



## C Sc 335 Spring 2013 – Final Project

### Project Manager: Dylan Clavell

**Overview:** A MUD, or Multi-User Dungeon/Dimension/Domain, is a multi-player text environment (The player types commands and the MUD responds with text). This option involves implementing a functional, networked MUD. They often take the form of an RPG (role-playing game), however, you are not required to make it an RPG.

Though there are many types and uses of MUDs, all of them share several common elements. A MUD consists of players, rooms, items, and MOBs (MOBile non player characters). Multiple players can connect to the MUD at any given time. They can interact with one another, move about from room to room and collect items that affect them or allow them to do things.

MOBs can also move from room to room, and players may have complex interactions with them. Though most MOBs are hostile towards the player, they do not all need to be. Some MOBs may offer quests, services or games to the players.

Rooms in a MUD should be thought of as locations rather than an indoor area with walls and a ceiling (A "room" could be a clearing in the woods with a path leading to the north and another to the west, or the middle of a field with paths leading in all directions). Rooms have exits that connect them to other rooms, descriptions, and contents (including items, players and MOBs).

**Your Task:** You are to implement a fully functioning MUD Server that multiple players can connect to from different computers via a MUD Client, which you will also implement. Your server will run a single game (All players that connect end up in the same MUD).

This project gives you a certain amount of creative leeway. Your MUD could be any type of (appropriate) environment, so long as you have the required elements. Many MUDs take the form of Dungeons and Dragons style Fantasy Adventure games. In such games, players have statistics (health points, strength points, and other things that affect their effectiveness in combat), and engage MOBs in combat in order to gain experience points and advance “levels”.

This is, of course, in no way required; creativity is highly encouraged. If you so wish, your MUD need not even involve fighting. You can create whatever kind of game you want to, so long as it is within the core MUD environment. Try to get creative, and develop an interesting environment where you can interact with objects and other players in fun and new ways; you might even get some extra credit for your efforts (see **Extra Commands** in the Extra Credit section)!

**Stories:** As part of the AGILE development process, each “user story” below is associated with a number of “story points” based on its difficulty and complexity. You should use these points as a guide to allot your time when working on this project (although story points don't necessarily correspond to the actual points you will receive for each feature). The story points will be either 1, 3, 5, 8, or 13, in order of increasing difficulty. There are a total of 200 story points.

Precede all of these stories with “As a Player”, unless specified otherwise.

Connections (13 story points total):

- (13) I want to be able to have multiple of my friends connect to the same MUD at the same time over the internet, all on our different computers.

Players (36 story points total):

- (8) When signing into the MUD for the first time, I want to be able to create an account that keeps track of my player information. I want this account so that I can save my progress in case I have to leave after playing for a while. Then, I can come back at my own leisure and continue from where I left off.
- (3) My account should have a username and password that allows me to sign in (relatively) securely.
- (1) I want to name myself in the MUD so other players know who I am.
- (1) I want to know where I am in the MUD (what room I'm in).
- (5) I want statistics that are changed by my actions in the MUD. Maybe I have HP (health point/hit points), defense, or level in a fighting-based game, or an amount of money won and a number of questions answered correctly in a puzzle/game-show game.

- (5) I want to be able to find, buy or earn items that do interesting things within the MUD universe. I also want to be able to carry these items with me as I travel.
- (3) I want to be able to move through the rooms by simply using a command.
- (5) I want to **interact with other players**. I want to be able to tell when other players are in the same room as me, and I want to see what other players in the same room as me are doing.
- (5) I want to be able to **interact with MOBs**.

Rooms (21 story points total):

- (13) I want to be able to explore at least 30 unique rooms within any given MUD.
- (8) When inside a room, I want to be able to type "look", and see a **description of the room**, a **list of possible exits**, as well as a **list of contents** (items, MOBs, and other players in the room). I also want to see this **by default upon my entrance into the room**.

Items (16 story points total):

- (8) I want to be able to pick up and use at least 15 unique types of items in any given MUD. I might use potions to heal damage taken, keys to open doors, special items that affect my stats, equipment I can wear, or items I need to finish a quest, though I don't really care what the specific items are, as long as they're unique.
- (8) I want at least 3 of these items to allow some additional interaction with the MUD world (i.e keys to open doors, switches that change the environment, etc.).

MOBs (21 story points total):

- (8) I want to encounter at least 10 different types of MOBs within a given MUD.
- (5) I want MOBs to be able to move between rooms to make them seem more like other players.
- (8) I want MOBs to have **complex behaviors**—these can involve player interactions that take into account my statistics, items I'm carrying, or the contents of the room that the MOB is in. I want them to have actions that are triggered periodically, without direct interaction from me or other players (e.g., movement, speech, interacting with other MOBs, etc. ), so that the environment I'm playing in feels more organic and fleshed out.

Interaction (46 story points total):

- (3) When I'm in the system, I should be able to send **input** and receive **output** without interference from other players.
- I want to be able to **interact with the game** with a set of commands that include **at least** the following:
  - (5) A set of movement commands that allow players to navigate through rooms (**north, south, east, west, up, down**, etc)
  - (3) **look** (shows description of the room that I'm in, or if an argument is provided, such as an item/player/MOB in the room, it should provide the description of said item/player/MOB). This command gives a 360 degree

report of the environment (I'm not assumed to be looking in a specific direction).

- (1) **commands** (lists all the commands useable by me)
- (3) **ooc** <message> (Out of Character channel—the basic MUD wide chat command—message goes to everyone currently connected)
- (1) **who** (lists all players that are logged in)
- (3) **say** (sends a message to all players in the same room as me)
- (3) **tell** <player> <message> (sends a message to only the player targeted)
- (1) **score** (displays my current status/information)
- (5) **give** <item> <target> (offers to give an item in my inventory to player/MOB)
- (3) **get** <item> (gets me an item from room)
- (5) **get** <item> <target> (gets me an item from target player/MOB/item, with their permission)
  - Note: *get* and *give* are to be used with confirmations when involving targets. I don't want other players to be able to steal my items or force junk items into my inventory. To get an item, we must both participate: I'll either ask (say get) and receive the item, or I'll be offered an item (other player said give) and accept it.
- (1) **inventory** (lists the items that I'm carrying)
- (3) **drop** <item> (drops an item from my inventory to the room)
- (3) **use** <item> (executes the item's default behavior)
- (3) **quit** (allows me to exit the system and saves my information—should not shut MUD down)
- (points in next section) **shutdown** (saves the MUD's data and shuts the server down)

System (13 story points total):

- (5) I want to be able to **shutdown** the MUD using commands from within the game. I don't want everyone to be able to do this, though: it should somehow be protected from just any old player shutting down the game.
- (8) When my statistics change, or the environment changes, I want the MUD to remember my changes even after it's shut down and restarted so I can continue my game (i.e., the MUD itself should be **persistent**).

Consistency (8 story points total):

- (8) I want the MUD to be logically consistent. For example, I should only be able to give items to another player/MOB if they are in the same room. Also, when I walk north and then south, I should come back to my original room (Unless the area is designed to randomly connect rooms to create a maze-like environment. If so, I want to be warned, either by a sign or part of the description, so I still understand what is going on in the MUD at all times.).

Client/Server (26 story points total):

- (13) As a server admin, I want to run a console-based program on my computer, so that the players can connect to my computer over the internet using a GUI and interact with the server, getting back appropriate responses.
- (13) As a player, I want to be able to run a simple GUI that allows me to connect to the server using the username/password of my account. I should see two parts of the GUI (either in one window or two): one "Chat" part that handles chat, and one "System" part that handles my interactions with the game (server). I want to be able to type chat commands (such as ooc, who, say and tell) in either area, but I want the Chat area to only respond to chat commands, so as to allow for organization, but not just have two of the same area.

### ***Extra Credit (20 Points Max):***

**This is by no means an exhaustive list of extra credit features**, but merely a list of suggestions for potential extra features. Some of these are much harder to implement than others, and are worth more accordingly. **Talk to your grader if you have other ideas** to ensure that you receive points for your feature. These points do correspond to actual extra credit points, not just story points.

- **Dropped Connections (2 Points)** – I want to be notified whenever a player's connection is dropped, and if my connection is dropped, I want my state saved automatically.
- **Unix-Style Console History (2 Points)** – I want the input bar for my console to keep a history of my entries so that I can navigate my input history using the up and down arrow keys (up goes back one command, down goes forward one command).
- **Room Behaviors (4 Points)** – I want some rooms to have unique behaviors that don't require my input.
- **Dynamic MUD Editor (6-14 Points)** – I want to be able to modify the MUD in-game through a menu system that allows me to create new items, mobs and rooms. Like the shutdown, however, I don't want every player to be able to do this. This could also use a GUI to simplify the process on my end.
  - **Shareable MUDs (2 Point)** – I want to be able to share my created MUDs with my friends so that they can load it up on their own server.
- **Complex Skills/Classes (4 Points)** – I want to be able to have complex skills and classes that allow me to have a wider variety of more sophisticated interactions with the MUD's environment.
- **ANSI Color Support (3 Point)** – I want to see useful colored text in the system and chat areas that logically coordinates with the parts of the game (see ANSI color schemes).

- **Player Grouping (6 Points)** – I want to be able to create or join a group of players, where all members of the group follow the movement of the leader, and executes certain commands (for instance, attack) if the leader executes them.
- **Player Preferences (6+ Points depending on complexity)** – I want to have special options associated with my account, such as removing myself from the ooc channel, or turning color (if implemented) on/off, etc...
- **Room Exit Description (2 Point)** – I want to be able to use the “look” command to look at a room exit, so as to provide a description of the physical exit, and possibly an idea of what might lie on the other side.
- **Extra Commands (1+ Points each, depending on complexity, max 6)** – I want to have a great variety of interesting commands that provide a unique change in the experience of the game. Examples:
  - **Emoting/Posing (1 Point)** – I want to be able to use a command called “emote <action>” like “emote looks around the room curiously” that allows me to write a sentence from the third person perspective, displaying in everyone's system area as something I'm doing.
  - **Social Commands (1 Point)** - A set of “social” commands (such as, ‘giggle, laugh, wink, slap,’ etc, that would display something like, ‘<player> giggles at <target>’ or just ‘<player> giggles’).
- **Abbreviated Commands (1 Point)** – I wish to indulge my laziness, and type shortened versions of commands, such as ‘l’ for look, ‘sc’ for score, and ‘’’’ for say.
  - **User defined aliases (1 Point)** – In addition to this, I wish to be able to create my own aliases in-game.
- **Complex GUI Interface (6+ Points depending on complexity)** – I want to see an interesting, complex interface for exploring the MUD, perhaps involving information areas (an area that always shows your stats, or your inventory), or buttons for certain actions like moving (the commands must all still work, however).
- **Mini-Games (4+ Points depending on complexity)** – I want to be able to play games within the MUD like a card game/dice game or something more complicated. I want to be able to play these games with either MOBs or other players.
- **Server-side commands (2 Points Max for at least 4 commands)** – As a system administrator, I want to be able to type commands directly into MUD Server which cause responses in the game for all players, such as **shutdown, restart, kick, ban, banbyIP, deleteprofile**, and many more.