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| **USE CASE 1** | Begin game. | |
| **Goal in Context** | Start a game of scrabble. | |
| **Scope & Level** | Company, Summary. | |
| **Preconditions** | MainView showing menu.  Players ready to join. | |
| **Success End Condition** | Players join the game. | |
| **Failed End Condition** | Player unable to join game. | |
| **Primary,**  **Secondary Actors** | Player  Central Screen, Server | |
| **Trigger** | “Start Game” is clicked on MainView | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | Player connects to website. |
|  | 2 | Enters game code. |
|  | 3 | Select play game. |
|  | 4 | Join lobby. |
|  | 5 | Wait for players to join to start game. |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 4a | Lobby is full, player unable to join. |
|  | 5a | Not enough players to start game |

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| **RELATED INFORMATION** | 1. Begin game. |
| **Priority:** | Medium |
| **Performance** | Less than one minute |
| **Frequency** | Once per game |
| **Channels to actors** | To be decided. |
| **OPEN ISSUES** |  |
| **Due Date** | Release 2.0 |
| **...any other**  **management**  **information...** |  |
| **Superordinates** |  |
| **Subordinates** |  |

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| **USE CASE 2** | Choose Playing Order | |
| **Goal in Context** | Players decide the playing order so the game may start. | |
| **Scope & Level** | Primary Task | |
| **Preconditions** | Letter tiles are jumbled in the letter bag. | |
| **Success End Condition** | The game is ready to be started. | |
| **Failed End Condition** | Game cannot start. | |
| **Primary,**  **Secondary Actors** | Server  Player, Central Screen | |
| **Trigger** | Begin game (use case 1). | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | Players take one letter each from letter bag. |
|  | 2 | Server checks each player’s letter. |
|  | 3 | Player with the closest letter to A is chosen as the player to make first move (blank tile is of higher order). |
|  | 4 | Letters are returned to the letter bag (an attribute of board). |
|  | 5 | Letter bag is shuffled. |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 3a | Two or more players have the same current highest order letter.   * Repeat Choosing Playing Order (use case 2) |
| **VARIATIONS** |  | **Branching Action** |
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| **RELATED INFORMATION** | 2. Choose Playing Order |
| **Priority:** | High |
| **Performance** | 15 seconds |
| **Frequency** | 1 time per game |
| **Channels to actors** | Not yet determined |
| **OPEN ISSUES** | None |
| **Due Date** | Pre 1.0 |
| **...any other**  **management**  **information...** | - |
| **Superordinates** | Begin Game (use case 1) |
| **Subordinates** | Make Turn (use case 4) |

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| **USE CASE 3** | Setup Game | |
| **Goal in Context** | 7 letters are given at random to each player. | |
| **Scope & Level** | Company, Summary | |
| **Preconditions** | Board is empty, players are waiting for their initial letters. | |
| **Success End Condition** | Each player receives 7 randomly chosen letters. | |
| **Failed End Condition** | Player/Players do not receive 7 letters. | |
| **Primary,**  **Secondary Actors** | Server  Player, Central | |
| **Trigger** | All players are in ready state to receive 7 random letters after playing order is chosen. (Use case 2) | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | Game selects 7 random (this can be vary) letters for each player. |
|  | 2 | Player receives letters. |
|  | 3 | Player examines letters. |
|  | 4 | Players may rearrange their letters on their stand. |
|  | 5 | Player get ready for turns (Use case 4) |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 4a | Player does not rearrange their letters  4a1. Letters stay the same on their stand. |
| **VARIATIONS** |  | **Branching Action** |
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| **RELATED INFORMATION** | 4. Setup Game |
| **Priority:** | top |
| **Performance** | < 1 minute |
| **Frequency** | Once per game |
| **Channels to actors** | Not yet determined |
| **OPEN ISSUES** |  |
| **Due Date** | Release 1.0 |
| **...any other**  **management**  **information...** |  |
| **Superordinates** |  |
| **Subordinates** | All cases from 4-8 |

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| **USE CASE 4** | Make Turn | |
| **Goal in Context** | Player makes turn to advance the game and tries to win. | |
| **Scope & Level** | Company, Summary | |
| **Preconditions** | The game board is set up and the game is ready to be played | |
| **Success End Condition** | Player makes turn, gains points, the board returns to a ready state. | |
| **Failed End Condition** | Player does not take a turn in any form. | |
| **Primary,**  **Secondary Actors** | Player  Server, Central Screen | |
| **Trigger** | The Server works out playing order (use case 2) and it is a players turn. | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | Player examines state of board |
|  | 2 | Player places letters adjacent to existing tiles to form a word. |
|  | 3 | Game validates word(s) |
|  | 4 | Player is awarded points. |
|  | 5 | Player takes new letters from letterbag to replace letters used |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 2a | Player cannot form word  2a1. Player Skips Turn (use case 6) |
|  | 3a | Server cannot validate word  3a1. Player Makes Wrong Turn (use case 5) |
|  | 5a | No letters left in letter bag  5a1. End Game (use case 8) |
| **VARIATIONS** |  | **Branching Action** |
|  | 2 | Player may  place valid word  place invalid word  skip turn |

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| **RELATED INFORMATION** | 4. Make Turn |
| **Priority:** | top |
| **Performance** | 1 minute |
| **Frequency** | 15-20 per player |
| **Channels to actors** | Not yet determined |
| **OPEN ISSUES** | What if word is valid but is not in our dictionary? |
| **Due Date** | Release 1.0 |
| **...any other**  **management**  **information...** |  |
| **Superordinates** |  |
| **Subordinates** | Player Skips Turn (use case 6)  Player Makes Wrong Turn (use case 5)  End Game (use case 8) |

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| **USE CASE 5** | Make Wrong Turn | |
| **Goal in Context** | The system handles the Player making a wrong turn. | |
| **Scope & Level** | Company, Summary | |
| **Preconditions** | The game board is set up and the game is ready to be played | |
| **Success End Condition** | Player gets another chance to make a turn. | |
| **Failed End Condition** | Player is not alerted of making a wrong turn. | |
| **Primary,**  **Secondary Actors** | Player  Server, Central Screen | |
| **Trigger** | The Player makes a turn (use case 4). | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | Player examines state of board |
|  | 2 | Player places tiles on gameboard |
|  | 3 | Game cannot validate word(s) |
|  | 4 | Player is notified |
|  | 5 | Player takes back tiles and tries again (use case 4). |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 5a | Player cannot form word  5a1. Player Skips Turn (use case 6) |

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| **RELATED INFORMATION** | 5. Make Wrong Turn |
| **Priority:** | top |
| **Performance** | 1 minute |
| **Frequency** | Depends on player skill level |
| **Channels to actors** | Not yet determined |
| **OPEN ISSUES** | What if word is valid but is not in our dictionary? |
| **Due Date** | Release 1.0 |
| **...any other**  **management**  **information...** |  |
| **Superordinates** | Player Makes Turn (use case 4) |
| **Subordinates** | Player Skips Turn (use case 6)  Player Makes Turn (use case 4) |

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| **Use Case 6** | Skip Turn | |
| **Goal in Context** | Player Skips turn | |
| **Scope & Level** | Company, Summary | |
| **Precondition 1** | Player skips turn because they are unable to place letters on the game board. | |
| **Success End Condition** | Player receives new random letters. Or Player keeps current letters, doesn’t make a move and skips turn. | |
| **Failed End condition** | Player doesn't make it clear whether they wish to keep or swap letters before skipping turn. | |
| **Primary,**  **Secondary**  **Actors** | Player  Server, Central Screen | |
| **Trigger** | The Server gives the Player a choice of two options. | |
| **Description** | **Step** | **Action** |
|  | 1 | Player examines state of board |
|  | 2 | Player decides to skip turn |
|  | 3 | Player puts their current letters into the letter bag and randomly chooses seven new ones. |
| **Extension 1** | **Step** | **Branching Action** |
|  | 1 | Player examines state of board |
|  | 2 | Player decides to skip turn |
|  | 3 | Player must wait until their next turn to play again |
| **Extention 2** | **Step** | **Branching Action** |
|  | 3a | All players have skipped their turn twice  3a1. The game is ended (use case 8) |
| **Variations** |  | **Branching Action** |
|  |  | Player may:  skip turn  skip turn, swap letters for new ones from letter bag  skip turn twice to end game |

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| **Related Information** | Skip Turn |
| **Priority** | Top |
| **Performance** | 1 minute |
| **Frequency** | Depends on player. |
| **Channels to actors** | Not yet Determined |
| **Open Issues** | None |
| **Due Date** | Release 1.0 |
| **Superordinates** |  |
| **Subordinates** | End Game (Use case 8) |

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| **Use Case 7** | Leave Game | |
| **Goal in Context** | The system will allow a player to leave the game. | |
| **Scope & Level** | Company, Summary | |
| **Preconditions** | The player decides that they wish to leave the game | |
| **Success End Condition** | Player leaves game and the letters they have are returned to the letter bag. | |
| **Failed End condition** | Player physically leaves but they still appear in the game / their letter pieces are still out of the letter bag | |
| **Primary,**  **Secondary**  **Actors** | Player  Server, Central Screen | |
| **Trigger** | The Player wants to leave the game. | |
| **Description** | **Step** | **Action** |
|  | 1 | Player presses leave button. |
|  | 2 | Player then puts letters back into the letter bag. |
|  | 3 | Player then leaves game |

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| **Related information** | **7. Leave game** |
| **Priority** | Top |
| **Performance** | 1 minute |
| **frequency** | Depends on player |
| **Channels to actors** | Not yet determined |
| **Open Issues** | If all players leave before any player Makes Turn (use case 4), will the last remaining player win by default? |
| **Due Date** | Release 1.0 |
| **Any other management information** |  |
| **Superordinates** |  |
| **Subordinates** |  |

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| **USE CASE 8** | End Game | |
| **Goal in Context** | Finish the game and show player results. | |
| **Scope & Level** | Primary Task | |
| **Preconditions** | Last player move has been made, playing time is over. | |
| **Success End Condition** | Player scores displayed, game is over. | |
| **Failed End Condition** | Game is prematurely over. | |
| **Primary,**  **Secondary Actors** | Player  Central Screen, Server | |
| **Trigger** | One of:   1. Player used all tiles in an accepted move and the letter bag is empty. 2. Six successive scores of zero occur, obtained from passes, successful challenges or tile exchanges. 3. If using a time clock: A digital clock is not in overtime until –0:01 is shown. | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | One of the triggers occurs. |
|  | 2 | Game calculates all players’ scores. |
|  | 3 | Player scores are displayed. |
|  | 4 | Winner announced. |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 4a | Players with equal scores.   * Game is a tie. |
| **VARIATIONS** |  | **Branching Action** |
|  |  | - |

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| **RELATED INFORMATION** | 8. End Game |
| **Priority:** | High |
| **Performance** | 30 seconds |
| **Frequency** | 1 time per game |
| **Channels to actors** | Not yet determined |
| **OPEN ISSUES** | None |
| **Due Date** | Pre 1.0 |
| **...any other**  **management**  **information...** | - |
| **Superordinates** | - |
| **Subordinates** | - |

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| **USE CASE 9** | Update Display | |
| **Goal in Context** | Update client screens when new information is provided. | |
| **Scope & Level** | Primary Task | |
| **Preconditions** | Any game state. | |
| **Success End Condition** | Client screens are updated correctly. | |
| **Failed End Condition** | Wrong Information is sent to client displays. | |
| **Primary,**  **Secondary Actors** | Server  Central Screen, Player | |
| **Trigger** | Any change in game state (e.g. score is changed) | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | The server sends out information to all clients. |
|  | 2 | Clients screens are updated to show this information . |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 1a | Client disconnects temporarily.   * Information is kept in a cache. |
| **VARIATIONS** |  | **Branching Action** |
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| **RELATED INFORMATION** | 9. Update Display |
| **Priority:** | High |
| **Performance** | <1 second |
| **Frequency** | 1000s of time |
| **Channels to actors** | Not yet determined |
| **OPEN ISSUES** | None |
| **Due Date** | Pre 1.0 |
| **...any other**  **management**  **information...** | - |
| **Superordinates** | - |
| **Subordinates** | - |

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| **USE CASE 10** | Verify Move | |
| **Goal in Context** | Whenever there is a change to the boards state, words on the board have to be validated to ensure its a real word. | |
| **Scope & Level** | Primary Task | |
| **Preconditions** | Board can be in any state. | |
| **Success End Condition** | Scrabble board successfully validates whether the words on the board are correct or not. | |
| **Failed End Condition** | Scrabble fails to be validated. | |
| **Primary,**  **Secondary Actors** | Server  Player, Central Screen | |
| **Trigger** | One of:   1. A move is made by a player | |
| **DESCRIPTION** | **Step** | **Action** |
|  | 1 | One of the triggers occurs. |
|  | 2 | Server validates the word. |
|  | 3 | Server validates all other words on board. |
|  | 4 | Update display is called and displays new word on board. (Use Case 9) |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 4a | Word is incorrect.   * failure message is displayed. |
| **VARIATIONS** |  | **Branching Action** |
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| **RELATED INFORMATION** | 10. Verify Move |
| **Priority:** | High |
| **Performance** | <1 seconds |
| **Frequency** | 50+ times per game |
| **Channels to actors** | Not yet determined |
| **OPEN ISSUES** | None |
| **Due Date** | Pre 1.0 |
| **...any other**  **management**  **information...** | - |
| **Superordinates** | - |
| **Subordinates** | - |