DnD Character Management System Software Design Document

CS 320 Fundamentals of Software Engineering, Fall 2019

Team DMRT: Daniel Garrett, Matthew Fritz, Ruth Woodcock, Trevor McLam

1. Introduction

This document contains activity, structural, and behavioral diagrams to describe how the DnD Character Management system with dice roller will likely be designed. This system (in its current version) will operate under a small list of assumptions about the user's use of the system:

1. The user will be creating characters for DnD 5th edition (5e)
2. The user will be creating characters at first level
3. The user will create characters that conform to the character creation options presented in the Player's Handbook (PHB) for DnD 5e or will leave items blank to print and fill in non-PHB options later
4. The user will select and manage their character's spells on their own after using this system
5. The system will not allow for the selection of a variant human as the character's race

These assumptions are used to simplify the system requirements to a form that will serve as a starting point that may be improved in future versions.
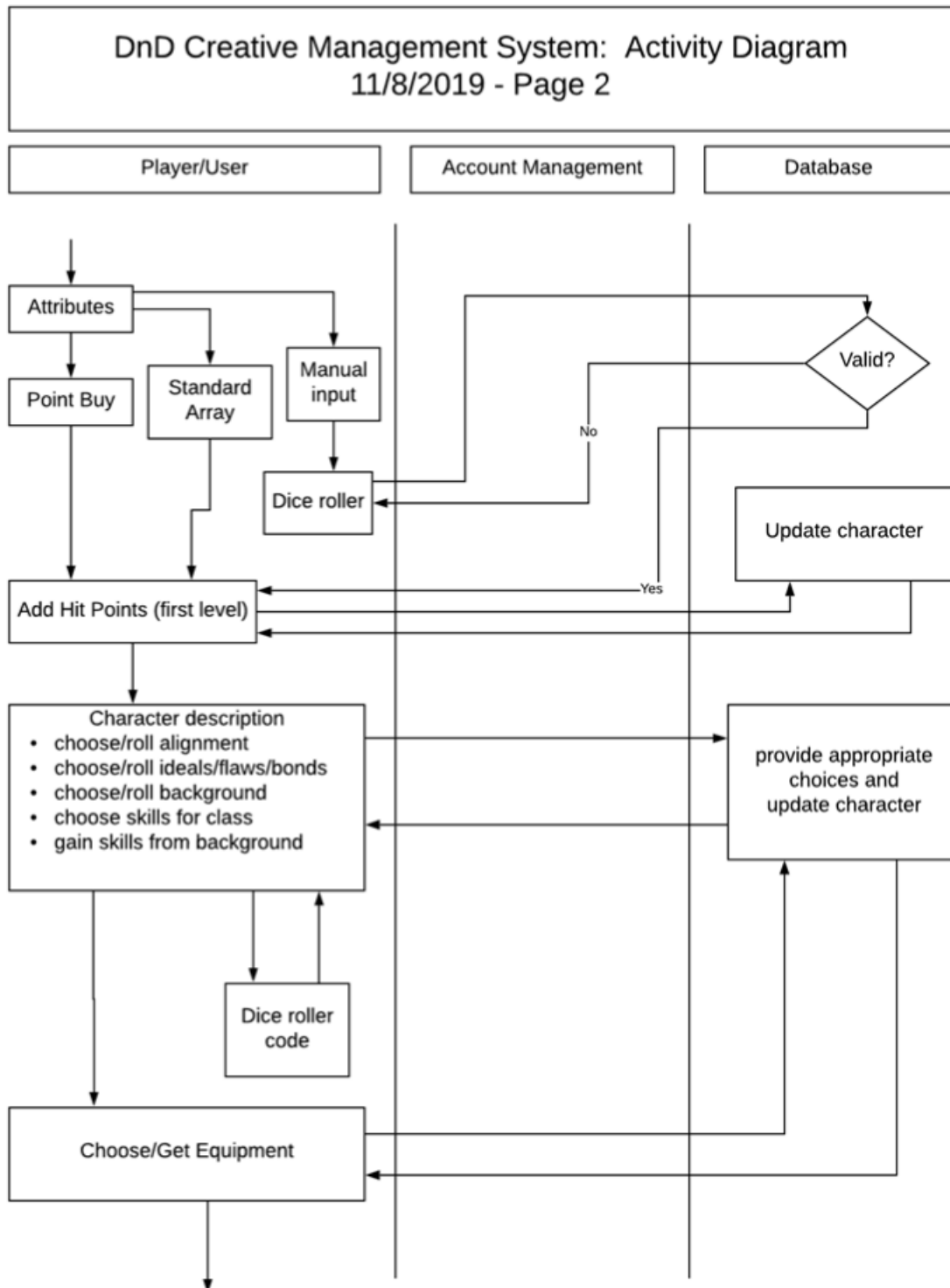
2. Activity Diagrams

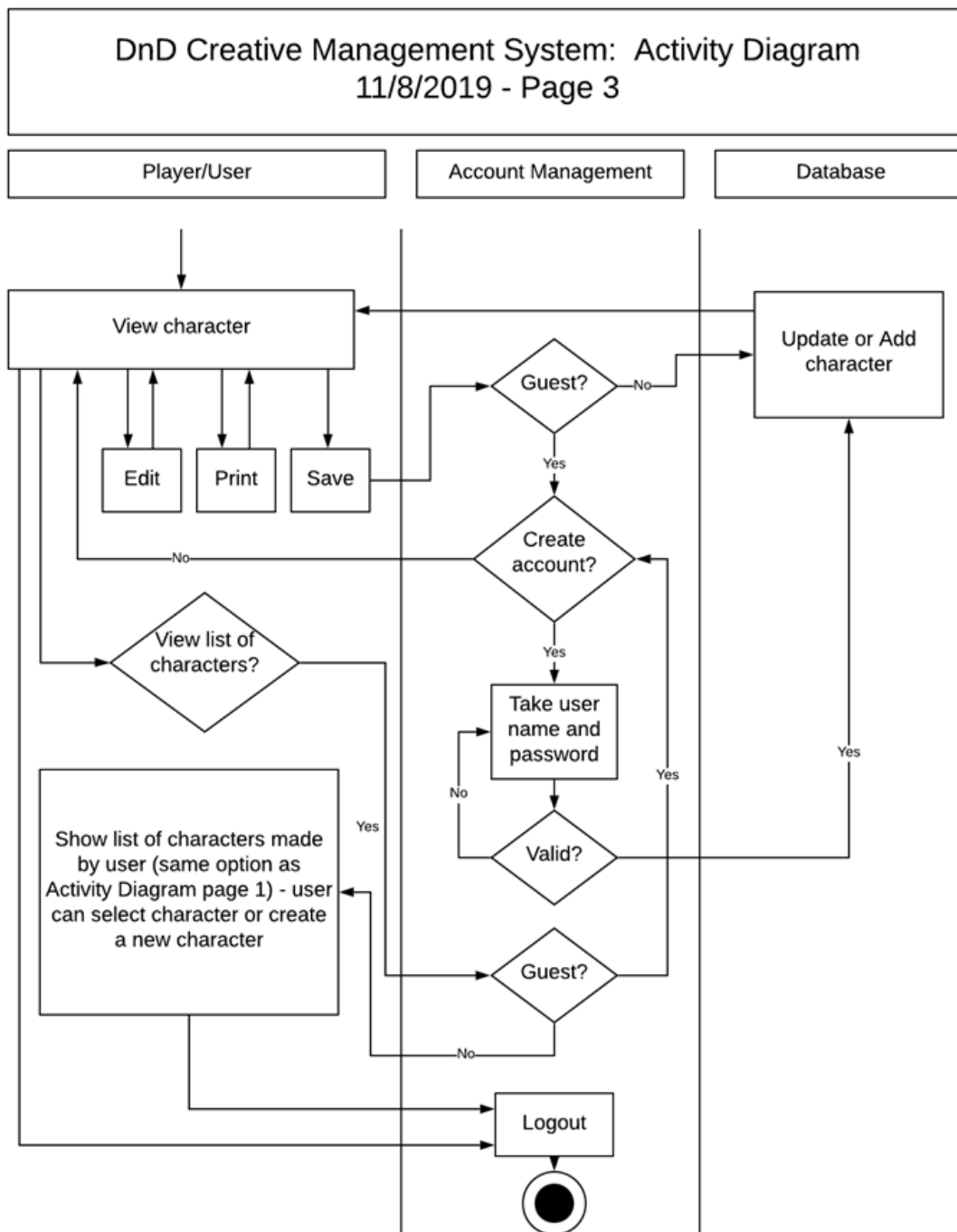The Main activities anticipated with this version of the DnD Creative Tools Suite are immediate use of the dice roller (which is simple enough to not need illustration here) and the use of the character management system as a guest account, newly created user account, or logged in user account. The possible activities are illustrated in three parts below:

Figure 1: Activity Diagram (part 1 of 3)

Figure 2: Activity Diagram (part 2 of 3)

Figure 3: Activity Diagram (part 3 of 3)

Note that the "show list of characters made by user" box in part 3 is separate from the same box in part 1 to simplify the design of the diagram even though they represent the same position in the route of possible activities.

3. Structural Modeling

The following class diagrams describe the structure of the DnD Character Management System as a Model-View-Controller structure, where the model also interacts with a server database (which will be simulated using Django's provided database API tool):
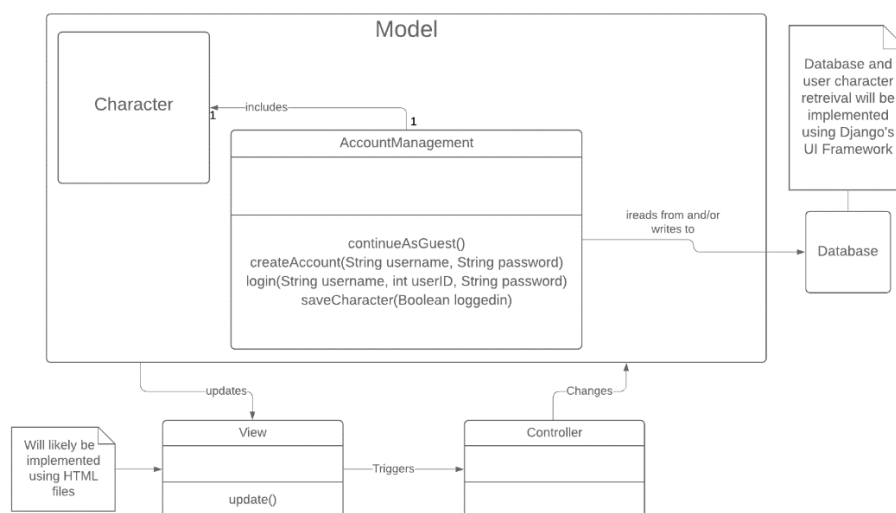
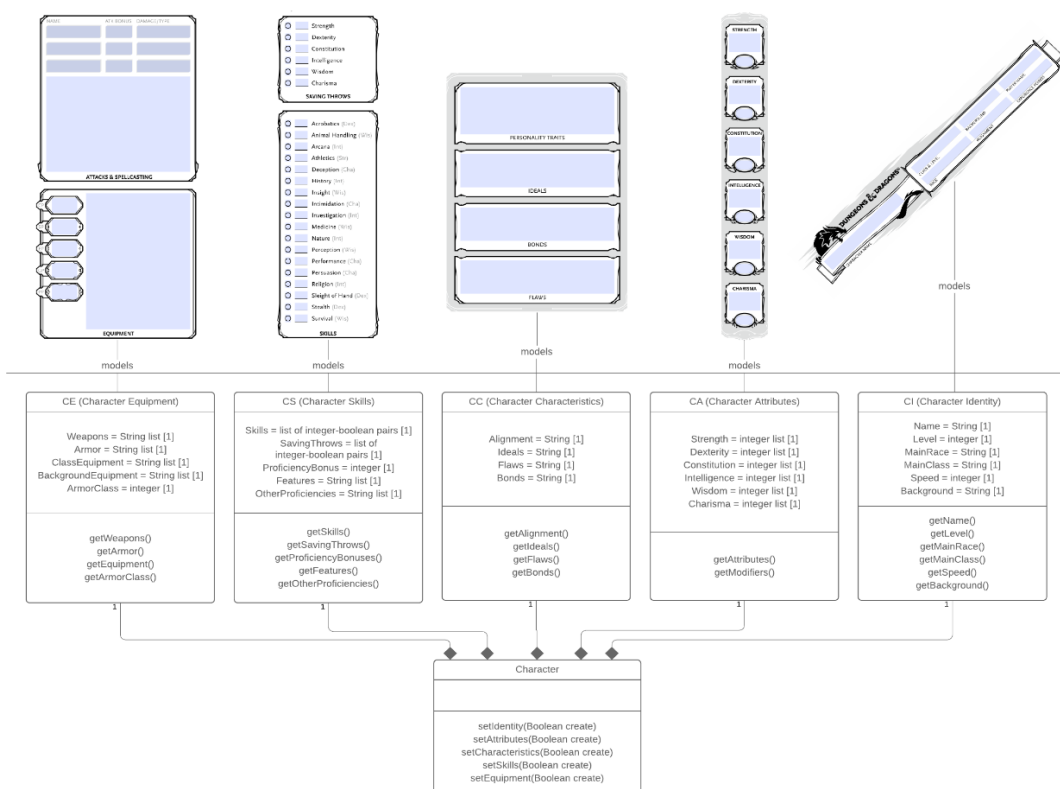*Figure 4: Class Diagram of Entire System*

Figure 5: Class Diagram of the Character Class

4. Behavioral Modeling

The following sequence diagrams describe the sequence of events that will occur when the system is used by each different type of user:
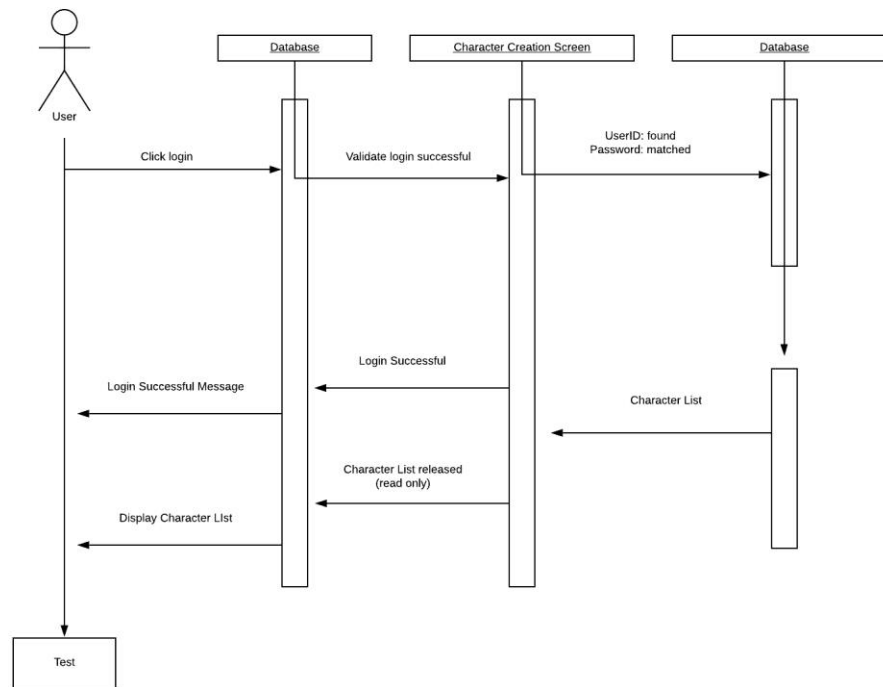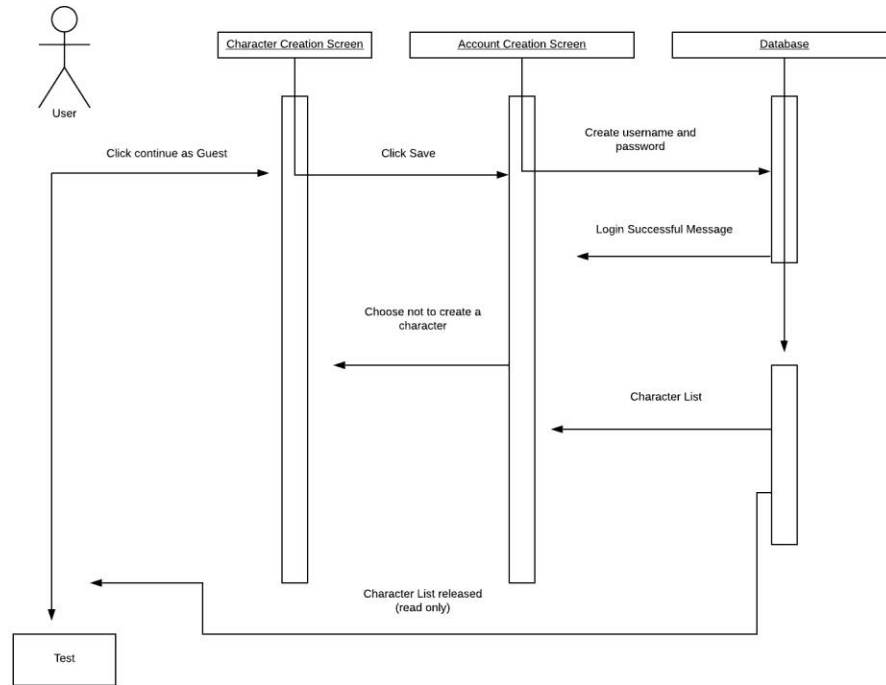

Figure 6: Sequence Diagram for Logged-In User
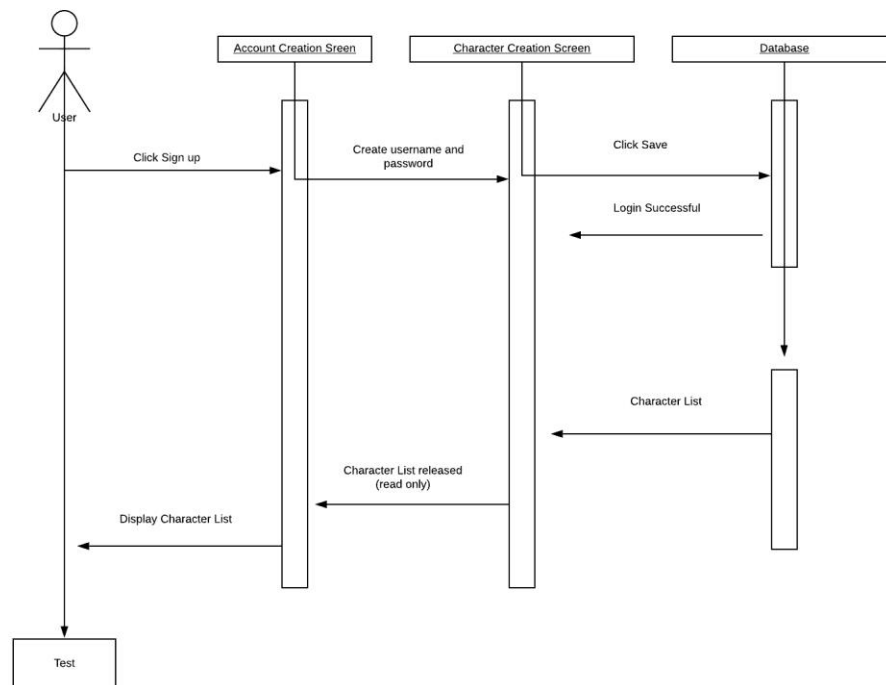
Figure 7: Sequence Diagram for Guest Login

Figure 8: Sequence Diagram for Newly Created User Account