

Lab 1 – RoleCall Description

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## 1 Introduction

Tabletop games have enjoyed popularity for many years; however, the pandemic significantly heightened their visibility as people searched for engaging activities during lockdowns. A tabletop role-playing game (TTRPG) represents a unique category within tabletop games, where players adopt various roles and personas to collaboratively achieve a goal or objective. TTRPGs typically feature a designated leader, known as the Game Master (GM), and a group of players who embody their fictional characters. The GM dynamically shapes the environment, prompting players to adapt their strategies in real-time as they navigate the unfolding narrative.

Unfortunately, players often encounter several challenges when trying to find or organize games. Geographical limitations can hinder the ability to discover a consistent local group for regular play. Organizational difficulties also arise, complicating the coordination of specific times and locations for group gatherings. Attendance issues further complicate matters: if a key group member is missing, it can decelerate or halt the game's progress for everyone involved. Additionally, TTRPG players have distinct preferences regarding the games they wish to engage in, which necessitates finding like-minded individuals with similar tastes.

These challenges create an opportunity to not only solve these issues but also foster a more structured community that engages more in gameplay and spends less time searching. The RoleCall platform is a player-friendly, cross-platform application designed to streamline the organization and management of tabletop games. It allows gamers to create a profile as a player or gamemaster, enabling them to post listings for needed participants, be it a GM or a group of players. The service employs an algorithm to pair players and GMs based on geographical

location, game preferences, and availability. Moreover, real-time notifications are sent to users when a listing aligns with their preferences.

## **2 RoleCall Product Description**

RoleCall is a multiplatform application designed for efficiently searching for games or groups and organizing ongoing game sessions, whether online or in person. RoleCall systematically searches our listing database to match players or Game Masters (GMs) based on their profile types and characteristics.

### **2.1 Key Products Features and Capabilities**

A user can create one of each profile type, GM and/or player. These profiles are tailored to the user's characteristics, such as games played, schedule, and location. The key difference between the two profile types lies in the listings they are associated with.

RoleCall allows GMs to create listings that automatically match player profiles based on the listing's specific criteria. GM listings specify the game to be played, a tentative schedule, the specific roles needed, and the location of the play session. To facilitate a smooth campaign, GMs are linked to platforms and resources that help keep the group engaged. Player listings, on the other hand, detail the roles and playstyles the player is accustomed to using in tabletop RPGs (TTRPGs). Based on the profile type and currently available listings, the platform continuously updates a stack of relevant listings for the user to view.

Additionally, local game stores can be included as optional meeting places in listings. Store information, such as seating or table availability, event schedules, and location, will be made available to users.

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The RoleCall platform is not intended to facilitate online play sessions; it is purely for organizing them. Users will not have the ability to use the platform as a search engine to view all available listings. We believe that automatic listing matches will expedite the process, so users won't have to sift through numerous pages of listings. The platform is also not intended to organize meetups outside of TTRPG sessions, nor will it function as a discussion board, as this would detract from its primary purpose of organizing actual gaming sessions.

## 2.2 Major Components

RoleCall consists of six major components, as specified in Figure 1: Users and Devices (with support for iOS and Android), User Interface, Web Server, User Database, Game Listings Database, and the Match Algorithm. The User Interface and Match Algorithm interact through the Listings Search component. The Match Algorithm retrieves data from the User and Game Listings databases and assigns scores to potential matches. The User Interface can read from and write to the User Database, storing Profile Information that aids the Match Algorithm.

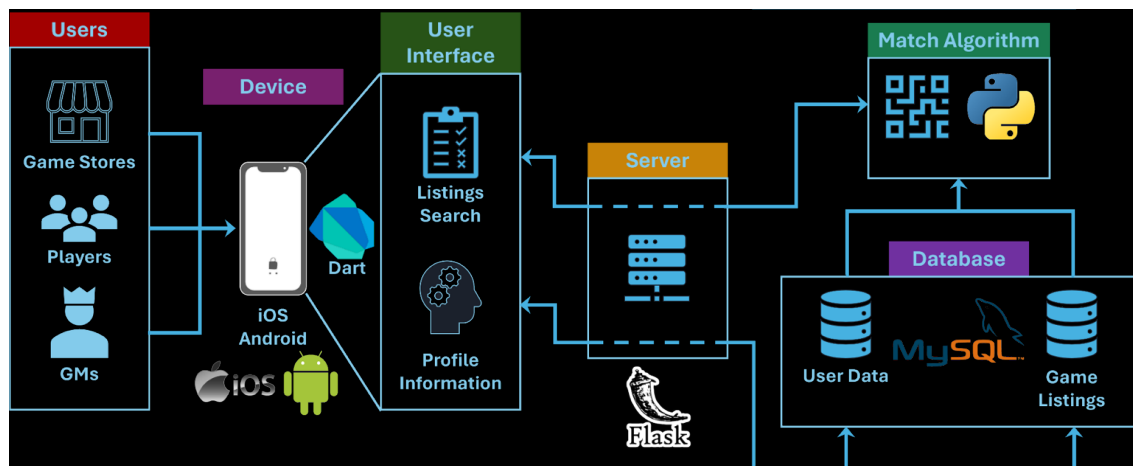


Figure 1: Major Components

Once a listing is created, it is compared against every GM or player listing in the database, excluding any created by the listing’s author. Each listing is assigned a score based on factors such as the name of the TTRPG, the location overlaps between the listing’s origin and the user being searched for, the schedule overlap, and the desired roles. If listings with a score of 1.0 are found, the Match Algorithm returns only those matches. If a listing’s score is less than 1.0, the Match Algorithm returns matches with a score of 0.8.

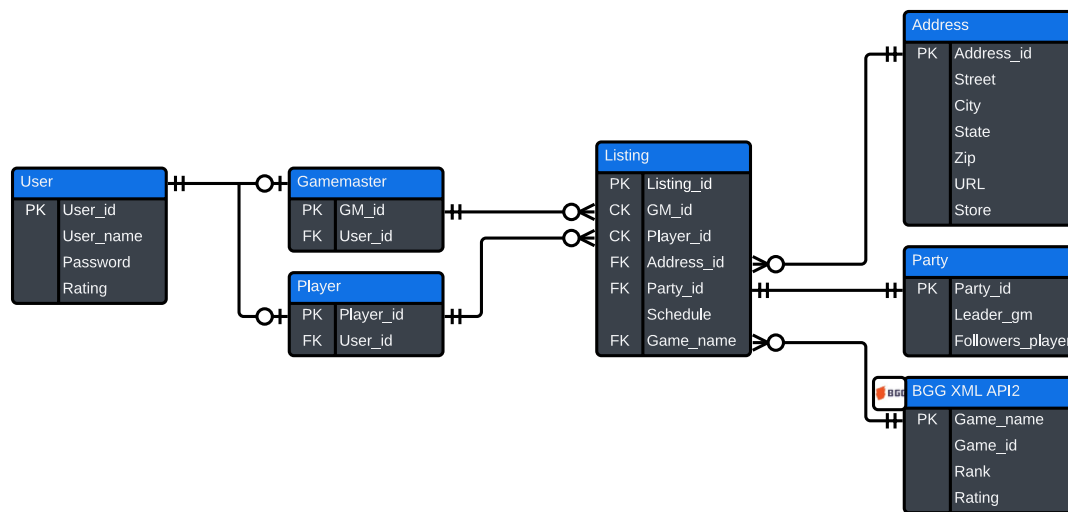


Figure 2: ERD Diagram

The Game Listings database, shown in Figure 2, maintains a balance between player and GM listings for each specific TTRPG. The ideal ratio is 4-6 players per GM. If the ratio falls below this threshold, the system alerts users to switch to a player or GM role for better search results for that TTRPG.

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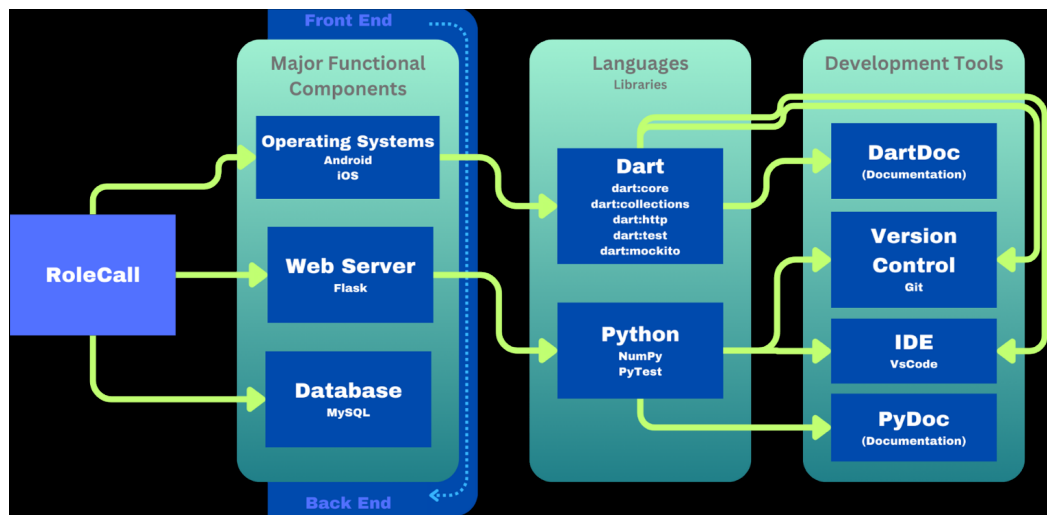


Figure 3: Dependencies

As seen in Figure 3, we are using Flask for our Web Server and MySQL for the database, with support for both Android and iOS operating systems. Since Flask is written in Python, we designed the RoleCall Match Algorithm around the NumPy library. The front end will be powered by Dart, as it interfaces smoothly with both Android and iOS.

### 3 Identification of Case Study

A tabletop role-playing game (TTRPG) is a unique type of board game typically set in a fictional world. The game is played by a designated Game Master (GM) and a party of players. The GM's role is to craft the setting, world, and rules for the players to interact with, a process known as creating a campaign. Campaigns can last anywhere from a few weeks to several years, depending on the commitment and availability of the players involved.

Unfortunately, tabletop players face significant challenges in finding and organizing games with others. The tools and techniques currently available are often time-consuming and inefficient. Players struggle to locate local participants for in-person groups, and coordinating

meeting times and locations can be difficult. Inconsistent attendance and commitment among players can disrupt the game, affecting the entire group. Additionally, players may have differing preferences, leading to incompatible gaming styles. Social stigmas surrounding the TTRPG community can also discourage potential new players, while the high initial costs and steep learning curves can be daunting. Disputes over differing interpretations of game rules and mechanics are another common issue that can arise.



## 4 Glossary

**Tabletop Role Playing Game (TTRPG):** A collaborative storytelling game where players take on fictional roles within a predetermined setting, guided by rules and moderated by a game master (GM).

**Gamemaster (GM):** The organizer and narrator of a TTRPG adventure, responsible for creating the game world, setting challenges, and facilitating gameplay.

**Campaign:** A series of interconnected adventures played out over multiple gaming sessions, led by the GM, providing a cohesive narrative experience for the player characters.

**Roles:** Refer to the specific functions or responsibilities that players or characters take on with the game. (e.g., Game Master, Dungeon Master, Player Characters)

**Playstyles:** Refers to the different ways players approach the game. These vary based on the individuals' preferences and can affect both roleplay and game mechanics. (e.g., Min-maxer, Role-player, Storyteller, Socializer, Casual gamer.)

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