Efficiency vs. Fantasy:
A Data-Driven Journey through D&D Class Evolution

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For: Codédex 2026 February Dataset Challenge

Source dataset: “dnd_chars_unique.tsv”

Python: “dndcategories.ipynb”

Content

Dungeons & Dragons (D&D) is a team-based role-playing game, where players create characters with a race, class, and stats, then go on adventures together. Characters have stats such as HP, Strength, and Intelligence. Players can choose classes, each with unique abilities, and level up to improve their stats and unlock new skills. While teamwork is essential in D&D, this analysis focuses on individual character growth from the beginning to the end of the journey. In this analysis, I try to answer one main question: *Do the most popular classes scale best over time, or are players following suboptimal paths?*

The Dataset

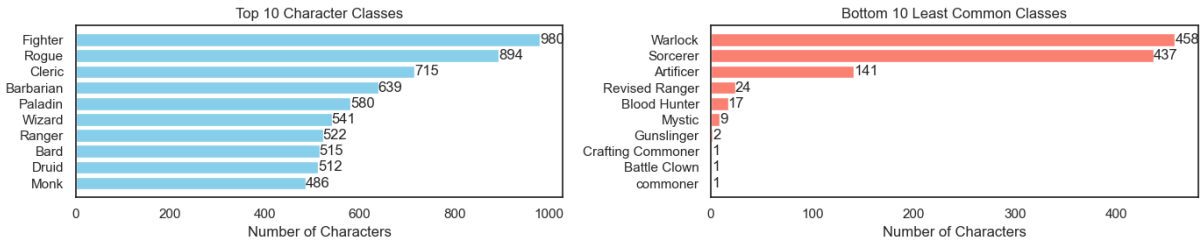
For this study, I used a dataset created by **Joakim Arvidsson** (2 years ago, Kaggle.com), coming from a mobile D&D game. All data belongs to them.

The dataset includes 7,946 characters, each with race, class, and various stats. We focus on single-class characters, which account for **7,475** (94%) of all characters, to ensure a clean comparison of growth potential. I cleaned the dataset in Python (NumPy and Plotly), removed irrelevant columns, and excluded multi-class characters to focus purely on class-specific growth.

However, some of the least played classes have very small sample sizes, and in some cases there is no level 1 or 20 characters at all. Which makes it difficult to accurately measure their full growth curve and makes them less reliable. As a result, their scaling metrics may not fully represent their true potential. Because of this limitation, I primarily focused on classes that have both level 1 and level 20 representation, to ensure comparable growth measurement. Rare classes are included in some visualizations for completeness.” This ensures that the overall ecosystem of the game is not misrepresented by focusing only on statistically stable classes.

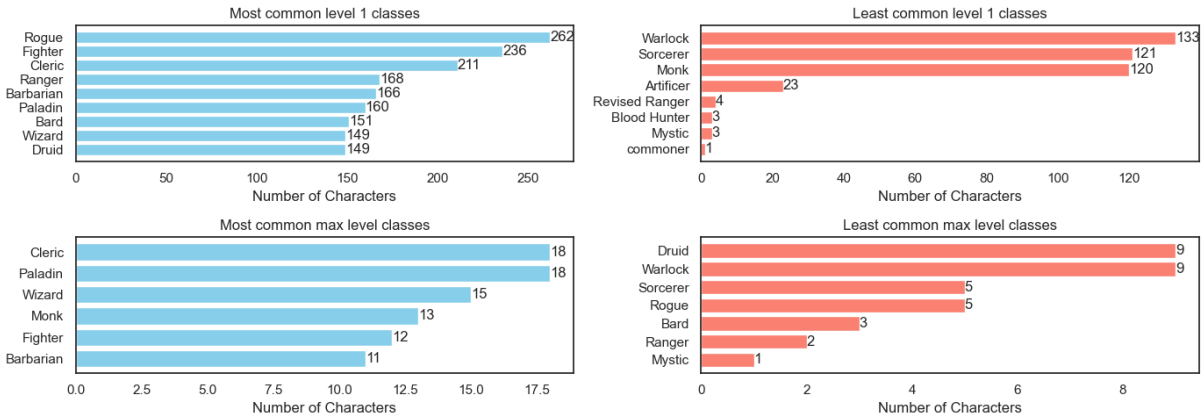
The Popularity Paradox

Players can choose from 20 classes; their choice tends to gravitate toward familiar archetypes. The most common being Fighter (~1,000 characters), Rogue (~900), and Cleric (~715). Meanwhile, a similar pattern appears at level 1, but by level 20 not all popular classes



remain at the top. For example, Rogue is one of the most common starting classes, yet far fewer reach level 20.

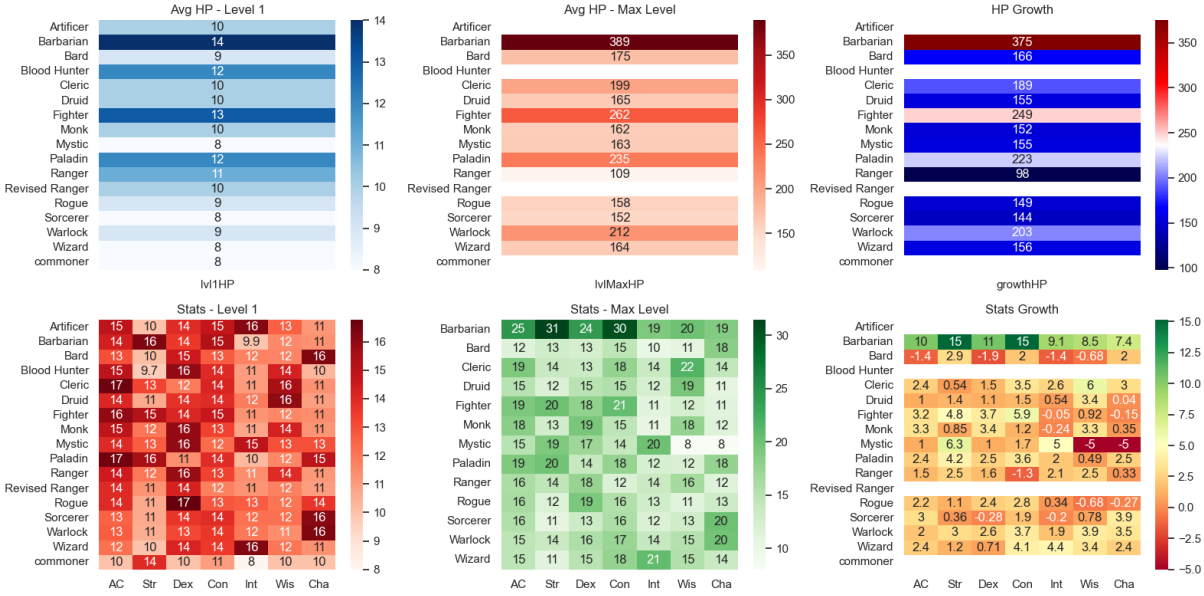
We can also see that Ranger is quite popular in the game, has many level 1 characters, but only a few reached level 20, meanwhile Wizard is the opposite. Ranger’s low representation at level 20 may be due to its weaker HP growth, as shown later.



The HP and stats growth

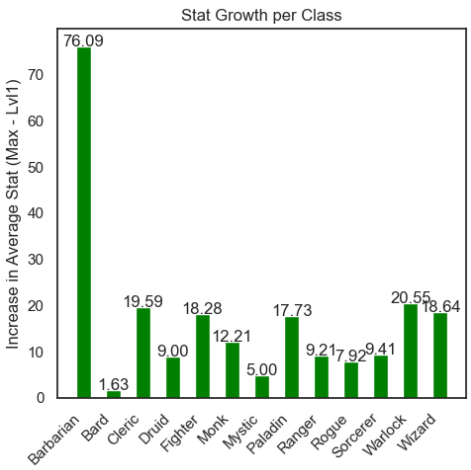
The growth shows us which classes average stats have the potential to increase over time. Which can evolve the best. Visualizing HP separately is crucial because HP dominates overall scaling, while other stats grow more modestly. Diagrams show starting stats and growth over time. HP is vital for surviving battles, while other stats are necessary for solving puzzles, interacting with NPCs, and completing challenges. At the end, not all classes have the same total stats; this reflects their story role, influencing which abilities are most relevant.

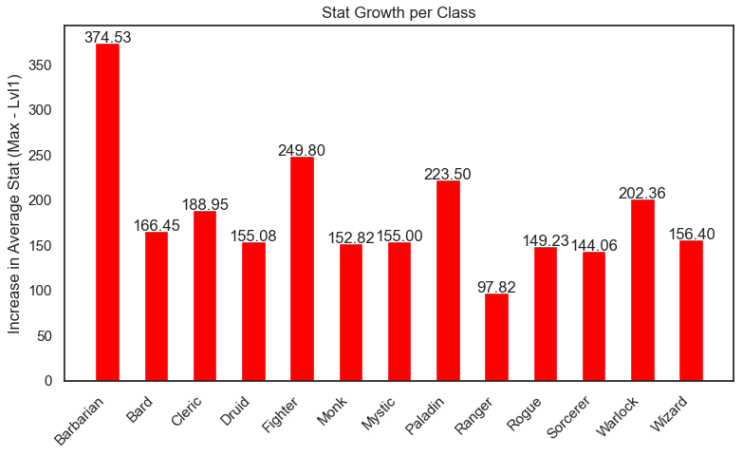
Barbarian HP exceeds the most popular class by roughly 100, highlighting the importance



of survivability. It jumps from **14 to 389 HP**, which is overall **27x growth**. This extreme increase suggests that survivability plays a dominant role in the mobile adaptation of the game, potentially influencing player perception of class strength. Moreover, it seems, the mobile game uses a high-scaling system compared to traditional tabletop D&D.

Fewer level 20 characters can lower average stats, making some classes appear weaker at max level. That may mean in average they have worse certain stat points than the ones with level one. But counting them in average they all grow overtime.





The Power Index

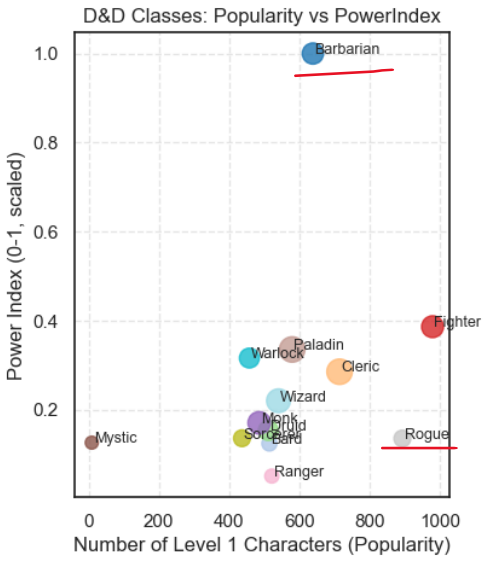
Next, we quantify overall scaling with a metric I created, the Power Index, which combines normalized HP growth and total stat growth 0 and 1 to make them more accessible, due to their huge differences.

Power Index = (Normalized HP growth + Normalized stat growth) / 2.

The higher the value, the faster the class scales. This allows comparison between raw popularity and growth potential in a single metric. A **50–50 weighting** was chosen to reflect the equal importance of survivability (HP) and functional abilities (core stats) in long-term character performance, as casting and utility rely heavily on attributes such as Intelligence, Wisdom, and Charisma.

Power index vs popularity

Quantifying growth, the Power Index shows the mismatch between popularity and scaling, which is surprising: the most powerful class, Barbarian, is not among the top three most chosen, and Rogue despite its lower long-term efficiency still remains extremely popular. This leads to a pattern where popularity often drives choice more than maximum efficiency, reflecting a general tendency to follow trends rather than optimal paths. This mirrors behavioural patterns where perceived identity and familiarity outweigh purely rational optimization. Also, this contrast suggests that early popularity does not guarantee long-term progression, and classes with stronger scaling metrics are more likely to be represented at higher levels.



Rogue is popular because players like sneaky adventures. They can hide, steal, and move unseen. Fighter is chosen by those who like to protect and fight head-on. They save people and win battles. Barbarian is strong because they survive battles easily. Their HP grows a lot, so they can take hits and keep fighting. Mystic is chosen less because it feels complicated. Players need strategy and planning, and not everyone likes

thinking too much. Behind every character choice, there are psychological reasons. Players pick what feels fun, safe, or exciting. They want to live the journeys they can’t in real life.

Conclusion

In conclusion, the most popular classes are not always the ones that scale the best. Players tend to pick familiar classes like Fighter and Rogue, even when others like Barbarian and Wizard improve more over time. The Power Index clearly highlights this discrepancy, supporting the insight that players sometimes select suboptimal paths — a pattern that could even mirror decision-making tendencies in real life. This suggests that players often choose what feels familiar instead of what is mathematically optimal. While this analysis identifies 'suboptimal' paths, D&D is ultimately a game of storytelling. The high popularity of the Rogue (approx. 900 players) despite its lower Power Index suggests that for many, the 'fantasy' of being a stealthy thief is more valuable than raw statistical efficiency.

Source

Data: **Joakim Arvidsson, updated 2 years ago, downloaded: 2026.02.25.** https://www.kaggle.com/datasets/joebeachcapital/dungeons-and-dragons-characters

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