DnD Player Helper Software Design

About

The Dungeons and Dragons (DnD) Player Helper is a software that helps players create and manage their DnD character(s). It evolves the creation, in game management, and leveling of the character. The intended users for the applications are DnD players.

The application will provide the player with the tools to easily create their character and manage it by providing the information needed in an easy-to-understand way. It therefore solves the problem that especially inexperienced players in DnD have of finding the relevant data for each situation in a DnD campaign.

The application will provide the User with an UI that will be similar to the DnD Character-Sheet, with providing the same fields as on the sheet. The user will be able to interact with the UI, which will provide the user with relevant actions, taking into account the characters other properties. If the character is a certain class (lets assume a sorcerer) and after leveling up you can add a spell to your spell list, the application will show a list of available spells available for sorcerers of that level.

The main concepts are:
- The UI allowing the player to access information relevant to the field that they are clicking on.
- The database holding the relevant information organised in a way that it is easily accessible.
- The logic that will connect the player UI with the database holding the DnD information.

User Interface

The Player Helper UI will have the following main user stories.

Creation of a new Character

The user can create a new character where the Player Helper will guide the user through the creation process. The creation process should give the player options where to start the down selection by for instance first selecting a class or a race. The different options should provide their detailed information in a tooltip, providing information about features of the choice.

In Game Support

The Player Helper UI will help the player manage their character in the campaign by providing an overview of current state of their character and allowing to take actions. The player should at al time know how many spells they can cast, if they have any effects/buffs on them and what actions/bonus actions are available to them.

Character Leveling

The Player Helper UI will include an option to level up the character. This special process will highlight all areas of the character that need a decision by the player and update any fields that do not need a decision by the player. After all decisions Arealen the player will be shown a summary of their decisions and be asked to confirm their choices. This process will include options for multi-classing. Character leveling may be triggered by the experience of the character or by the user directly, providing the option that experience is not tracked explicitly but directed by a dungeon master (DM).

Technical Specification

- What technical details need developers to know to develop the software or new feature?

In order to define the structure of the database, the information that needs to be made available needs to be defined. This is derived from the DnD player sheet and confirmed by experts. This might need to be revised before the database implementation can start.

The UI itself will be directly derived from the DnD player sheet, possibly using the graphics directly for a table-top like experience.

At this point it makes sense to list the fields in the DnD player sheet to provide an overview of the needed structure. In addition the interactions between these fields needs to be described, which will need to be done in a UML schema.

Fields of the DnD Character Sheet

- Character Name
- Class
- Level
- Character Background
- Player Name
- Character Race
- Character Alignment
- Experience Points
- Attributes
  - Strength
  - Dexterity
  - Constitution
  - Intelligence
  - Wisdom
  - Charisma
- Inspiration
- Proficiency Bonus
- Saving Throws (Value and Proficiency)
  - Strength
  - Dexterity
  - Constitution
  - Intelligence
  - Wisdom
  - Charisma
- Skills (Value and Proficiency)
  - Acrobatics
  - Animal Handling
  - Arcana
  - Athletics
  - Deception
  - History
  - Insight
  - Intimidation
  - Investigation
  - Medicine
  - Nature

- - - Perception
    - Performance
    - Persuasion
    - Religion
    - Sleight of Hand
    - Stealth
    - Survival
- Passive Wisdom
- Other Proficiencies and Languages
- Armour Class
- Initiative
- Speed
- Hit Points
  - Maximum
  - Current
  - Temporary
- Hit Dice
- Death Saves
- Attacks and Spellcasting
  - List of Weapons
- Equipment
- Personality Traits
- Ideals
- Bonds
- Flaws
- Features and Traits
- Age
- Height
- Weight
- Eyes
- Skin
- Hair
- Character Appearance
- Allies and Organizations
  - Symbols
- Character Backstory
- Additional Features and Traits
- Treasure
- Spellcasting Ability
- Spell Save DC
- Spell Attack Bonus
- Cantrips
- Spell List
  - Level 1-9 Spells
  - Spell Slots per Level
  - Known Spells
  - Prepared Spells

TBD setup a UML schema that shows a possible database setup to store and connect this data. Also, a UML schema that describes the class setup for the character classes and all classes needed the run. The software will work by filtering data from the database when it is requested. Therefore, the needed packages are mostly ORM to connect the DB to objects in the Player Helper.

For the implementation of the software the SOLID design principle will be used. For the interaction principle between database and the UI a concept needs to be chosen to guide the design process. This is one of the first tasks that need to be done.

What should happen in case of a disconnect to the DB?

Testing and Security

TBD
Testing will not be fully implemented since this is not targeted to be a commercial application.
Unit testing will be developed for the core classes and the DB connection as a means to learn about this practice.
The main testers will be the users which will be limited to the author and family and friends.

Deployment
The application is planned as an offline, stand-alone tool with no internet connection needed.

Planning
The needed time is difficult to guess due to the inexperienced author. This is a hobby project and will be planned using a Kanban board for task tracking.
See https://github.com/users/kemeen/projects/1/views/1

Broader Context
The Software can only be run locally and will only be accessible to friends and family once completed. No monetization of any way is planned for now.
The Player Helper could be extended to function as a personal assistant including an AI that would guide the player through the character creation and management providing a chat like interface