Demographics of Adventurers in the 2014 Dungeons & Dragons 5th Edition Player's Handbook (Draft)

Simon Hans Edasi

Abstract

Dungeons & Dragons and other role-playing games employ complex designs of how a player can interact with the game via their in-game personality, known as a player character or PC. Many choices are available to create a player character. Combinations of these choices lead to a multitude of possible personalities and abilities available to explore. In this paper, these choices are randomized, automated, tracked, and analyzed. Governing attributes (Strength, Dexterity, Constitution, Intelligence, Wisdom, and Charisma) are randomly determined before selecting a species, class, background, and alignment based on the rolled attributes and subjective weighting. This study generates characters according to the suggestions in the 2014 5e Dungeons & Dragons Player's Handbook in an attempt to quantify the demographics of the adventuring population of Faerûn.

1 Introduction

Role-playing games Six attribute scores ranging from 3-20 describe a character's physical and mental strengths and weaknesses. Physically, the character is described by their Strength (ability to squash a tomato), Dexterity (ability to catch/throw/dodge tomatoes), and Constitution (ability to eat a rotten tomato without barfing). Mentally, the character has Intelligence (knowing a tomato is a fruit), Wisdom (knowing not to put tomatoes in fruit salad), and Charisma (ability to sell tomatoes or exert your will upon them). Skills, which further describe a PC's abilities, are governed by these attributes. For instance, Dexterity governs Sneak, Sleight-of-Hand, and Acrobatics. Having a high Dexterity score will automatically confer a bonus to attempts to interact with the world using these skills.

The world of Faerûn is home to many classical and varied high-fantasy species. Humans walk side-by-side with elves and dwarves and gnomes. Sinister forces are also at play, twisting the fairer species by demonic or draconic forces to produce devilish tieflings and scaly dragonborn. Each species gets a specific or flexible bonus to attributes, and select abilities such as seeing in the dark or speaking with small creatures.

A character's class is at the core of what a character can do in the game and how they interact with the world. The character's class, or profession, is usually what defines the character's role in the game. Classes also favor attributes. Combat oriented classes will favor higher scores in Strength, Dexterity, and Constitution, while magic oriented classes will favor Intelligence, Wisdom, and Charisma.

A character's background describes who they were before they took up the adventuring life. Backgrounds also provide access to skill proficiency, which further adds to the bonus applied to dice rolls to determine outcomes. Backgrounds also provide descriptive character traits and flaws to inform character personality, an essential part to fully experiencing a table-top role-playing game.

Alignments are purely optional and inform the character's attitude and motivations.

2 Methods

2.1 Attribute Scores

Traditionally, a player can build a character by randomly determining attribute scores using six-sided dice. This study uses four six-sided dice to determine attribute scores in order of Strength, Dexterity, Constitution, Intelligence, Wisdom, and Charisma. Random number generators determine the dice "rolls", and the three highest "rolls" are summed as the attribute score. If the entire array of attributes is generated and none of the stats are at least 16, the character is considered to have "died of farming" and the process is restarted. This continues until at least one stat is at least 16 and the average of all stats is at least 12, ensuring a viable starting stat array. Each failure to meet these requirements is counted as one more "dead farmer".

2.2 Species Selection

Once a viable stat array has been generated, the next step in this study is to determine the character species. Attribute scores are categorized as the lowest two, highest/lowest, and highest two attributes. Consideration is also given to tied scores. These attribute combinations are then compared to the attribute bonuses given to species, and if a species bonus matches the attribute combination under consideration, the species is added to a list for selection. Priority weighting is given in ascending order to lowest two attributes, highest/lowest attributes, and highest two attributes.

Further selection criteria include abilities given to each individual species. For instance: elves are immune to certain magic, and dwarves can see in the dark. These abilities are given a subjective, tuneable weight, which is added to the ability score priority previously assigned. A random choice function selects a species from the list with the calculated weights.

2.3 Class Selection

After selecting a species and applying the attribute bonuses, a class is selected based on the updated stat array. Classes use favored attributes as suggested in the player's handbook quick build section for each class. A character's highest attribute score, or scores if there are ties, are considered their primary attribute, and second highest for secondary attribute. These primary and secondary attributes are then compared to the class primary and secondary attributes for selection. If multiple classes are available to a character, a random choice function makes the choice for us with no weighting.

2.4 Background Selection

Character backgrounds are selected based on the skill proficiencies they provide. A character's two highest attribute scores determine which skills should be considered, and matching backgrounds with proficiencies in those skills are added to a list for selection. If multiple backgrounds are available a random choice function makes the selection without weighting.

2.5 Alignment Selection

Each time an attribute array fails to be viable, or if there are no species or class matches, the dead farmer count ticks up by one. At the end of the the character generation process, the amount of dead farmers represents the people who died in the character's life before they became an adventurer. Each available alignment is available for selection, and subjective weights are applied to each alignment. Each death, however, will adjust the weights more towards evil and chaotic alignments. A random choice function makes a selection based on these updated weights.

3 Results

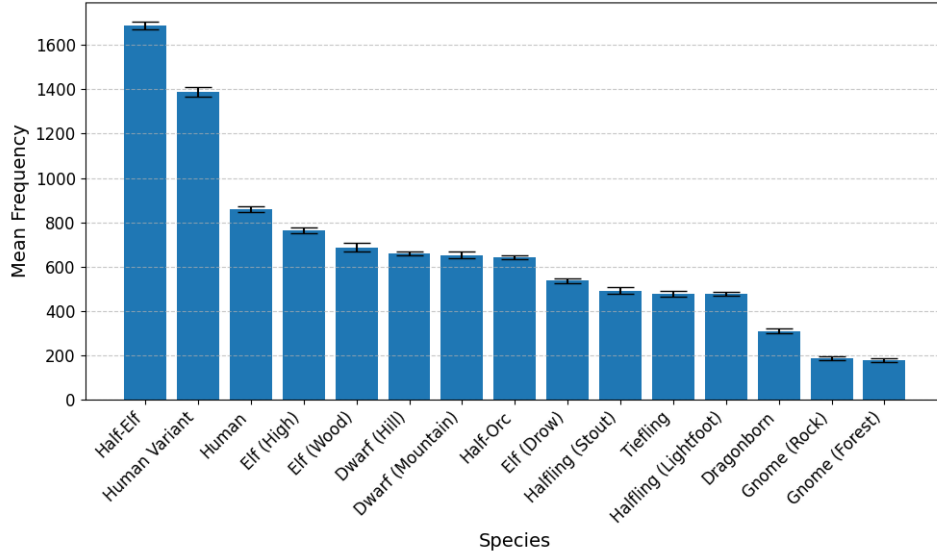Results for the character demographics simulation are reported below.

Figure 1: Species selection results from the experiment. Bars depict mean occurence with 95% confidence intervals obtained from 50 iterations.

Species	Mean Count	Percentage
Half-Elf	1689 ± 18	$16.89 \pm 0.18\%$
Human Variant	1390 ± 22	$13.90 \pm 0.22\%$
Human	860 ± 12	$8.60 \pm 0.12\%$
Elf (High)	764 ± 13	$7.64 \pm 0.13\%$
Elf (Wood)	688 ± 18	$6.88 \pm 0.18\%$
Dwarf (Hill)	660 ± 8	$6.60 \pm 0.08\%$
Dwarf (Mountain)	653 ± 15	$6.53 \pm 0.15\%$
Half-Orc	642 ± 8	$6.42 \pm 0.08\%$
Elf (Drow)	537 ± 11	$5.37 \pm 0.11\%$
Halfling (Stout)	491 ± 15	$4.91 \pm 0.15\%$
Halfling (Lightfoot)	478 ± 8	$4.78 \pm 0.08\%$
Tiefling	478 ± 12	$4.78 \pm 0.12\%$
Dragonborn	309 ± 11	$3.09 \pm 0.11\%$
Gnome (Rock)	186 ± 10	$1.86 \pm 0.10\%$
Gnome (Forest)	176 ± 8	$1.76 \pm 0.08\%$

Table 1: Mean counts and population percentage of generated adventurers. 95% confidence intervals calculated using counts from 50 iterations.
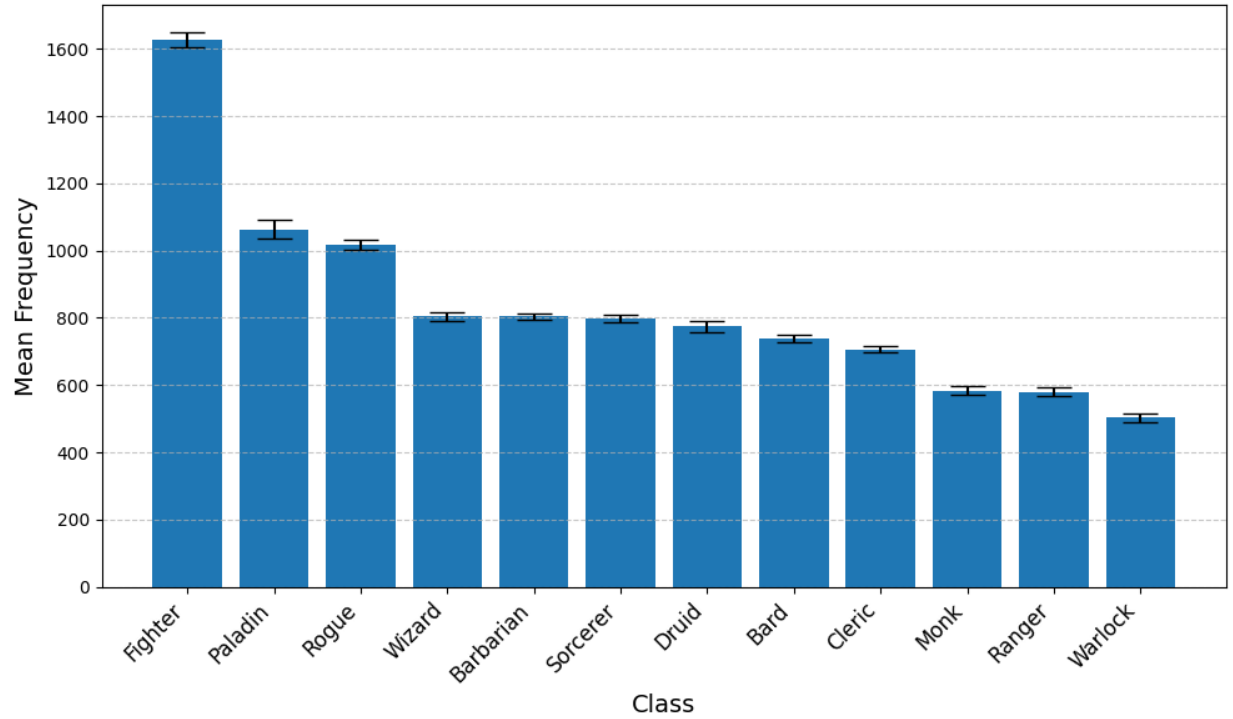
Figure 2: Class selection results of 10,000 characters generated over 50 iterations.

Class	Mean Count	Percentage
Fighter	1626 ± 23	$16.26 \pm 0.23\%$
Paladin	1064 ± 28	$10.64 \pm 0.28\%$
Rogue	1017 ± 16	$10.17 \pm 0.16\%$
Wizard	804 ± 13	$8.04 \pm 0.13\%$
Barbarian	804 ± 10	$8.04 \pm 0.10\%$
Sorcerer	799 ± 11	$7.99 \pm 0.11\%$
Druid	775 ± 16	$7.75 \pm 0.16\%$
Bard	738 ± 10	$7.38 \pm 0.10\%$
Cleric	706 ± 10	$7.06 \pm 0.10\%$
Monk	583 ± 13	$5.83 \pm 0.13\%$
Ranger	580 ± 12	$5.80 \pm 0.12\%$
Warlock	504 ± 13	$5.04 \pm 0.13\%$

Table 2: Classes selected mean count and percentage of population of generated characters. Confidence intervals calculated using 50 iterations.
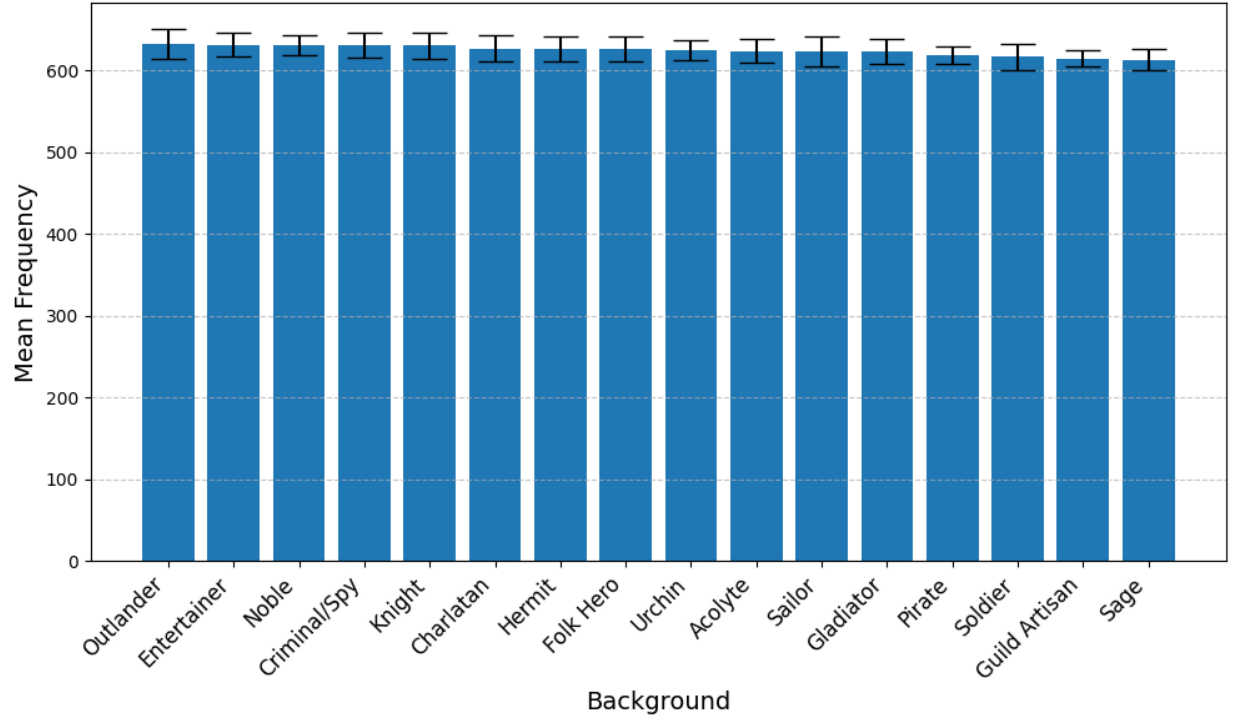
Figure 3: Background selection results of 10,000 characters generated over 50 iterations.

Background	Mean Count	Percentage
Entertainer	632 ± 15	$6.32 \pm 0.15\%$
Outlander	632 ± 18	$6.32 \pm 0.18\%$
Noble	632 ± 12	$6.32 \pm 0.12\%$
Knight	631 ± 16	$6.31 \pm 0.16\%$
Criminal/Spy	631 ± 15	$6.31 \pm 0.15\%$
Hermit	627 ± 15	$6.27 \pm 0.15\%$
Folk Hero	627 ± 15	$6.27 \pm 0.15\%$
Charlatan	627 ± 16	$6.27 \pm 0.16\%$
Urchin	625 ± 12	$6.25 \pm 0.12\%$
Acolyte	624 ± 15	$6.24 \pm 0.15\%$
Sailor	624 ± 19	$6.24 \pm 0.19\%$
Gladiator	624 ± 15	$6.24 \pm 0.15\%$
Pirate	620 ± 11	$6.20 \pm 0.11\%$
Soldier	617 ± 17	$6.17 \pm 0.17\%$
Guild Artisan	615 ± 10	$6.15 \pm 0.10\%$
Sage	613 ± 13	$6.13 \pm 0.13\%$

Table 3: Backgrounds selected mean count and percentage of population of generated characters. Confidence intervals calculated using 50 iterations.
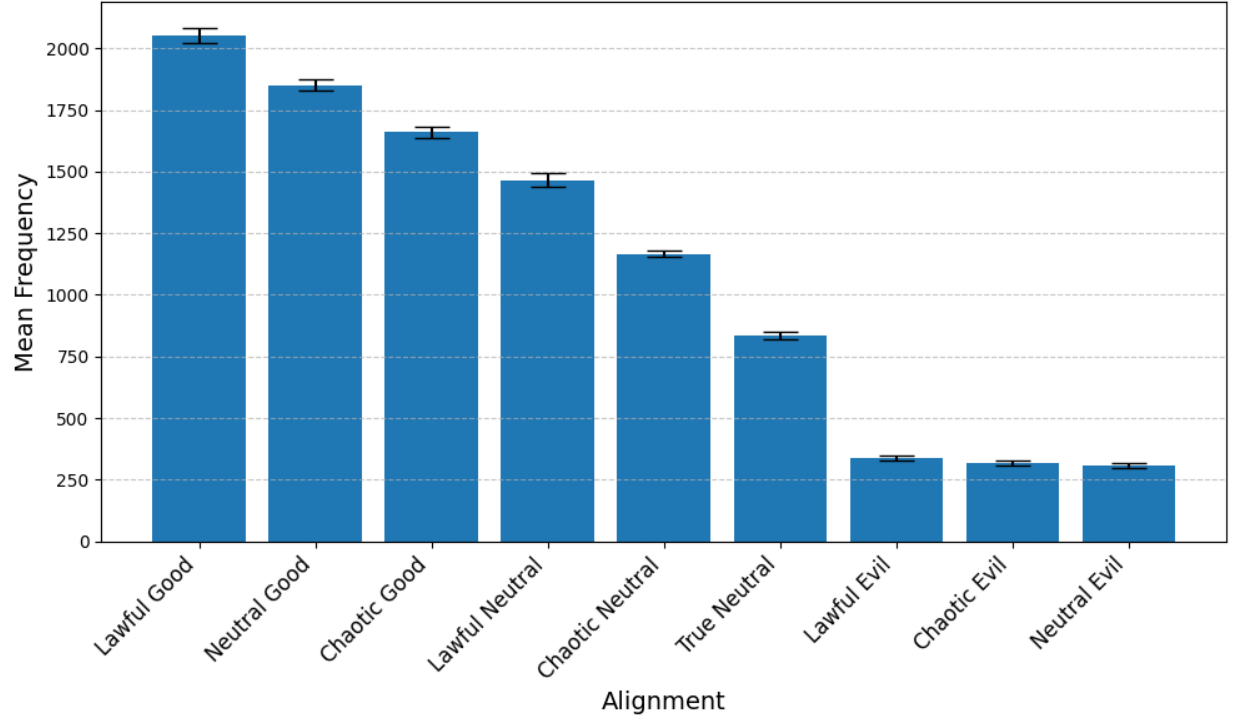
Figure 4: Background selection results of 10,000 characters generated over 50 iterations.

Alignment	Mean Count	Percentage
Lawful Good	2053 ± 32	$20.53 \pm 0.32\%$
Neutral Good	1851 ± 24	$18.51 \pm 0.24\%$
Chaotic Good	1661 ± 23	$16.61 \pm 0.23\%$
Lawful Neutral	1466 ± 28	$14.66 \pm 0.28\%$
Chaotic Neutral	1166 ± 12	$11.66 \pm 0.12\%$
True Neutral	836 ± 14	$8.36 \pm 0.14\%$
Lawful Evil	340 ± 10	$3.40 \pm 0.10\%$
Chaotic Evil	319 ± 11	$3.19 \pm 0.11\%$
Neutral Evil	308 ± 9	$3.08 \pm 0.09\%$

Table 4: Alignment selected mean count and percentage of population of generated characters. Confidence intervals calculated using 50 iterations.
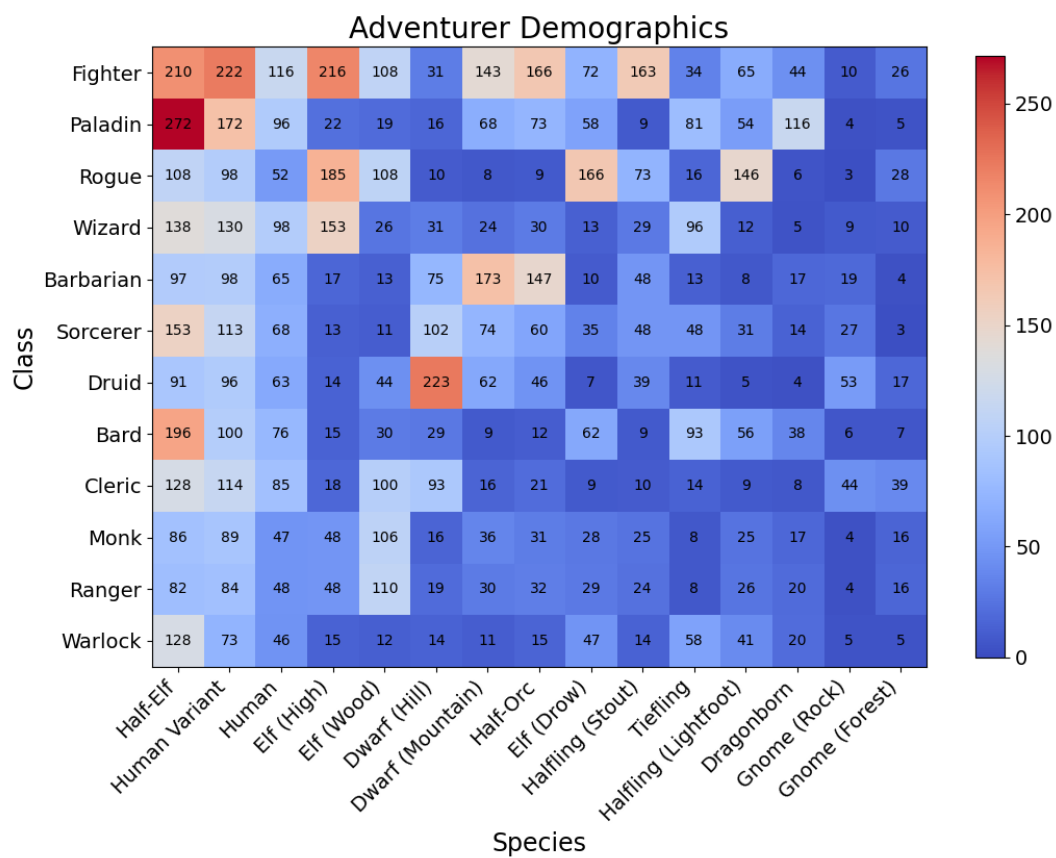
Figure 5: Heat map of most species and class combinations. Colors represent most commonly selected (red) to least selected (blue).
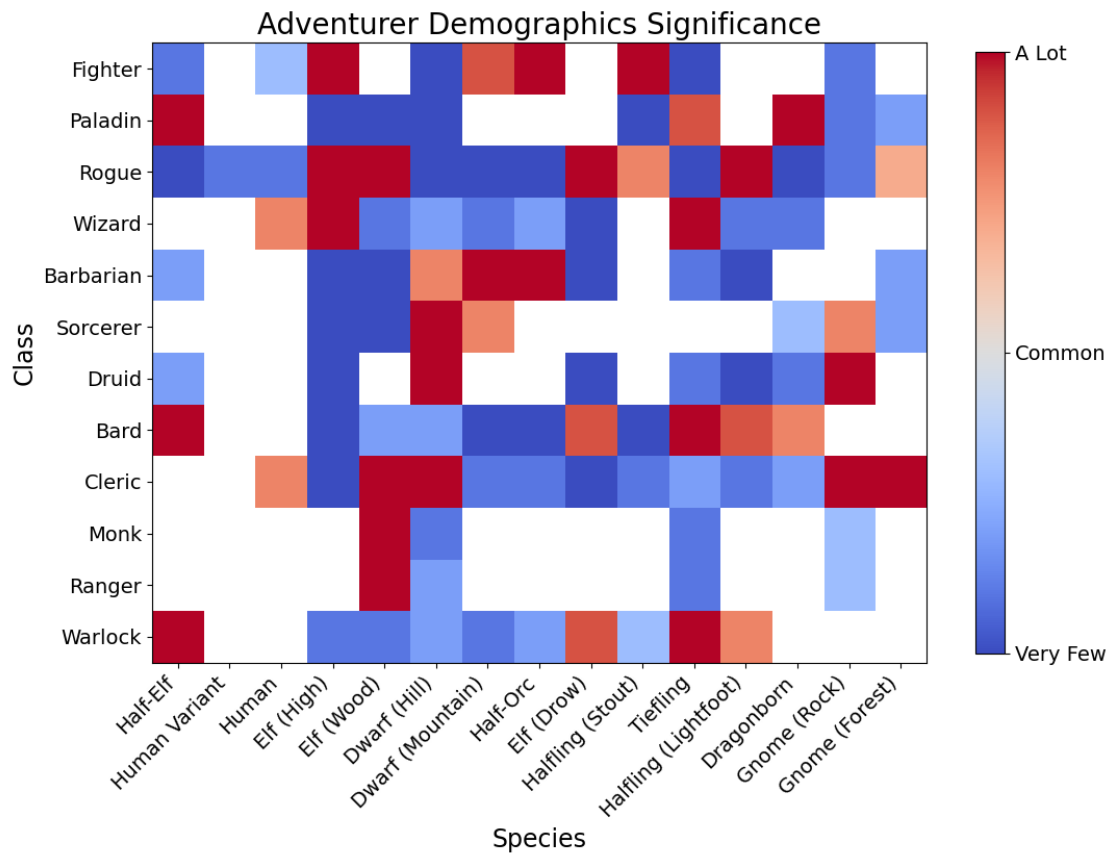
Figure 6: Chi-Squared standardized residuals for species-class combinations. Colors represents a higher (red) or lower (blue) than expected occurence of a given combination considering the distributions of both the species and class involved in the combination.

4   Discussion

Figure 1 shows the species selection results of the experiment. Humans are extremely common and make up roughly 22% of the adventuring population, followed by Elves at around 19%. Half-elves are the final major species representing nearly 17%. Dwarves are slightly more common than Halflings, and Tiefliengs and Dragonborn are less common still. Gnomes are the rarest of adventurers, only around 3% of the population.

Figure 2 shows classes selected in the experiment far and wide prefer Fighter, as the player's handbook suggest more attribute combinations to make a Fighter. Paladins and Rogues are the second most popular profession, most likely due to the Charisma boost given to Half-elves. Monks, Rangers, and Warlocks are the least common class selected, likely due to Monks and Rangers sharing Dexterity and Wisdom as preferred attributes.

Figure 5 is a heat-map showing popularity of both species and class. These values are the mean value over 50 iterations of the experiment. Figure 6 shows the significance of the combination of species and class using chi-squared standardized residuals. Humans, while the most populous of the adventurers, do not stand out strongly in any particular class. This is due to their flexibility in any role. Half-elves unsurprisingly make excellent Warlocks and Paladins, likely due to their tendency for strong convictions and coming from two lineages. Dwarves, classically make excellent Clerics and are rarely Rogues. Drow, on the other hand, are very often Rogues, as are the other Elves due to their natural agility. Wood-elves are the most common Monks and Rangers, and Tiefling Monks or Rangers are rare, but not as rare as a Half-orc Bard. Halflings are common as Rogues and the Dragonborn Paladin is a classic occurrence. Gnomes, while rare, are frequently found as clerics and druids. The results shown in Figure 6 demonstrate balance in classes and species within D&D 5e.

Backgrounds selected (Fig 3) across all simulation iterations remains constant, even the confidence intervals are even. This represents a good balance of access to skills and a balanced variety of potential shapes a character can take. Alignments selected (Fig 4) prefer lawful and good alignments, while evil and chaotic alignments are less favored.

5   Code Availability

code is all hosted at https://github.com/simonhansedasi/char_gen

6 Appendix

6.1 Species Feat Weights

Feat ID	Feat Name	Feat Weight	Feat ID	Feat Name	Feat Weight
1	Darkvision	6	2	Superior Darkvision	8
3	Dwarven Resilience	5	4	Dwarven Combat Training	5
5	Stonecunning	3	6	Dwarven Toughness	6
7	Dwarven Armor Training	3	8	Skill Proficiency	2
9	Resist Charm	5	10	Trance	5
11	Drow Magic	5	12	Drow Weapon Training	5
13	Cantrip	8	14	Extra Language	3
15	Fleet of Foot	5	16	Mask of the Wild	5
17	Elf Weapon Training	5	18	Lucky	6
19	Brave	5	20	Nimbleness	5
21	Naturally Stealthy	5	22	Stout Resistance	5
23	Feat	10	24	Draconic Ancestry	5
25	Breath Weapon	5	26	Damage Resistance	5
27	Gnome Cunning	9	28	Speak With Small Beasts	5
29	Artificer's Lore	5	30	Tool Proficiency	5
31	Skill Proficiency + 1	3	32	Menacing	5
33	Relentless Endurance	7	34	Savage Attacks	6
35	Hellish Resistance	5	36	Infernal Legacy	7
37	Sunlight Sensitivity	-5			

Table 5: Player's Handbook species starting feats with subjective weights used for species selection.

6.2 Alignment Weights

Alignment	Weight	Alignment	Weight
Lawful Good	100	Neutral Good	90
Chaotic Good	80	Lawful Neutral	70
True Neutral	40	Chaotic Neutral	55
Lawful Evil	14	Neutral Evil	15
Chaotic Evil	13		

Table 6: Initial weights for a random choice function to select alignment. Each failure to create a character or "dead farmer" nudges alignment weights to favor chaotic and evil alignments.