IQ Link
COMP1110/1140/1510/6710 major assignment

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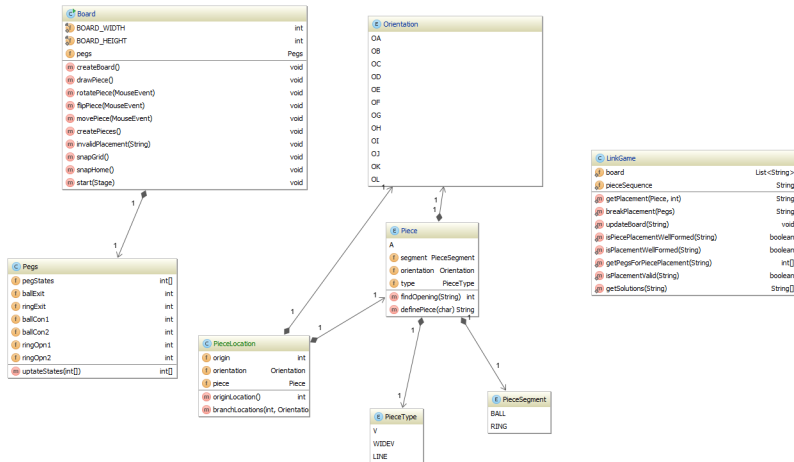
Week 11, 2016

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Summary

- Rocky start losing a member from our group
- Created Piece class with enumerators
- Added placement methods
- Implemented Viewer
- Implemented full GUI for game
    - Piece drawing and movement
    - Game selection
    - Hint viewer as string, then image
    - Other QoL additions
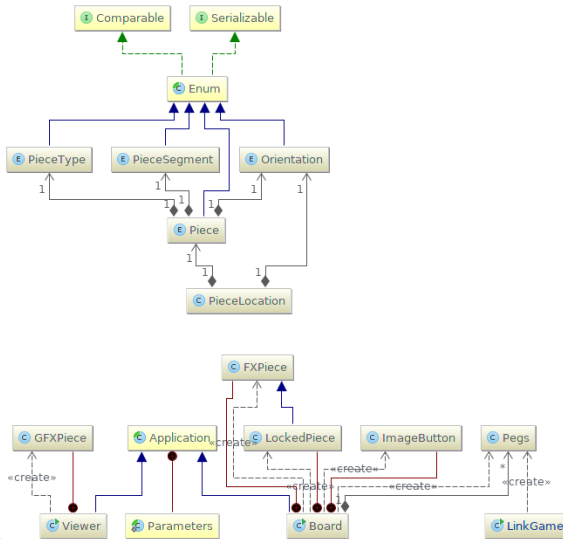- No regular meetings, but constant communication

Design

Structure

- Enumerators for pieces and info, int array for pegs
- Store piece rotation, info, etc. in the enumerator
- Store ball/ring, connectors/gaps, in peg info
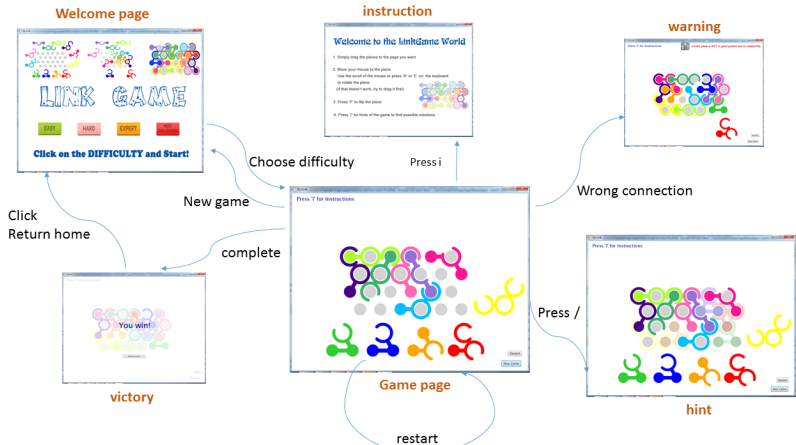- Handle all GUI-related things in Board, all back-end in LinkGame

Structure

Board
BOARD_WIDTH	int
BOARD_HEIGHT	int
pegs	Pegs
createBoard()	void
drawPiece()	void
rotatePiece(MouseEvent)	void
flipPiece(MouseEvent)	void
movePiece(MouseEvent)	void
createPieces()	void
invalidPlacement(String)	void
snapGrid()	void
snapHome()	void
start(Stage)	void

Orientation
OA
OB
OC
OD
OE
OF
OG
OH
OI
OJ
OK
OL

LinkGame
board	List<String>
pieceSequence	String
getPlacement(Piece, int)	String
breakPlacement(Pegs)	String
updateBoard(String)	void
isPiecePlacementWellFormed(String)	boolean
isPlacementWellFormed(String)	boolean
getPegsForPiecePlacement(String)	int[]
isPlacementValid(String)	boolean
getSolutions(String)	String[]

Pegs
pegStates	int[]
ballExit	int
ringExit	int
ballCon1	int
ballCon2	int
ringOpn1	int
ringOpn2	int
uptateStates(int[])	int[]

Piece
A	
segment	PieceSegment
orientation	Orientation
type	PieceType
findOpening(String)	int
definePiece(char) String	

PieceLocation
origin	int
orientation	Orientation
piece	Piece
originLocation()	int
branchLocations(int, Orientation

PieceType
V
WIDEV
LINE

PieceSegment
BALL
RING

Structure

Structure

Welcome page

instruction

warning

Choose difficulty

Press i

Wrong connection

New game

Click
Return home

complete

Press /

victory

Game page

restart

hint

Piece and Peg classes, mk. I
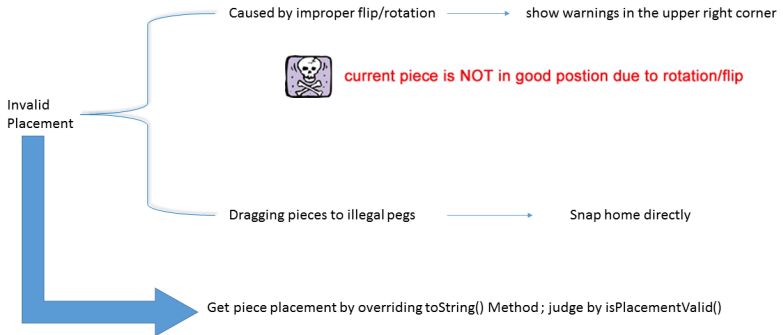
Enumerator declaration

```
enum Piece {
A (LINE,OA,
        RING,2,3,
        BALL,4,0,
        BALL,1,0),
...
}
```

Peg declaration

```
public Pegs(int[] states) {
        this.ballExit = states[0];
        this.ballCon1 = states[1];
        this.ballCon2 = states[2];
        this.ringExit = states[3];
        this.ringOpn1 = states[4];
        this.ringOpn2 = states[5];
}
```

Invalid placements

Invalid Placement

Caused by improper flip/rotation ⟶ show warnings in the upper right corner

current piece is NOT in good postion due to rotation/flip

Dragging pieces to illegal pegs ⟶ Snap home directly

Get piece placement by overriding toString() Method ; judge by isPlacementValid()

Game remake buttons

Two buttons

New Game → back to the welcome page

If the user select the same difficulty level as the former game

Can start with different initial placement (totally random)

Restart → back to the same initial placement

Screenshots

LINK GAME

EASY   HARD   EXPERT   MOST CHALLENGING
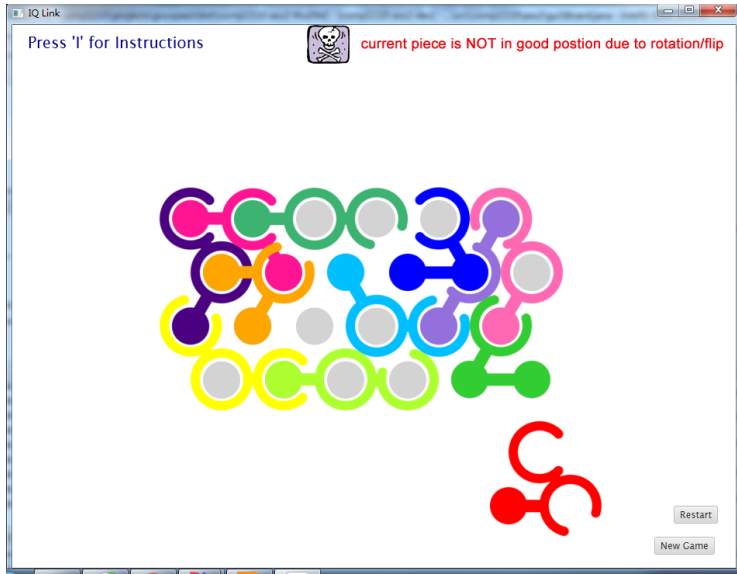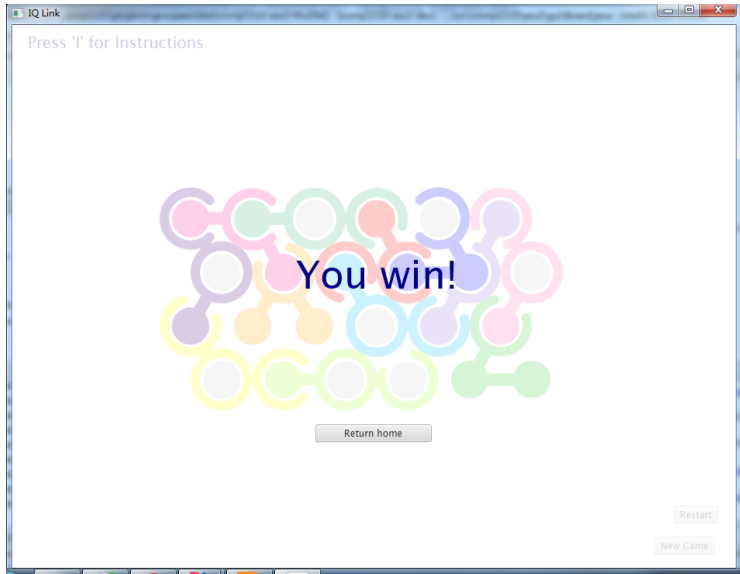
Click on the DIFFICULTY and Start!

Main game
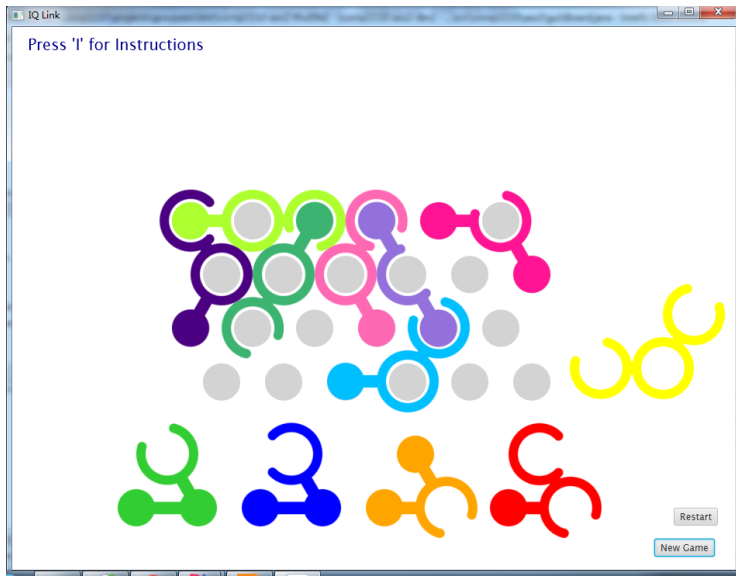
Hints
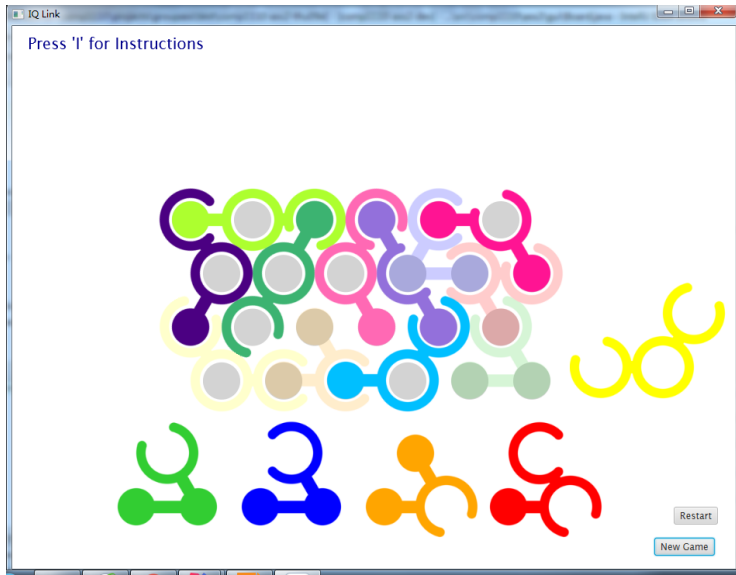
Can't do that

Victory

Questions?