1. Introduction
   1. Purpose

The purpose of this document is to present the requirements of the Clue-Less project which will be a modified PC adaptation of the classic Clue board game.

* 1. Glossary
     1. Accusation – Player action when the player attempts to guess the three-card scenario (suspect, room, weapon) that is held in the game envelope. The player then checks the envelope to see if their statement is correct. If they are correct, they win. If they are not, they must replace the cards and continue to play to disprove suggestions. However, they may not take any more turns.
     2. Card – A component of a deck containing a single piece of game information
     3. Case File – The set of Suspect, Room, & Weapon cards that provide the answers to the questions: Who? Where? What Weapon?
     4. Deal – The action of providing a card from a deck to a Player for their use in the game
     5. Deck – A set of cards containing game information
     6. Host – the player who opens the game (see Use Case UC\_001) that others will join.
     7. Lobby – a state before a game is started where the application holds players awaiting
     8. Player Hand – the cards dealt to and possessed by a player during a game.
     9. Queue – buffer used for storing data or messages moving between subsystems.
     10. Response – After a player makes a suggestion, the other players must respond until the suggestion is disproven. Starting with the player from the previous term, the other players must attempt to show a card that disproves the current players suggestion. As soon as a player is able to disprove the suggestion, the response sequence is terminated.
     11. Room – Location on the game board where a crime could have been committed
     12. Shuffle – The mixing of a deck’s card order
     13. Suggestion – When a player enters a room, they make a suggestion. The player moves a suspect and a weapon into the room they just entered and suggests that these two along with the room make up the details in the Game Envelope.
     14. Suspect – Character of the game that could have committed the crime
     15. Weapon – Object a Suspect could have used to commit the crime
  2. References
     1. Johns Hopkins Java Coding Style
     2. Johns Hopkins Group Project Assignment documents for course EN605.601.83
        1. Clue-Less.pdf
        2. Group Project Assignment.pdf
     3. Game Rules. In order to ensure consistent implementation of the game rules, the project team will use the rules posted at <http://www.boardgamecapital.com/clue-rules.htm>

1. System Description
   1. Product Perspective
      1. A Multi-player PC adaptation of the classic boardgame Clue.
   2. Software Subsystems
      1. Game Control Subsystem
         1. Functional Domain. The Game Flow subsystem will act as the messenger between the user interface and the other subsystems, the abstraction of the whole system. Tracks which Player has a turn, queries other subsystems as to the viability of the user's inputs. Offers options to user to Move, Guess, Deny, Accuse, etc.
         2. Information Domain. The Game Control subsystem will encapsulate the majority of the game state information. It will contain the players participating, the current point in play progression, and the status of the game (finished or not).
         3. Interfaces. The Game Control subsystem will interface with other systems via the Messaging Subsystem by prompting them for information to use in its functions.
      2. Game Board Subsystem
         1. Functional Domain. The Game Board subsystem will perform player movement tasks such as displaying possible moves, tracking player locations, and executing player moves.
         2. Information Domain. The Game Board subsystem will contain the board properties data, graphics for the board, and player locations.
         3. Interfaces. The Game Board subsystem will interface with the Game Control Subsystem through the Messaging subsystems.
      3. Card Subsystem
         1. Functional Domain. The Card Subsystem will handle the management of the game decks. Decks will be shuffled accordingly at the beginning of each game. It will randomly select the Case File card set, remove those cards from their decks, and hold them for accusation reference. Cards will then be dealt to each active player prior to the first turn.
         2. Information Domain. The Card Subsystem will encapsulate the card information as well as the inclusion of cards to the following: Suspect Deck, Room Deck, Weapon Deck, Player Hands, and Case File.
         3. Interfaces. The Card Subsystem will interface with the Game Control Subsystem through the Messaging Subsystem.
      4. Messaging Subsystem
         1. Functional Domain. The Messaging Subsystem will act as a centralized broker to transfer and route messages between and among clients. Allows data to be transferred among players. Messages, or data, may also act as criteria that trigger actions or prompts to occur such as board updates, move selection menus, notifications, whose turn it is, and any other game data. Messages will be sent by clients after taking their turn and when disproving a suggestion or accusation.
         2. Information Domain. The Messaging Subsystem will encapsulate information passed through the Clue Message Exchange and several queues.
            1. Clue Message Exchange – Used to recieve a message and route it to queues.
            2. Game Board Queue – All clients can send messages (produce game board data) to this queue via the exchange. All clients consume messages from this queue to update their game boards. When a new message is posted to this queue, it will act as a trigger for all clients to re-draw their game boards.
            3. Turn/Move Queue – All clients can send messages (data indicating what they did on their turn) via the exchange. All clients consume messages to update their notification message. This will inform all players about what last player did in their turn and trigger prompts if any response is needed. These notifications may acts as triggers for when the previous player must disprove a suggestion.
            4. Player Message Queues – Some messages may not be allowed to be consumed by all players. The player queues bound to the exchange by player name, will be used for direct player to player communication for disproving suggestions (showing a card).
         3. Interfaces. The messaging subsystem will interface with every other subsystem since it handles the messages between each of the subsystems in the game requiring communication.
      5. Notepad Subsystem
2. Actors and Use Cases
3. Nonfunctional Requirements
   * 1. Each player should access the game from a separate computer with a graphical user interface
     2. The game rules are the same as in regular Clue except for changes noted in the Clue-Less.pdf document.
     3. Each time the game state changes (a person is moved, a suggestion is made, a player disproves a suggestion, or a player is unable to disprove a suggestion) all players should be notified.
4. Constraints