

Team: cse-t047

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CSE 116 Design Document

Classes:

Player:

Instance Variables:

_numeroftiles - private integer for initial tiles a player has

_b - private instantiation of Board

_turn - private variable that relates to players turns

_points - private Integer variable

_tileRack - private instantiation of TileRack

Methods:

Player() - associates private instance variables to hold associations

Tile addTileToBoard() - lets a player remove a tile from the TileRack class and then add the tile to the board

int getPoint() - public method that returns the int value of _points

void addPoint() - public static method that gets a int value and add it to _points

Tile:

Instance Variables:

_letter - private char variable

_value - private int variable

Methods:

Tile() - holds associations to private variables

char getLetter() - returns the char variable for a given Tile

int getValue() - returns the int variable for a given Tile

Inventory:

Instance Variables:

_letterList: ArrayList<Tile> The ArrayList of tiles that are in the game

_alphabet - private string that hold the letters of the alphabet

_numberOfPoints - The number of tiles per each letter

Bag/ArrayList:

-Use Bag<>(or ArrayList) to store the letters and the values of them (Allows duplicates and preserves order)

Methods:

Inventory() - constructor for the Inventory class

int InventorySize() - returns the size of the ArrayList as an int

void addHelper() - sets the specific point values to the tiles

removeTileFromInventory() - using random generator, lets the player remove a random tile from the inventory

void fillRack() - makes it so if the player uses any tiles that the players rack will refill to 12 tiles

public void removeTile() - method which is called when the instance variable _playerRack of the player class does not equal the specified value.

Board:

Instance Variables:

private _myBoard - 2D array that will function as the data structure for the <Board> class

Methods:

public void addTile() - when a tile object is added to the board, the array of the board must now hold a reference to that particular tile object at that specific index.

void removeTile() - This method will clear a tile reference by setting it to null at the co-ordinates (x,y)

BoardFrame_047:

Instance Variables:

private Scrabble_024_047 _s - 2D array that will function as the data structure for the <Board> class

private Inventory_024 _inv;

private ArrayList<Player_024_047> _players;

private Board_024 _board;

private int _numberOfPlayers;

private TileSpace_047[][] _boardOfButtons -

private Inventory_024 _invent;

private ArrayList<PlayerFrame_047> _pf;

private Game_047 _game;

private Scrabble_024_047 _scrabble;

private BoardFrame_047 _bf;

private WordChecker_047 _currentWord;

Methods:

public void update()- this method will update the appearance of the BoardFrame

public PlayerFrame_047 getPlayerFrame(int index)- returns a reference to the player frame associated with the value of index.

public Game_047 getGame()- returns a reference to the game object

public Scrabble_024_047 getScrabble()- returns a reference to the scrabble game.

public void setWord(WordChecker_047 currentWord) - mutator method for the instance variable _currentWord.

public WordChecker_047 getWordChecker() - a reference to an object that will check the validity of words played.

public Board_024 getBoard() - returns the reference to the board data structure (model).

public TileSpace_047 getTileSpace(int row, int col) - accessor method for the Tilespace object at the specified coordinates.

public void setTileSpace(int row, int col, TileSpace_047 ts) - This method sets the element specified by the coordinates row and column to the TileSpace that is an input to the function.

public void clearBoardFrame() - clears the text on all of the Tilespace(the class that extends JButton and represents the Tile on the board) and is mainly used in conjunction with the restore feature.

TileRack:

Instance Variables:

_playerRack - Array with length of 12, or an ArrayList with dynamic length
_inventory - private instance variable that holds reference to the Inventory
_board - private instance variable that holds reference to the Board
_numberTilesInRack - int instance variable that holds reference to the number of tiles in the players rack

Methods:

TileRack() - method that holds associates references to the board and inventory and also fills the platers rack

public void addTileToTileRack() - public method to add the tile to the rack from the Inventory (Bag<> or ArrayList?)

public boolean removeTileFromTileRack() - method used to remove a specified Tile from the TileRack before the Tile is added to the board, return true when the player still has tiles and false when there are none which ends the game.

High_Score_047:

Instance Variables:

_p Instance variable that holds reference to an ArrayList of players
_words Instance variable that holds reference to an ArrayLsit of Strings

Methods:

void endGame() Method that is responsible for showing who wins the game and when the game ends

TurnHandler() - method that goes through a loop to figure out how many players are in the game

String switchPlayer() - method that switches the players turns and prints out the players turn

LoadGame_047:

Instance Variables:

_b- Instance variable that holds reference to the BoardFrame class
_bf- Instance variable that holds reference to the Tile_024Rack class
_tr -Instance variable that holds reference to the Scrabble class
_scrabble -Instance variable that holds reference to the String reading files
_fileToRead- Instance variable that holds reference to a file to read
_tokens - ArrayList of tokens for strings

Methods:

All of the update methods: Every update method constantly updates those credentials

PlayerSpace_047:

Instance Variables:

_playerSpace- Instance variable that holds reference to the PlayerSpace class
_scrabble-Instance variable that holds reference to the Scrabble
_t Instance variable- that holds reference to the Tile class
_pf Instance variable that holds reference to the PlayerFrame class

_numberOfTile Instance variable that holds reference to the number of tiles a player has

_tempTH Instance variable that holds reference to a temporary tile

_currentGame Instance variable that holds reference to the Game class

Methods:

void actionPerformed()- Method that performs the actions for the PlayerSpace class

int getNumber()- Method that gets the number of tiles the player has

Tile_024 getTempTile()- Method that gets a temporary tile

void setCurrentTile(Tile_024 t)- Method that sets a current tile

Tile_024 getTile()- Method that gets the specific tile

void actionPerformed(ActionEvent arg0)- Method that performs an action

SaveGame_047:

Instance Variables:

_b- Instance variable that holds reference to the Board class

_bf- Instance variable that holds reference to the BoardFrame class

_tr- Instance variable that holds reference to the TileRack class

_scrabble- Instance variable that holds reference to the Scrabble class

_fileToWriteTo- Instance variable that holds reference to a specific file to write to

Methods:

void writeNewFile()- Method that writes to a file

SaveString_047:

Instance Variables:

_b Instance- variable that holds reference to the Board class

_bf Instance- variable that holds reference to the BoardFrame class

_tr Instance- variable that holds reference to the TileRack class

_scrabble- Instance variable that holds reference to the Scrabble class

_fileToWriteTo- Instance variable that holds reference to a specific file to write to

Methods:

void writeNewFile()- Method that writes to a file

addToString(String newString) - methods that writes a new string to send over to the server

String returnGameInfo() - method that returns the game information

TileSpace_047:

Instance Variables:

_j instance variable that holds reference to the TileSpace class

_row Instance variable that holds reference to a specific row

_col Instance variable that holds reference to a specific column

_b Instance variable that holds reference to the Board class

_t Instance variable that holds reference to the Tile class

_scrabble Instance variable that holds reference to the Scrabble class

_bf Instance variable that holds reference to the BoardFrame class

_myText Instance variable that holds reference to the String of a players text
_color Instance variable that holds reference to the Color class

Methods:

void actionPerformed()- Method that performs an action for moving tiles
int getRow()- Method that gets a specific row
int getCol()- Method that gets a specific column
Tile_024 getTile()- Method that gets a specific tile
String getMyText()- Method that gets a players text
boolean isAdjacent()- Method that keeps track of tile placement on the board
Color getColor()- Method that obtains a specific color

UpdateGUI_047:

Instance Variables:

_b- Instance variable that holds reference to the BoardFrame class
_bf- Instance variable that holds reference to the Tile_024Rack class
_tr -Instance variable that holds reference to the Scrabble class
_scrabble -Instance variable that holds reference to the String reading files
_fileToRead- Instance variable that holds reference to a file to read
_tokens - ArrayList of tokens for strings
_gameInfo - Instance variable that holds the information of the game

Methods:

All of the update methods: Every update method constantly updates those credentials and build them up into a String

WordChecker_047:

Instance Variables:

_r- Instance variable that holds reference to a new ReaderTool
_rowCoordinates- Instance variable that holds reference to the coordinates of a row
_colCoordinates- Instance variable that holds reference to the coordinates of a column
_tilesPlaced- Instance variable that holds reference to an ArrayList of tiles placed
_bf- Instance variable that holds reference to the BoardFrame class
_b- Instance variable that holds reference to the Board class
int _numberOfPassesInARow- Instance variable that holds reference to the number of passes in a row

Methods:

String isThisWord()- Method that determines if a word is playable
boolean isWordForward()- Boolean method that determines if a word is forward
boolean isWordBackWard()- Boolean method that determines if a word is backwards
void addLetter(int row, int col)- Method that adds letters to a specific coordinate
void clear()- Method that clears the space
boolean isZero()- Method that returns if a row coordinate is zero
ArrayList<Integer> getRowCoordinates()- Method that gets a specific int in a row
ArrayList<Integer> getColCoordinates()- Method that gets a specific int in a column

ClientDriver_047: This class is responsible for running the client

Instance Variables:

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Methods:

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ServerI, ServerDriver, ServerS, IServer:

All of these class are responsible for running the server and creating an interface for it.

ClientUI_047:

IClient - Interface that helps run the client

ClientI - Helps run the client

Instance Variables:

```
private JTextField _tf;  
private JFrame _window;  
private IServer _server;
```

Methods:

```
public void run() - runs parts of the client  
public void update() - updates parts of the client ui
```

Extravaganza_047:

Instance Variables:

```
private JTextField filename = new JTextField(), dir = new JTextField();  
private JButton open = new JButton("Open"), save = new JButton("Save");private JButton pass = new  
JButton("Pass");  
_bf Holds a reference to a BoardFrame where tiles will be placed on  
_b Holds a reference to a Board model for the game  
_scrabble Holds a reference to the Scrabble class where many classes are instantiated.  
_g Hold a reference to the Game class where we get inputs from players  
label1 Label that hold String value to show on the GUI screen for players  
boolean _isPlayerFrameStillEmpty Boolean value that tells us whether a player's frame is empty or not.
```

Methods:

```
void actionPerformed(ActionEvent e) - performs all of the action for the Open, Save and Pass button  
int scoreHelper(char c) This method returns a score value of type int according to a letter of type Char
```

Game_047:

Instance Variables:

```
_t Instance variable that holds reference to the Tile class  
int _numberOfPlayers Instance variable that holds reference to the number of players
```

ArrayList<Player_024_047> _playerList instance variable that holds reference to the Scrabble class
ArrayList<PlayerFrame_047> _playerFrameList Instance variable that holds reference to the players in the game
int _currentTurn instance variable that holds reference to the PlayerFrame class
_currentGame Instance variable that holds reference to the current turn
ArrayList<String> _names Constructor for the Game class
_server Instance variable that holds reference to the server

Methods:

int incrementTurn() Method that controls the turns for the game
getGame() Method that obtains the contents of the Game class
int getCurrentTurn() Method that obtains the current turn
int getNumOfPlayers() Method that gets the number of players in the game
String getName(int index) Method that gets a players name
getPlayer(int index) Method that gets a specific player
getPlayerList() Method that gets the list of players
void printOutWinner() Method that prints out the winner of the game
void update(String s, String turn) updates the string constantly

LocalDriver:

Methods:

main method that passes new Game

PlayerFrame_047:

Instance Variables:

_s Instance variable that holds reference to the Scrabble class
_inv Instance variable that holds reference to the Inventory class
_players Instance variable that holds reference to the ArrayList of type players
_board Instance variable that holds reference to the Board class
_numberOfPlayers Instance variable that holds reference to the number of players in the game
_boardOfButtons Instance variable that holds reference to the board of buttons
_boardOfPlayerSpaces Instance variable that holds reference to the board of player spaces
_tr Instance variable that holds reference to the TileRack class
_pf Instance variable that holds reference to the Player_frame class
_tileTemp Instance variable that holds reference to the Tile class
_current Instance variable that holds reference to the PlayerSpace class
_myTurnNumber instance variable that holds reference to the turn of the player
_currentGame Instance variable that holds reference to the current state of the game
_frame Instance variable that holds reference to the JFrame class
_points Instance variable that holds reference to the points that the players begins with

Methods:

update() Method that updates the class

removeTileFromPlayerSpace(int index) Method that removes tiles from a player's space
setTempTile(Tile_024 t) Method that sets a tile to a temporary value
getBoard() Method that gets the content of the Board class
getCurrentSpace() Method that gets the current space of where the player is playing\
setCurrent(PlayerSpace_047 current) Method that sets the current player scape to some value
getPlayerSpace(int index) Method that gets a players space
getMyTurnNumber() Method that gets the players turn number
setPreviousPlayerSpace(PlayerSpace_047 temp) This method is responsible for setting the previous Playerpace that was clicked on to a temporary value
getPreviousPlayerSpace() This method gets the value of the previous PlayerSpace to what was set to it before
setTitle(String name) This method sets the name of the players TileRacks to what they input at the beginning of the game
setPoints(String points) This method is responsible for setting the points that the players have to a point on their panel
setVisible(boolean s) This method makes the fame visible

JUnit Tests:

- All the test from stage 1 are from group 24's stage 1 tests from when the group was being used by us for the beginning of Stage 2
- We tested the placement of tiles on the board

Reference:

Java Random API

<http://docs.oracle.com/javase/7/docs/api/java/util/Random.html>

Java ArrayList References:

<http://docs.oracle.com/javase/7/docs/api/java/util/ArrayList.html>

http://www.homeandlearn.co.uk/java/array_lists.html