KIT101 Programming Fundamentals – Semester 2, 2016

Assignment 2 External Documentation

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**Final stage reached:** 4

*Instructions: Complete the tables below, adding rows in each table as needed.*

## Existing GameWorld methods

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **method identifier** | **return type** | **parameters** | **instance variables used by this method** | **what does the method do?** |
| GameWorld | n/a | traceOnOff | generator | Create a game world for wereWolfenstein2D game |
| getCurrentArea | int | n/a | currentArea | Returns the number of the current area. |
| getShotCount | String | n/a | hitsRemaining, MAX\_SHOTS\_NEEDED | Returns the number of shot attempts |
| getVillagePopulation | int | n/a | villagerCount | Returns the current number of villagers. |
| getActionsUntilNight | int | n/a | stepsUntilDawn | Returns the number of actions remaining until dawn arrives. |
| newGame | int | difficulty | level, villagePos, stepsUntilDawn, villagerCount, NIGHT\_LENGTH, generator, currentArea, numAreas, isBitten, hitsRemaining | Create a new game by Randomly determines a unique starting location (currentArea), village position (villagePos) and werewolf position (wolfPos). |
| resetWolfPosition | void | n/a | generator, currentArea, villagePos, wolfPos, numAreas | Randomly determines a unique location for werewolf (wolfPos). |
| werewolfNear | Result | n/a | isBitten, wolfPos | Returns the nearness of the werewolf. |
| isVillageNear | boolean | n/a | villagePos | Returns true if the village is near the player (in an adjacent area), false otherwise. |
| nearnessTo | Result | area | currentArea, east, west, north, south | Returns the nearness of the player to the nominated area. |
| tryWalk | Result | into | currentArea, wolfPos, villagePos, isBitten, stepsUntilDawn | Try to move the player to another area. |
| shoot | Result | into | currentArea, villagePos, villagerCount, wolfPos, hitsRemaining, level, stepsUntilDawn | Try to shoot a silver bullet at the werewolf from the current area. |
| checkForDawn | boolean | n/a | stepsUntilDawn, villagerCount, NIGHT\_LENGTH | Checks if there are no more actions left until dawn arrives. |
| areasConnected | boolean | s1, s2 | numAreas, east, west, north, south | Returns true if areas s1 and s2 are connected, false otherwise. |
| nextArea | int | direction | east, west, north, south, currentArea | Determine ID number of an adjacent area given its direction from the current area. |
| reset | void | n/a | level | Resets all game values. |
| setTracing | void | shouldTrace | generator, tracing | Turn tracing messages on or off. |
| trace | void | message | tracing | Prints the given tracing message if tracing is enabled. |

## WereWolfenstein2D data and methods

### Instance variables

|  |  |  |  |
| --- | --- | --- | --- |
| **identifier** | **Type** | **What is this used for?** | **Which methods used this variable?** |
| TRACE | boolean | Set the tracing for both gameWorld and WereWolf2D | setTracing |
| WANTPLAYCHAR | char | player will type 'y' if they want to play | actionPerformed |
| MAXSAVEDMOVE | int | number of moves that are saved | createNewGame, performReset, addToSavedMoves |
| UNKNOWNVILLAGEPOS | int | represent unknown position of village | createNewGame, performReset |
| gameWorld | GameWorld | gameWorld saved properties for one game | showCurrentGameDetails, performWalk, performShoot, performReset, performDawn, paintComponent, drawMap |
| tracing | boolean | turn on or off the debug message | setTracing, trace |
| remainingBullets | int | saved the number of bullets left for each game | createNewGame, showCurrentGameDetails, performShoot, performReset, paintComponent |
| gameEnded | boolean | indicates whether the game is ended or not | actionPerformed, createNewGame, performWalk, performShoot, performReset, performQuit, performDawn, paintComponent |
| difficulty | Difficulty | contains information about the difficultythat player choose | actionPerformed, assignChosenDifficulty, createNewGame, showDifficultySettings, performReset, paintComponent |
| savedMoves | int[] | an array to remembered the moves that player make during one game | createNewGame, performReset, showSavedMoves, addToSavedMoves |
| countMoves | int | count the number of moves that are already saved in the array | createNewGame, performReset, showSavedMoves, addToSavedMoves |
| txtAction | JTextField | a text field receive string input from user | WereWolfenstein2D, createGUI, actionPerformed, assignChosenDifficulty |
| txtGameDetails | JTextArea | big text area, show game details | createGUI, actionPerformed, printGameTitle, explain, assignChosenDifficulty, showDifficultySettings, showCurrentGameDetails, performWalk, performShoot, performReset, performQuit, performDawn, showSavedMoves |
| btnWalk | JButton | button to control the game: walk | createGUI, actionPerformed |
| btnShoot | JButton | button to control the game: shoot | createGUI, actionPerformed |
| btnReset | JButton | button to control the game: reset | createGUI, actionPerformed |
| btnQuit | JButton | button to control the game: quit | createGUI, actionPerformed |
| lblQuestion | JLabel | label the question or instruction for player to do the next step | createGUI, updateQuestion |
| villagePos | int | only used in painted map, show the village position as 'known' (green box) after the player walk into | createNewGame, performWalk, performShoot, performReset, drawMap |
| currState | State | enum variable to save current state | WereWolfenstein2D, actionPerformed, updateQuestion |
| chosenWalk | boolean | identify walk or shoot when asking for position | actionPerformed, updateQuestion |

### Methods

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **identifier** | **return type** | **parameters** | **what does the method do?** | **instance variables used** | **Development history for this method** | |
| **implementation of code (of this method) date coding completed** | **testing of code (of this method) date testing completed** |
| WereWolfenstein2D | n/a | n/a | A constructor to show the game name, explain how to play as well as create a new GameWorld object prepare for each game. | currState, TRACE, gameWorld, txtAction | 7 May 2016 | 7 May 2016 |
| createGUI | void | n/a | Create buttons, labels, text fields to show information | txtGameDetails, btnWalk, btnShoot, btnReset, btnQuit, lblQuestion, txtAction | 19 May 2016 | 19 May 2016 |
| actionPerformed | void | e | Listen for button clicked, enter pressed in text field. Including the whole game process | currState, txtAction, txtGameDetails, btnReset, btnQuit, btnWalk, btnShoot, chosenWalk, gameEnded, gameWorld | 19 May 2016 | 19 May 2016 |
| updateQuestion | void | n/a | Update the question in the label to match the current state | currState, lblQuestion, chosenWalk | 19 May 2016 | 19 May 2016 |
| printGameTitle | void | n/a | Print the title of the game | txtGameDetails | 7 May 2016 | 7 May 2016 |
| explain | void | n/a | Print the explaination of the game | txtGameDetails | 7 May 2016 | 7 May 2016 |
| assignChosenDifficulty | void | chosenDifficulty | assign the difficulty to the 'difficulty' variables | txtAction, DIFFOPTION, difficulty, txtGameDetails | 19 May 2016 | 19 May 2016 |
| createNewGame | void | n/a | Create a new game, reset all the property variables of the game, reset the saved moves, , reset known village position to unknown | gameWorld, remainingBullets, difficulty, gameEnded savedMoves, countMoves, villagePos, UNKNOWNVILLAGEPOS, MAXSAVEDMOVE | 7 May 2016 | 7 May 2016 |
| showDifficultySettings | void | n/a | Show difficulty settings | txtGameDetails, difficulty | 7 May 2016 | 7 May 2016 |
| showCurrentGameDetails | void | n/a | Show all possible current game details on the screen for player to make the next action. | gameWorld, txtGameDetails, remainingBullets | 7 May 2016 | 7 May 2016 |
| performWalk | void | chosenArea | Contains all the steps for the walk action:  walk and show the results, save the moves if player walk successfully | txtGameDetails, gameWorld, villagePos, gameEnded | 7 May 2016 | 7 May 2016 |
| performShoot | void | chosenArea | Contains all steps for the shoot action:  Shoot to that area, reduce the number of bullets, print the answer if the shoot success or not, check if out of bullets after the shoot | txtGameDetails, gameWorld, remainingBullets, gameEnded, villagePos | 7 May 2016 | 7 May 2016 |
| performReset | void | n/a | Reset the whole game with the same difficulty, reset the variables save properties of the game, reset the saved moves, reset known village position to unknown. | txtGameDetails, gameWorld, remainingBullets, difficulty, gameEnded, savedMoves, countMoves, villagePos | 7 May 2016 | 7 May 2016 |
| performQuit | void | n/a | Quit the current game. | txtGameDetails, gameEnded | 7 May 2016 | 7 May 2016 |
| performDawn | void | n/a | Show message if dawn happen, check for any survival villager. | txtGameDetails, gameWorld, gameEnded | 7 May 2016 | 7 May 2016 |
| showSavedMoves | void | n/a | Print at most last 10 moves. | countMoves, savedMoves, txtGameDetails | 8 May 2016 | 8 May 2016 |
| addToSavedMoves | void | area | Add one move to saved array, call every time the player successfully walk | countMoves, MAXSAVEDMOVE, savedMoves | 8 May 2016 | 8 May 2016 |
| paintComponent | void | g | Paints the currently game details, including 3 bars, a map, and text when near village or wolf | gameWorld, gameEnded, remainingBullets, difficulty, | 19 May 2016 | 19 May 2016 |
| drawMap | void | g, c | Draw a map with 3\*3 small square, show village position if found, current play position. Automatically save and update the position of the village if player walk / shoot into (show as green box). Current position show as blue box | villagePos, gameWorld | 19 May 2016 | 19 May 2016 |
| drawHPBar | void | g, label, hpLeft, hpTop, hpW, hpH, hpBorder, curr, total | Draw a HP bar, change color when low HP, with black border, white background | n/a | 19 May 2016 | 19 May 2016 |
| drawBigString | void | g, text, fsize, c, left, top | Draw a big string to notify village or wolf is near | n/a | 19 May 2016 | 19 May 2016 |
| setTracing | void | onOff | Turn on or off debug messages | tracing | N/A | N/A |
| trace | void | message | Print debug message when debugging is on | tracing | N/A | N/A |