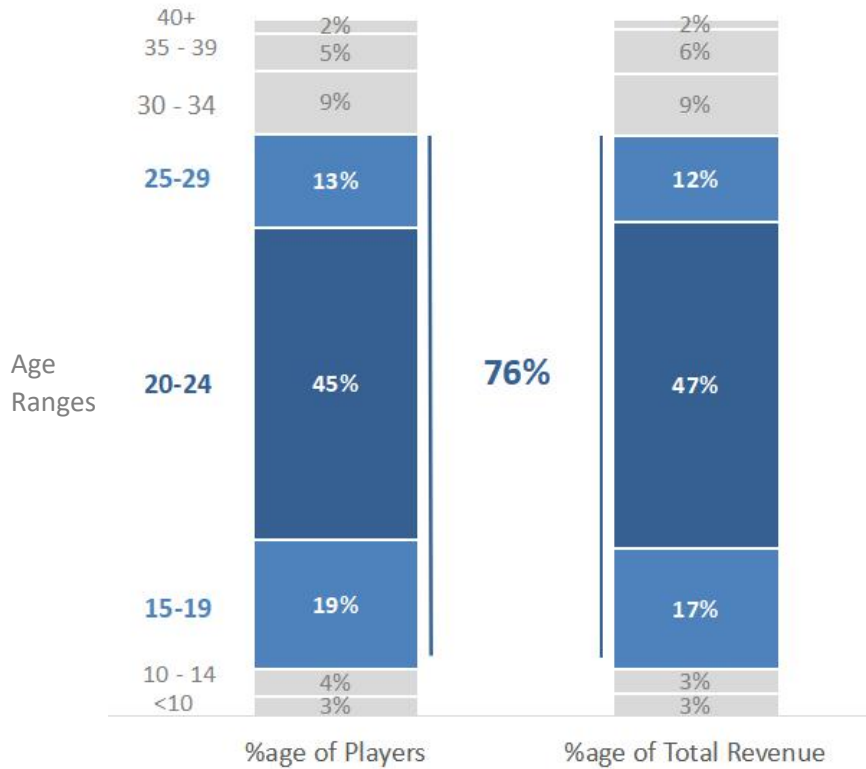
Out of a total of 576 players, approximately **45% are between 20 - 24 years old.** Interestingly, they also **contribute the most to the total revenue generated (47%).**

Overall, approximately **76%** of the players are distributed among three age brackets, I.e. **15-19, 20-24 and 25-29.** All-inclusive, **15 to 29 years old players contribute ~76% towards the total revenue.**

2b. Average total purchase price per person and average purchase price per age group:-
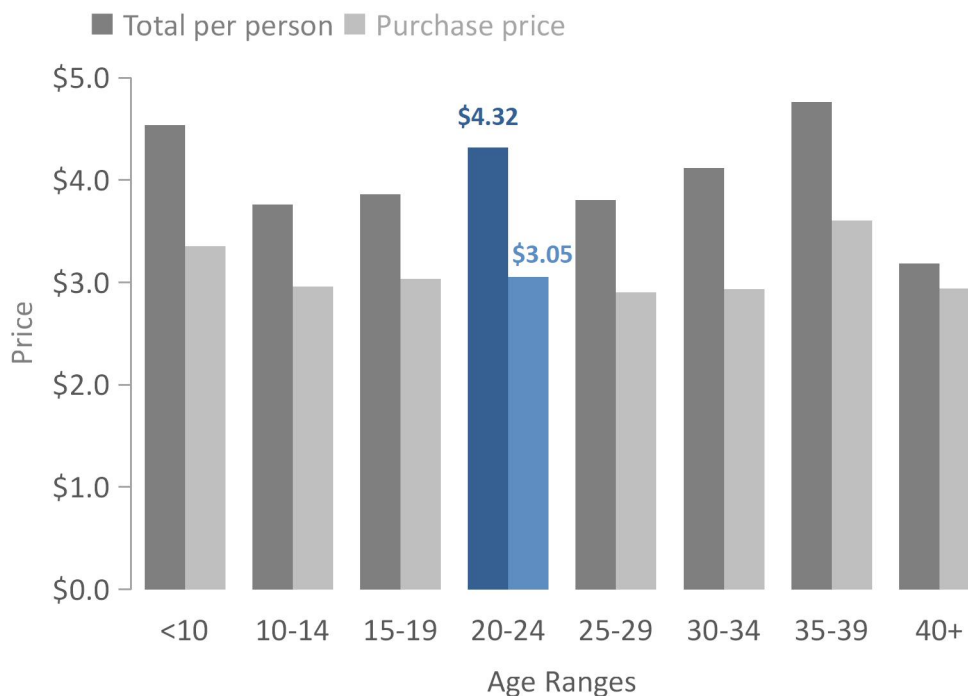
In general, the average of total amount spent by players of all ages is **higher than the mean purchase price.**
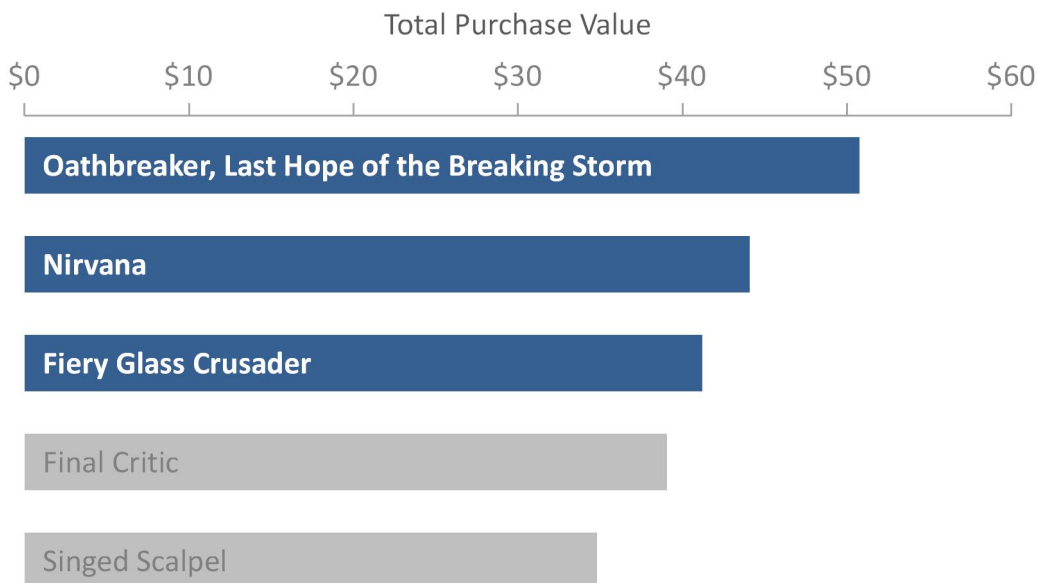
Notably, the mean total expenditure of players who are also major contributors to the total revenue **(20 - 24 years old) spend ~1.4 times the mean purchase price.**

3. Analysis of Items

3a. Top five popular items:-

Purchase count

| 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 |

Oathbreaker, Last Hope of the Breaking Storm

Fiery Glass Crusader

Extraction, Quickblade Of Trembling Hands

Nirvana

Pursuit, Cudgel of Necromancy

3b. Top five profitable items:-

Total Purchase Value

| $0 | $10 | $20 | $30 | $40 | $50 | $60 |

Oathbreaker, Last Hope of the Breaking Storm

Nirvana

Fiery Glass Crusader

Final Critic

Singed Scalpel

Among the top five items, three items (namely, **Nirvana, Fiery Glass Crusader, and Oathbreaker, Last Hope of the Breaking Storm**) are also the top three most profitable items.

Overall, **Oathbreaker, Last Hope of the Breaking Storm is the most popular and most profitable item** with a contribution of ~$50 to the total revenue.

4. Appendix: Data Inconsistency Issues

During the process of generating a report of the game's purchasing data, I found a potential data consistency issue: the same items were assigned duplicate IDs, which are printed out as:

```
"Crucifer" has IDs: 1 & 23
"Final Critic" has IDs: 92 & 101
"Persuasion" has IDs: 132 & 141
"Stormcaller" has IDs: 30 & 180
```

While this issue may seem trivial, it can still have a big impact on making an important business decision. For instance, if the game developers are designing a marketing campaign for the **most popular item**, the potential inconsistency in IDs in the database may result in incorrect number of counts an item was bought.

Possible Solution 1: An option to resolve this issue by extracting all the items with duplicate IDs in the database and assigning them new unique IDs so that the IDs are consistent across the database. Below are the results of the 5 most popular items sorted by number of times it was purchased. It is clear that without data correction, the most popular item "Final Critic" appears as 5th most popular item which may lead to ineffective marketing campaign for the popular items.

(Left) Before data correction **(right)** After data correction.

ID	Item Name	Count	ID	Item Name	Count
178	Oathbreaker, Breaking Storm…	12	**201**	**Final Critic**	**13**
82	Nirvana	9	178	Oathbreaker, Breaking Storm…	12
108	Extraction, Quickblade…	9	108	Extraction, Quickblade…	9
145	Fiery Glass Crusader	9	82	Nirvana	9
92	**Final Critic**	**8**	202	Persuasion	9

Possible Solution 2: Since the items with duplicate IDs have different price tag, it is possible that they are two separate items and have been named similar. It may also be possible, that the item was upgraded at some point after the launch of the game, and the price was increased. In this case, a solution might be to keep the original IDs and rename the items as two separate items. For instance, Final Critic I and Final Critic II.

Conclusion: In either of the cases above, in a real-world scenario I believe it is imperative that before performing any of the analysis in the earlier pages, any data consistency issues need to be fixed - e.g. by communicating with the person in charge of the database.