
THE



TEAM

Supplementary Specification Document

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1. Introduction

1.1 Purpose

The purpose of this document is to identify the goals, needs, and desired features of the Clue-Less product from the stakeholders' viewpoint. To accomplish this, the document will also identify stakeholders, users, and their needs. This document will clearly state the problems, proposed solutions, and high-level features of the ClueLess product.

1.2 Scope of supplementary specification document

The scope of this document only extends to the Clue-Less project being developed by the A-Team. This document may influence any of the other deliverables for the Clue-Less project.

1.3 Definitions, acronyms, abbreviations

- CLI- Command-Line Interface
- GUI - Graphical User Interface
- TCP/IP - Transmission Control Protocol / Internet Protocol

1.4 Reference

This subsection provides a complete list of all documents referenced elsewhere in the Supplementary Specification.

A-Team. (2018). Clue-Less Project Plan. Unpublished document.

Parker Brothers (2002). CLUE- Instruction Book. Retrieved from [https://www.hasbro.com/common/instruct/Clue_\(2002\).pdf](https://www.hasbro.com/common/instruct/Clue_(2002).pdf)

2. Functional Requirements

2.1 Requirements

1. The system will allow a user to select a character, if not already selected
2. The system will allow users to chat back and forth before and during the game
3. The system will allow a user to create a custom name, if desired, and all other users will be able to see that name in the game
4. The system will allow a user to move between rooms, if the movement is allowed
5. The system will allow a user to view their cards, the face up cards (if present), and the location of all suspects and weapons
6. The system will allow a user to accuse the specifics of the crime, by specifying who, what, and where, at any point during their turn.

7. The system will alert all players the game has ended if a correct accusation is made.
8. The system will mark a user as inactive if their accusation is incorrect. An inactive user must sit out the rest of the game; they will no longer be able to move, make suggestions, or make an accusation, but must show cards in response to suggestions.
9. The system will allow a user to question a specific location, suspect, and weapon combination to all other users (making a suggestion).
10. The system will relay a suggestion to all other users in succession.
11. The system will allow a user to disprove a suggestion by picking one of their cards.
12. The server shall run on a machine and not require any user input once it has started
13. The server shall be configurable (port, difficulty) through program arguments
14. The client shall be configurable (server address, server port, user name) through program arguments
15. The system shall maintain the authoritative game state
16. The system shall update the clients game state periodically
17. If a client disconnects in the middle of a game, the server will alert all clients that the game is over since a player left
18. If a client disconnects before the game starts, the server will mark that character available again so a new player can claim it
19. The system will close all connections once the game is over, regardless of the reason

2.2. System Requirements

1. The system shall have the Java Runtime Environment (JRE) 8 installed and configured correctly
2. The system shall have a TCP/IP network interface
3. The system shall have a keyboard and mouse input devices
4. The system shall have a monitor for output that has a resolution no less than 800x600 pixels.

3. Business Rules

Note: These rules are modified but directly derived from the *Parker Brothers Classic Detective Game Clue Instruction Book* and *Clue-Less project description documentation*.

3.1 Entities

- There are 6 suspects, 6 weapons, and a game board that has 9 rooms. Each suspect, weapon, and room has an associated card in the deck of cards.
- There is a notebook for each player to track the progress of the investigation.
- There is an opaque envelope to hold a suspect card, weapon card, and rooms card.

3.2 Setup

1. Look on the game board for the START space and Suspect name nearest you. Take that Suspect character pawn as yours and put it on that space. If fewer than six are playing, be sure to place the remaining character pawns onto the appropriate names(s) ---they might after all, be involved in the crime, and they must be on the premises!
2. Place each of the Weapons in a different Room. Select any six of the nine Rooms.
3. Place the empty envelope marked "Case File CONFIDENTIAL" on the stairs in the center of the board.
4. Sort the pack of cards into these groups: Suspects, Rooms, and Weapons. Shuffle each group separately and place each facedown on the table. Then, so no one can see them, take the top card from each group and place it into the envelope. The Case File now contains the answers to the questions: Who? Where? What Weapon?
5. Shuffle together the three piles of remaining cards. Depending on the number of players and the desired difficulty of the game, deal the number of cards indicated in the chart face up for all players to see. Then deal the remaining cards, face down, clockwise around the table.

Number of face up cards

# players	Easy Difficulty	Medium Difficulty	Hard Difficulty
3	6	0	0
4	6	2	0
5	3	3	0
6	6	0	0

1. Secretly look at your own cards. Because they're in your hand, they can't be in the Case File, which means none of your cards was involved in the crime.
2. Take a detective's notebook sheet. Check off the cards that are in your hand, if you wish.
3. Miss Scarlet always goes first. Play then proceeds, in turn, to the player's left.

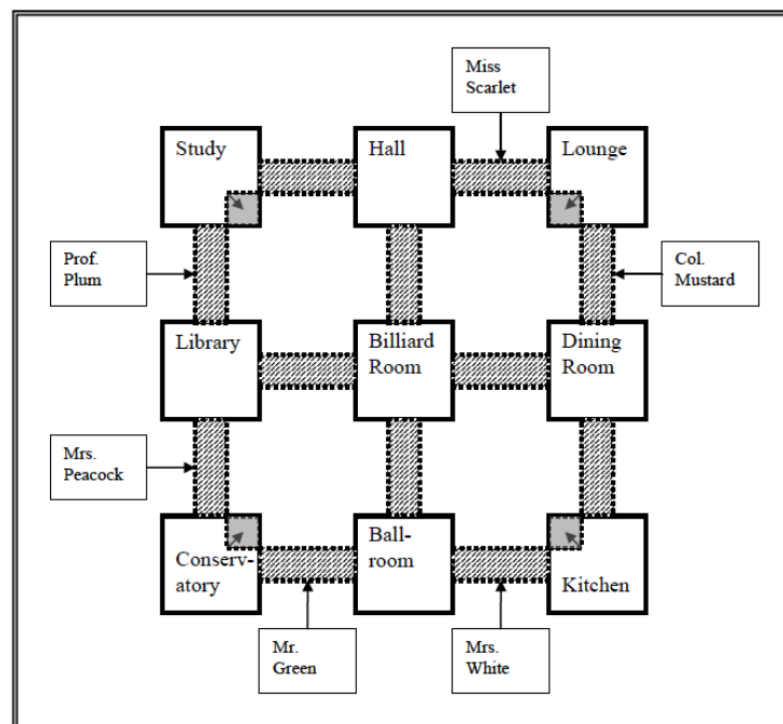
3.3 Gameplay

Moving Your Character Pawn, on each turn, try to reach a different Room in the mansion. To start your turn, move your character pawn either by moving your suspect into an empty adjacent hallway or into an adjacent Room. If you're in a corner Room, you may also move using a Secret Passage.

The rooms are laid out in a 3x3 grid with a hallway separating each pair of adjacent rooms. (See fig. 1.)

- Each hallway only holds one person. If someone is currently in a hallway, you may not move there.
- When it is your turn, you don't need to roll a die.

Fig 1: Schematic diagram of the board in Clue-Less.



Your first move must be to the hallway that is adjacent to your home square. The inactive characters stay in their home squares until they are moved to a room by someone making a suggestion.

3.4 Secret passages

The Rooms in the opposite corners of the mansion are connected by Secret Passages. If you're in one of these Rooms at the start of your turn, you may, if you wish, use a Secret Passage instead of rolling. To move through a Secret Passage, announce that you wish to do so, and then move your character pawn to the Room in the opposite corner.

3.5 Entering and leaving a room

You may enter or leave a Room by moving through a door, or by moving through a Secret Passage.

- You may not move into an occupied hallway.
- It is possible that your opponents might block all doors and trap you in a Room. If this happens, you must wait for someone to move and unblock a door so you can leave!
- If all of the exits are blocked (i.e., there are people in all of the hallways) and you are not in one of the corner rooms (with a secret passage), and you weren't moved to the room by another player making a suggestion, you lose your turn (except for maybe making an accusation).
- If you are in a hallway, you must move to one of the two rooms accessible from that hallway and make a suggestion.
- If you were moved to the room by another player making a suggestion, you may, if you wish, stay in that room and make a suggestion. Otherwise you may move through a doorway or take a secret passage as described above.

3.6 Making a suggestion

As soon as you enter a Room, make a Suggestion. By making Suggestions throughout the game, you try to determine, by process of elimination, which three cards are in the Confidential Case File envelope. To make a Suggestion, move a Suspect and a Weapon into the Room that you just entered. Then suggest that the crime was committed in that Room, by that Suspect, with that Weapon.

- You must be in the Room that you mention in your Suggestion
- Be sure to consider all character pawns, including space Suspects and including yourself, as falling under equal suspicion.
- There is no limit to the number of Suspects or Weapons that may be in one Room at one time.

3.7 Proving a suggestion true or false

As soon as you make a Suggestion, your opponents, in turn, try to prove it false. The first to try is the player to your immediate left. That player looks at his or her cards to see if one of the three cards you just named is there. IF the player does have one of the cards named, he or she must show it to you and no one else. If the player has more than one of the cards named, he or she selects just one to show you. If that opponent has none of the cards that you named, then the chance to prove your Suggestion false passes, in turn, to the next player on the left.

As soon as one opponent shows you one of the cards that you named, it is proof that this card cannot be in the envelope. End your turn by checking off this card in your notebook. (Some players find it helpful to mark the initials of the player who showed the card.) If no one is able to prove your Suggestion false, you may either end your turn or make an Accusation now.

3.8 More about moving and making suggestions

You may make only one Suggestion after entering a Room. To make your next Suggestion, you must either enter a different Room or, sometime after your next turn, re-enter the Room that you most recently left. You may not forfeit a turn to remain in a particular Room. But if you're trapped in a Room because your opponents are blocking the doors, you must remain there until a door is unblocked and you can move out of the Room.

- When you make a Suggestion, you may, if you wish, name one or more of the cards that you hold in your own hand. You might want to do this to gain information or to mislead your opponents.
- You may make a Suggestion that includes a Suspect or Weapon that's already in your Room. (In this case, transferring one or both of those items into the room is not necessary.) When a transfer is necessary, leave the item(s) in the new location after the Suggestions is made.

3.9 Making an Accusation

When you think you've figured out which three cards are in the envelope, you may, on your turn, make an Accusation and name any three elements you want. First say, "I accuse Suspect of committing the crime in the Room with the Weapon." Then, so no one else can see, look at the cards in the envelope.

- When making an Accusation, you may name any Room (unlike a Suggestion, where your character pawn must be in the room you suggest.)
- You may make an accusation at any time during your turn.

3.10 Winning

You win the game if your Accusation is completely correct, that is, if you find in the envelope all three of the cards that you named. When this happens, take out all three cards and lay them out for everyone to see.

4. Usability

Each player will be able to access the game from a separate computer over a TCP/IP connected network with a graphical user interface or a terminal user interface.

5. Performance

Response time is defined as the sum of queuing and processing time in the system; response times between one to five seconds are considered to be normal. Users are more prone to losing focus if response times are too long, so the product will minimize the response time to provide best the performance and user experience possible. The response time is both environment and application dependent. The user's computer system and connection environment, such as internet speeds, directly affect the overall response time. Since Clue-Less is an interactive game, each user's responses directly affect the response time for all users. Due to the interactivity, Clue-Less will have the ability to pass other players turns or remove them from the game if a majority vote is met. This response time is not considered in our one to five second requirement.

6. Supportability

Users are required to have access to a personal computer or laptop to play the game. Personal computers are recommended because their available components usually provide better user experience. Computer mouse, keyboard, and monitor with a minimum 24bit color depth and a 800x600 resolution.

Users are required to play the game in English.

7. Documentation and Help System Requirements

The system will have documentation delivered with the final product as described in the Vision Document and Project Plan.

The system will have a built-in help system to assist users during the game.

8 User Interfaces

The system will have a CLI for the minimal system and a GUI for the target system.

9. Hardware Interfaces

The system will not directly interface with any hardware.

10. Software Interfaces

The product will be written in the Java programming language using industry best-practice programming principles and techniques. The source code will follow best practices for the Java Programming Language for easy maintenance. Use of good code conventions can improve the readability of the software product, making it easier for engineers to understand new code quicker and with a better understanding.

11. Legal, Copyright, Other Notices

The detective themed board game Clue was originally created by Anthony E. Pratt from Birmingham, England. The idea and game rule belong to its creator. Clueless is a simplified version of the popular board game Clue. The main simplification is in the navigation of the game board. The A-Team aims to bring the mechanics of Clue to the 21st century by developing a digital version of the game to be played online. The A-Team carries out work with in accordance with good industry practice and at the standard expected from suitably qualified person with relevant experience. All source code we provide are created by the A-Team. We will provide the proper citation if we use third party software. The primary goal of Clueless is to apply the effective techniques of Foundation of Software Engineering to construct large software systems of a group of people over a large span of time. All elements of this project are only to learn the Software Engineering process and they are not for commercial purposes.

12. Document History

The version of Supplementary Specification Document may be updated during the project design process.

Version	Date	Notes
1	4/1/2018	Initial Release