

D&D Campaigns Generator • *mastermindnd*

Note: This preliminary version of the project proposal. Its content is subject to change.

The sections in italic, highlighted in gray, refer to the feature of designing prompts using rule based engine. However, this feature's inclusion is not guaranteed.

Authors

SV 18/2020 Milica Sladaković

SV 27/2020 Nemanja Dutina

Motivation

Role-playing board games like Dungeons & Dragons (D&D) offer players to assume the role of characters in fictional worlds. At the heart of every memorable D&D adventure lies a well-crafted campaign with intriguing plot twists, challenging encounters, and captivating characters.

However, creating engaging campaigns can be time-consuming and challenging, especially for new Dungeon Masters (DMs). Our solution allows DMs to easily choose (or create their own) campaign based on player count, difficulty, world and adventure type etc.

Problem Description

In order to find D&D campaigns that suit them best, many DMs rely on manual research through online forums, blogs, and social media groups to discover new campaigns or adventure modules. However, this process can be time-consuming and overwhelming. Currently there is not a single solution that recommends D&D campaigns based on player preferences. This is one of the reasons why people don't want to try themselves as DMs.

Primary goal of our solution is to make the process of choosing (or creating) a campaign easier in order to attract new DMs and allow skilled DMs to spend more customizing campaigns based on the player group giving them a base to start from. We will achieve this by allowing users to specify their party composition, players gameplay style, campaign themes, difficulty and duration in order to generate personalized campaign recommendations.

If DMs, however, don't like any premade campaigns, they will also have the opportunity to generate their own campaigns by specifying scenarios that they want to create. This allows DMs to create custom campaigns that fit their playstyles and player group best.

Methodology

The system works by taking inputs, applying the rules from the knowledge base, and then producing the outputs. Below is a detailed overview of all components.

Inputs

These are the data that the system receives:

- **User's activity**

System tracks the user's activity in order to understand the user and recommend new campaigns based on his previous experience. There are three parts of user's activity:

- *History* - contains campaigns that user already played

- *Preferences* - contains campaigns that user likes
- *Wishlist* - contains campaigns that user wants to play in future

- **Characters included**

Characters in a campaign can have their own backgrounds, personalities, goals, secrets, which can add depth to the campaign. There are multiple categories of characters:

- *Player Characters (PCs)* - characters controlled by players. They have classes (*Fighter, Wizard, Rogue, Cleric, Ranger, Bard, Paladin, Warlock, Sorcerer, Monk, Druid, Barbarian*) and belong to various races (*Humans, Elves, Dwarves, Halflings, Gnomes, Half-Orcs, Dragonborn, Tieflings*).
- *Non-Player Characters (NPCs)* - characters controlled by the DM. They can be allies (mentors, guides or companions to the PCs), enemies (main antagonist, their minions, or any character that opposes the PCs) or neutral parties (townsfolk, merchants, innkeepers, or any character that is not directly opposed or allied to the PCs).
- *Creatures* - monsters, animals or mythical beings that the PCs encounter.
- *Deities* - gods and goddesses of the world.

- **Theme**

The theme sets the overall tone and direction of the story. Possible campaign themes include:

- *Fantasy* - most common theme in D&D, features elements like *magic, mythical creatures* and *medieval settings*.
- *Horror* - involves elements of *fear, dread* and *supernatural* featuring elements like *haunted houses* or *vampires*.
- *Adventure* - focuses on *exploration*, with the characters involved in *epic quests* and *journeys*.
- *Mystery* - the characters usually do the *detective work*, solving *puzzles, riddles*, or *mysteries*.
- *War* - revolves around *large-scale conflicts, battles* and *strategies*.
- *Political Intrigue* - involves *politics, diplomacy, power struggles* within a kingdom.
- *Survival* - characters must survive in harsh environments, facing challenges like *lack of resources, extreme weather* and *dangerous creatures*.
- *High Seas* - takes place on the open sea, featuring *pirates, sea monsters* and *treasure hunts*.
- *Urban* - set in cities or towns, involving elements like *crime, urban exploration* and *city underground politics*.
- *Historical* - set in a specific historical period or event, incorporating *real-world history*.

- **Gameplay style**

Gameplay style implies preferred approach or focus of gameplay that players enjoy during their D&D session. Potential gameplay styles include:

- *Combat-Focused Gameplay* - players enjoy strategic combat encounters, tactical decision-making, and adrenaline-pumping battles
- *Role-Playing and Character-Driven Storytelling* - players enjoy immersing themselves in their characters' personalities, motivations, and relationships
- *Puzzle-Solving and Environmental Challenges* - players relish the opportunity to engage their minds in solving riddles, deciphering clues, and overcoming obstacles
- *Sandbox Exploration and Open-World Gameplay* - players thrive in open-world environments where they have the freedom to explore, discover secrets, and shape the narrative through their actions

- **Duration**

Campaign duration can vary greatly depending on several factors such as the complexity of the plot, the frequency of gameplay sessions, and the pace at which the players progress through the campaign. General duration categories include:

- *One-Shot* - can be completed in a single session, typically lasting a few hours.
- *Short* - can last a few sessions, spanning a few days.

- *Medium-Length* - might last several weeks to a month, with regular weekly or bi-weekly sessions
- *Long* - extensive campaigns that last multiple months up to a year.
- **Difficulty level**
The difficulty level refers to how challenging the campaign is for the players. This can be influenced by difficulty of challenges, such as puzzles or combat with monsters, complexity of the plot and level of player characters.
- **Additional prompt requirements**
Any additional information like detailed world or character description can help generator create personalized campaign that perfectly fits DMs

Outputs

These are the results that the system produces.

- **Existing Campaign**
A predesigned D&D campaign that has already been created and played before. Comes with pre-set storylines, characters, maps and challenges. The system will match the user's preferences against the database of existing campaigns and determine the best match.
This approach saves time as the DM doesn't have to create a new campaign from scratch, using a campaign that has been proven to work well.
- **Newly Generated Campaign**
*Includes the process of creating brand new D&D campaigns using Generative Pretrained Transformer (GPT) models. These models are capable of generating human-like text based on a given prompt.
Based on the user's preferences, the system will design a prompt that will guide the model in generating a campaign that matches the user's preferences. The GPT model takes the prompt, and generates storyline, maps and challenges. The output is a completely original campaign.*

Knowledge Base

This is the information that the system uses to process the inputs and generate the outputs. It includes the database of entities and the rules defined using Drools.

Entities:

- **Character Entity** - contains player characters characteristic in the campaign:
 - Character information: *name, race, class, level and experience points (XP)*,
 - Attributes and abilities: *strength, dexterity, constitution, intelligence, wisdom, charisma, hit points (HP), armor class (AC), speed and proficiencies.*
- **Campaign Entity** - includes information that helps DMs understand the theme, challenges, and difficulty of each campaign: *name, theme, gameplay style, estimated duration, recommended party size (number of players), recommended player levels and summary.*
- **User Entity** - includes information such as *identifier, name, preferences, wishlist, history and ratings.*

Rules:

- **Forward chaining rules** - work by starting with the known facts and using rules to derive new information.

Level 1 - User activity analysis

Rule 1 - Identify saved campaigns

When a user saves a campaign for later, add the campaign's theme, gameplay style and difficulty level into the user's wishlist.

Rule 2 - Identify preferred campaigns

When a user likes a campaign, add the campaign's theme, gameplay style and difficulty level into the user's preferences.

Rule 3 - Identify played campaigns

When a user plays a campaign, add the campaign's theme, gameplay style and difficulty level into the user's history.

Level 2 - User preference predictions

Rule 4 - Predict preferences based on user's activity

Based on the data from the user's activity (wishlist, preferences and history), determine the campaigns that the user will most likely want to play.

Level 3 - Campaign generation

Rule 5 - Process user's request

Based on the data from the user's request (characters, theme, gameplay scenario, difficulty level and duration) and predicted preferences, find the campaigns that make the best match.

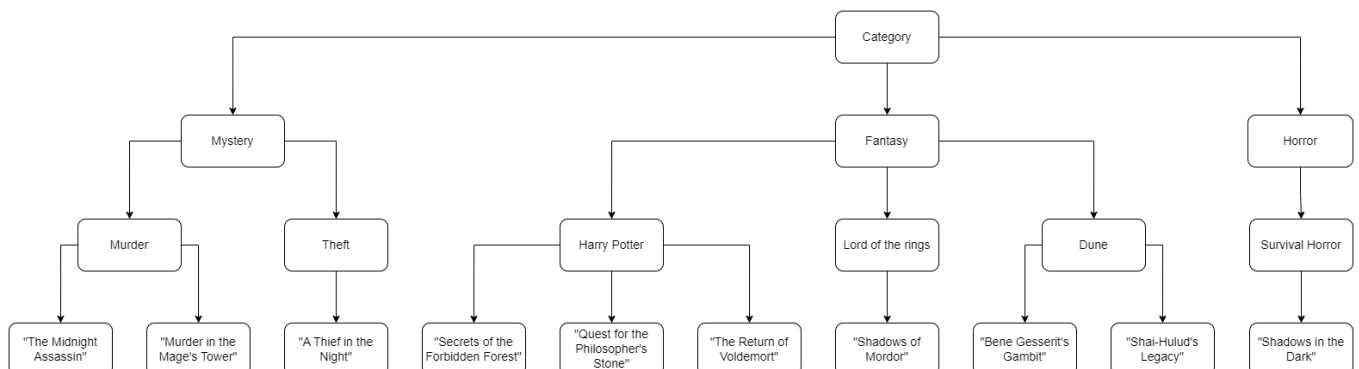
Rule 6 - Match the predicted preferences

If there is not a campaign that matches the user's request, find the campaigns that make the best match with user's preference predictions.

- **Backward chaining rule** - work by starting with a goal and then recursively applying rules to determine the facts that must be true in order to reach that goal.

Rule 7 - Match the desired campaign theme

In our implementation, we use backward chaining to match the campaign's theme to the user's preferred themes and requests. Example is given on the image below:



- **Complex Event Processing (CEP)** - detects complex patterns and relationships within streams of events.

Rule 8 - Monitor user's behavior

When a user saves or likes more than three campaigns with the same theme, gameplay style or difficulty within a month, recommend campaigns in the same tone for the next month.

Rule 9 - Notify user on new campaigns

When a new campaign appears in the system, notify the user if the campaign matches its predicted preferences or its past activity.

- **Template rules** - predefined rule structures that can be used as templates for creating specific rules.

Rule 10 - Combine gameplay styles

User can combine multiple gameplay styles to create unique styles. When a user creates a new style and requests for such a campaign, the system will try to adapt recommendations to fit the newly created gameplay style.

Example

Let's say we have a DM who has played several *fantasy-themed* campaigns, enjoys *role-playing* and *character-driven storytelling*, and prefers *medium-length* campaigns. The DM has a group of players consisting of a *Fighter*, *Wizard*, *Rogue*, and *Cleric*, and they want the campaign to include elements of *exploration*, *puzzles*, and *combat*.

Based on this information, the system could recommend a campaign called "***The Quest for the Lost Relic***." This campaign is set in a *fantasy world* filled with *ancient ruins*, *hidden tombs*, and *mysterious artifacts*. The players' party is tasked with recovering a powerful relic that could shape the fate of the world. Along the way, they will encounter challenging *combat encounters*, *puzzles to solve*, and *interactions with various NPCs*.