Robot Turtles - Milestone 3 UML (MVC)

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COMP 3721

GameView

+ displayText(String)
+ displayPrompt (String)
+ displayBoard(int[][], int[][], int)

GameInitializer

- initBoard:Board
- initPlayers: List<TurtleMaster>
- view: GameView
- nPlayers: int
- input:Scanner

+ GameInitializer(GameView)
+ start(): boolean
+ createBoard(int)
+ createPlayers(int)
+ namePlayer(TurtleMaster, String)
+ createJewels(List<TurtleMaster>): List<Jewel>
+ cornerCoordinates: List<Coordinate>
+ centerCoordinates: List<Coordinate>
+ colorList(): Colour []
+ newGame(): GameModel

GameController

- view: GameView
- model: GameModel
- converter: BoardConverter

+ GameController()
+ initializeGame():boolean
+ promptMove (TurtleMaster): Move
+ playTurn (Move)
+ playRound()
+ playGame()
+ getView (): GameView()

BoardConverter

- gameBoard

+ BoardConverter(Board)
+ parseJewels(): int[][]
+ parseTurtles(): int[][]

GameModel

- players: ArrayDeque<TurtleMaster>
- board: Board
- maxSize: int
- complete: boolean

+ GameModel ()
+ vaildate(Move)
+ moveList(): List<String>

1

Move

- player: TurtleMaster
- playerTile:Turtle
- instruction:Card
- currDirection:Direction
- gBoard: Board
- bugCard: boolean

+ Move (TurtleMaster, Card, Board)
+ getCurrPlayer():TurtleMaster
+ getCard(): Card
+ execute()
+ step()
+ rotate(Card)
+ bug()
+ bugRotate(Card)
+ bugStep()
+ reverseDirection()

Board

- size:int
- config:Tile[][]
- turtles: List<Turtle>
- jewels: List<Jewel>

+ Board(int, List<TurtleMaster>, List<Jewel>)
+ placeTurtles(List<Turtle>)
+ placeJewels(List<Jewel>)
+ getTileAtPos(Coordinate):Tile
+ setTileAtPos(Coordinate, Tile)
+ isEmpty(Coordinate)
+ shiftTile(Coordinate, Coordinate)
+ removeTile(Coordinate)
+ markWinner(TurtleMaster)
+ nextCoord(Coordinate, Direction)
+ getTurtles():List<Turtle>
+ getJewerls():List<Jewel>
+ getSize(): int

1

TurtleMaster

- name: String
- cardSequence: Stack<Card>
- winner:boolean

+ TurtleMaster(Coordinate, Colour, Direction)
+ setPlayerName(String)
+ getPlayerName():String
+ hasWon():boolean
+ cardSeq():Stack<Card>
+ addToCardSeq(Card):
+ removeFromSeq():
+ won()

1..4

Turtle

- dir: Direction

+ Turtle (Coordinate, Colour, Direction)
+ setDirection(Direction)
+ getDir(): Direction

Jewel

+ col: Colour

+ Jewel (Colour, int, int)
+ setColour(Colour)

0..*

Coordinate

- xPos: int
- yPos: int

+ Coordinate(int, int)
+ copy():Coordinate
+ equals(Object): boolean
+ outBounds(int): boolean

0..*

**<<Enumeration>>
Direction**

NORTH
SOUTH
EAST
WEST

**<<Enumeration>>
Card**

LEFT
RIGHT
FORWARD
BUG

**<<Enumeration>>
Colour**

BLUE
RED
PURPLE
GREEN

<<ColouredTile>>

- col: Colour

+ ColouredTile(Coordinate, Colour)
+ getColour: Colour

<<Tile>>

- coord: Coord

+ setCoordinate()
+getCoordinate () : Coord

0..*