**Background**

Congratulations! After a lot of hard work in the data munging mines, you've landed a job as Lead Analyst for an independent gaming company. You've been assigned the task of analyzing the data for their most recent fantasy game Heroes of Pymoli.

Like many others in its genre, the game is free-to-play, but players are encouraged to purchase optional items that enhance their playing experience. As a first task, the company would like you to generate a report that breaks down the game's purchasing data into meaningful insights.

Heroes Of Pymoli High Level Data Analysis:

Of the 1163 active players, the clear majority are male (84%). There also exists, a smaller, but notable proportion of female players (14%).

Our peak age demographic falls between 20-24 (44.8%) with secondary groups falling between 15-19 (18.60%) and 25-29 (13.4%).

**Approach**

Read the existing purchase data that identifies item, item name, purchase price, player ID, and gender of the player. Utilizing Jupyter Notebook, Python and Pandas, perform variance data analysis to identify trends and key data observations.

Data Assessments completed on provided data include:

* Total number of purchases
* Total unique players purchasing items
* Assess gender dynamics for purchases
* Age demographics of players making purchases
* Purchasing analysis be age
* Top spenders
* Most popular items
* Most profitable items

**Observations**

* Of the 1163 active players, 84% are male and 14% are female from the key data observations.
  + Purchasing data indicates that of the 576 unique players making purchases, the same percentage holds true.
  + Because both active and purchasing purchases so greatly align to male players, it could be observed that this game is targeted or should be targeted more for the male population.
* Age demographics follows the same pattern as gender split – key age demographic is 20-24 and is 44.8%. Those making purchases of the 576 unique purchases are also 44% for the 20-24 age category.
* Approximately 77% of the purchasers are in the age group 15-29, indicating that this is or likely to be the target marketing group for additional purchases. The age group of 24-29 (13.37% of purchasers) falls below 14-19 and 20-24 age groups, so this represents a marketing opportunity for increased revenue.
* The top 3 most profitable items purchases are among the top 4 most popular items purchased. A further assessment of the top 10-20 profitable items compared to popular items should be done to assess marketing position and cost point.
* An opportunity exists to try to expand in game purchasing to more players as only 576 of the 1163 active players have made purchases (close to 50%).