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| Cliente | Andrés Aristizábal |
| Usuario | Uno players |
| Requerimientos funcionales | *RF1Distribute Crads To Player: The system must be able to randomly and fairly distribute a specific number of cards to each player at the beginning of the game.*  *RF2Play Cards: Players must be able to select and play a card from their hand during their turn, as long as it complies with the rules of matching color, number, or symbol with the top card on the discard pile.*  *RF3Draw Cards: If a player cannot play any card during their turn, the system must allow them to automatically draw a card from the deck.*  *RF4Game End: The system must detect when a player runs out of cards in hand and declare the first player to be out of cards as the winner of the game.*  *RF5Special Card Management: The system must be able to handle the special cards of the Uno game, such as Change Color, Draw 2, Reverse, and Skip, and apply their effects correctly during the game.*  *RF6Player Order Update: After playing a special card that affects the order of play, the system must automatically rearrange the order of players according to the rules of the game.* |
| Contexto del problema | The problem consists of implementing a Uno card game in Java, which requires the use of various data structures such as stacks, queues, hash tables, and priority queues to manage different aspects of the game. The standard rules of the Uno game must be followed, where players try to get rid of cards in their hands by playing cards that match in color, number, or symbol with the top card on the discard pile. |
| Requerimientos no funcionales | **Efficiency**: The game must run efficiently, with fast response times for a smooth gaming experience.  **Security**: The code must follow secure coding standards to avoid vulnerabilities and security errors.  **Usability**: The user interface must be intuitive and easy to use, allowing players to interact with the game easily.  **Robustness**: The game must be robust and handle unexpected situations or errors during execution correctly.  **Scalability**: The game must be able to handle a variable number of players and dynamically adapt to different game configurations. |

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| Identificador y nombre | distributeCardsToPlayers | | | |
| Resumen | The system must Distributes 7 cards randomly to each player from a deck. | | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | | **Condición valores válidos** |
| Number of players | Int | | *Int number <= 2 and >= 10* |
| Deck | String | | Contains 108 cards |
|  |  | |  |
| Resultado o Postcondición | Each player has a specific set of cards assigned. | | | |
| Salidas | **Nombre salida** | | **Tipo de dato** | **Formato** |
| Deck | | int | Linked list with the cards of each player |

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| Identificador y nombre | playCard | | | |
| Resumen | The system must show the corresponding deck cards of the player and it must allow them to pick the card to play and show the card that the player chose. | | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | | **Condición valores válidos** |
| Card to play,. | Int | | *Corresponding card number* |
| Card to compare | Int | | top card on the discard pile |
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| Resultado o Postcondición | Both cards are compared based on the uno game rules and if they are compatible and if they are, it continues to the next turn, otherwise the player must select a new card | | | |
| Salidas | **Nombre salida** | | **Tipo de dato** | **Formato** |
| Error | | String | “The selected card cant be play with” |
|  | Selected card | | String | Card |

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| Identificador y nombre | drawCard | | | |
| Resumen | Allows a player to draw a card from the deck if they cannot play any card. | | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | | **Condición valores válidos** |
| Deck of cards. | Int | |  |
|  | Int | |  |
|  |  | |  |
| Resultado o Postcondición | The player receives a new card in their hand. | | | |
| Salidas | **Nombre salida** | | **Tipo de dato** | **Formato** |
| The drawn card. | |  |  |

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| Identificador y nombre | checkEndGame | | | |
| Resumen | Every turn The system must allow Checks if a player has run out of cards in hand to determine the end of the game and it shows in the screen the player who won. | | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | | **Condición valores válidos** |
| Players' hands. | String | | *List with the player cards* |
| Name players | String | | The names of all the players |
|  |  | |  |
| Resultado o Postcondición | The system detects is a player has run out of cards for them to win otherwise the game continues. | | | |
| Salidas | **Nombre salida** | | **Tipo de dato** | **Formato** |
| Winning player | | String | “The player” +namePlayer “has won the actual game” |
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| Identificador y nombre | updatePlayersOrder | | | |
| Resumen | The system must verify if the card is special then the card is plus 4 or plus 2, the next player must take the cards and will skip their turn in that game, if its cancel, the turn will be skipped, if its reverse the game will go backwards | | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | | **Condición valores válidos** |
| playerList | String | | Priority queue with the order of players. |
| selectedCard | String | | card |
|  |  | |  |
| Resultado o Postcondición | The order of players is rearranged according to Uno rules. | | | |
| Salidas | **Nombre salida** | | **Tipo de dato** | **Formato** |
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| Identificador y nombre | *RF5Special Card Management* | | | |
| Resumen | *: The system must be able to handle the special cards of the Uno game, such as Change Color, Draw 2, Reverse, and Skip, and apply their effects correctly during the game* | | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | | **Condición valores válidos** |
| The special card |  | |  |
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| Resultado o Postcondición | The hability that was given by the car | | | |
| Salidas | **Nombre salida** | | **Tipo de dato** | **Formato** |
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