

Design Document

Knowsys Project



The Knowsys project is a game that is similar to the famous Scrabble game by Hasbro. Our implementation of this game requires 5 main classes for Stage 1.

The 5 classes are:

- Tile
- TileRack
- Inventory
- Board
- Player

Tile

Parameters- char c (Initially, it was char c and int value)

Instance Variables- _value (int)
_letter (char)

Methods- getLetter

getValue (Initially, the values were put in the tiles using the int value parameter. It was switched to the getValue method so that int value parameter could be removed)

toString (Added March 4)

Description- The Tile class is the building block of the game. It is what fills the Inventory and the TileRack class. The player uses these tiles to make their moves.

Relationships- Composition with Inventory.
Association with TileRack, Board.

Board

Parameters- None

Instance Variables- _Board (Tile[] [])

Methods- place(Tile t, int x, int y)
remove(int x, int y)
isEmpty(int x, int y)
getTileAt(int x, int y)

Description- The Board class is the representation of what the game board looks like. It is made out of tiles and is initially empty.

Relationships- Association with Tile.

Inventory

Parameters- None

Instance Variables- _myInventory (ArrayList<Tile>)

Methods- remove(int i)
getSize()
getTile(int i)

Description- The Board class is the representation of what the game board looks like. It is made out of tiles and is initially empty.

Relationships- Composition with Tile

TileRack

Parameters- Inventory inv

Instance Variables- _Inventory(Inventory)
_tileRack(ArrayList<Tile>)

Methods- remove(int i)
removeTile(Tile t)
getSize()
getTile(int i)
addTile(Tile t)
refillIfNotFull()

Description- The TileRack class gets its tiles from the inventory and allows the players to make their moves.

Relationships- Association with Tile
Composition with Player

Player

Parameters- String name
Inventory inv
Board b

Instance Variables- _Inventory(Inventory)
_myTileRack(TileRack)
_ TilesMovedByPlayer(ArrayList<Tile>)
_name(String)
_score(Int)

Methods- moveComplete()
setTileRack()
placeATileOnTheBoard(int i, int x, int y)
getName()
getScore()

Description- The Player class is the main class that interacts with other classes.

Relationships- Composition with TileRack
Association with Board
Association with Inventory