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Bianca Hernandez

Path of Exile: Harvest League Stats

Ascendancy Class Distribution

Probability and Applied Statistics

Introduction and Data:

The dataset in reference will be regarding the distribution of certain ascendancy classes getting picked relative to others for the ARPG Path of Exile during the Harvest League patch of June 2020.



Chart

Description automatically generated with low confidence

Table

Description automatically generated with low confidence

Although these numbers are mainly representing the distribution of classes across the player base with specific odds attributed to each, additional scenarios can extrapolated from it to better demonstrate the likelihood of players choosing classes in general.

For instance, during launch week for the patch, if two people were to pick a class each, assuming there is equal chance for all the class options, to calculate the odds of one of them picking necromancer and one picking inquisitor, we can use combinations to determine the likelihood of this occuring:

Using this formula, we can determine that there are 66 total combinations in choosing both of these classes.

One scenario where we can take into account of the actual odds demonstrated in the graphs provided is in choosing a player from the player base and determining the odds of them picking witch as a starter class (event A) and then picking necromancer as a subclass/ascendency class (event B). This can be done using the Multiplicative Law of Probability:

The probability comes out to being 9.66% in picking a player who is both a witch and a necromancer at the same time.

An additional scenario that can be extrapolated would be in an instance where out of a section of the player base that was playing during the patch, in this case we can say 100 people, what is the probability that 20 of those people were necromancers, assuming all chances are equal. In this case, using hypergeometric distribution would help solve this case:

= .390847248

Conclusion:

Overall, it can be demonstrated that a variety of scenarios regarding probability and sorting that can emerge from this game data can be solved using an assortment of probability and statistical methods. Namely, the usage of combinations, the multiplicative law of probability, and hypergeometric distribution, to name a few.

Works Cited­­­­­

Number data for ascendancy class percentages provided by: <https://www.pathofexile.com/forum/view-thread/2923890>

Number data for average number of players during each patch: <https://steamcharts.com/app/238960#1y>