Australian
National
University

Implementing IQ Link

COMP1110 Assignment 2

thu11l

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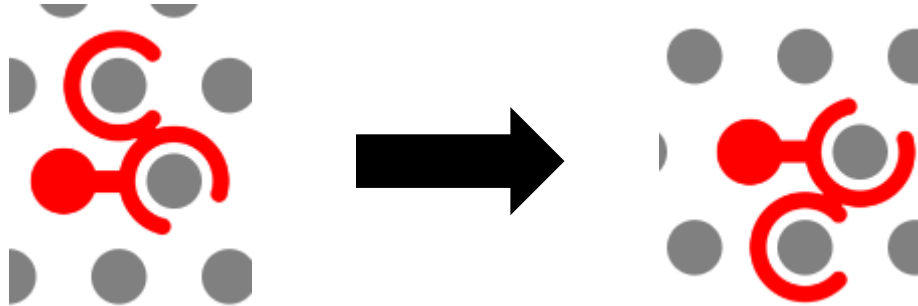
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Outline

- Feature
- Play the Demo
- Design
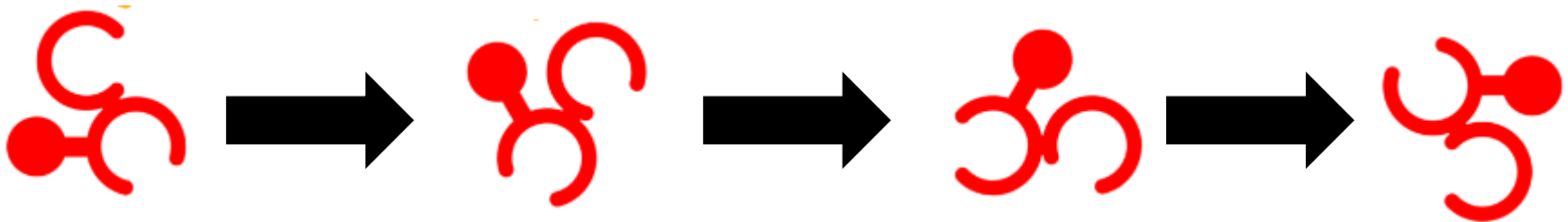- Problem and Solution

Feature
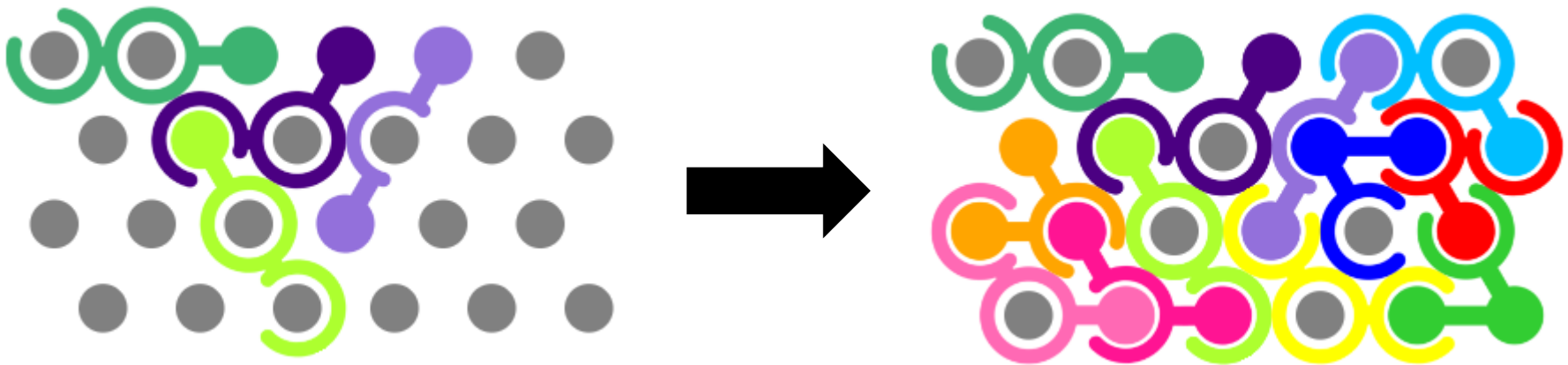
- Flip – Right click

- Rotate – Scroll up/down

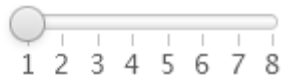- Drag, Snap & Check – Drag by left mouse button

- Hint – Press "/" Key

- Difficulty
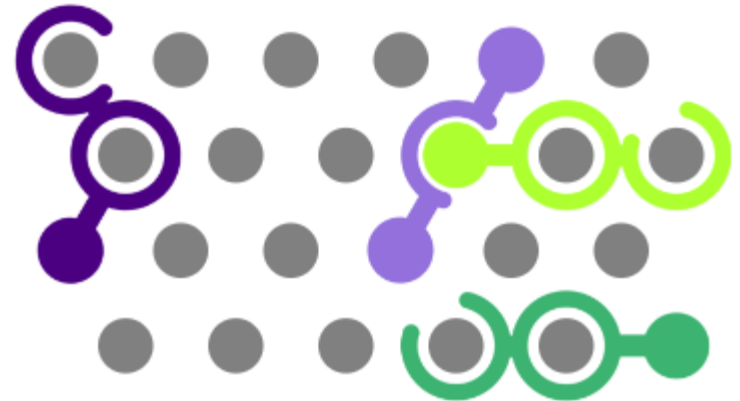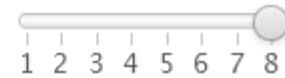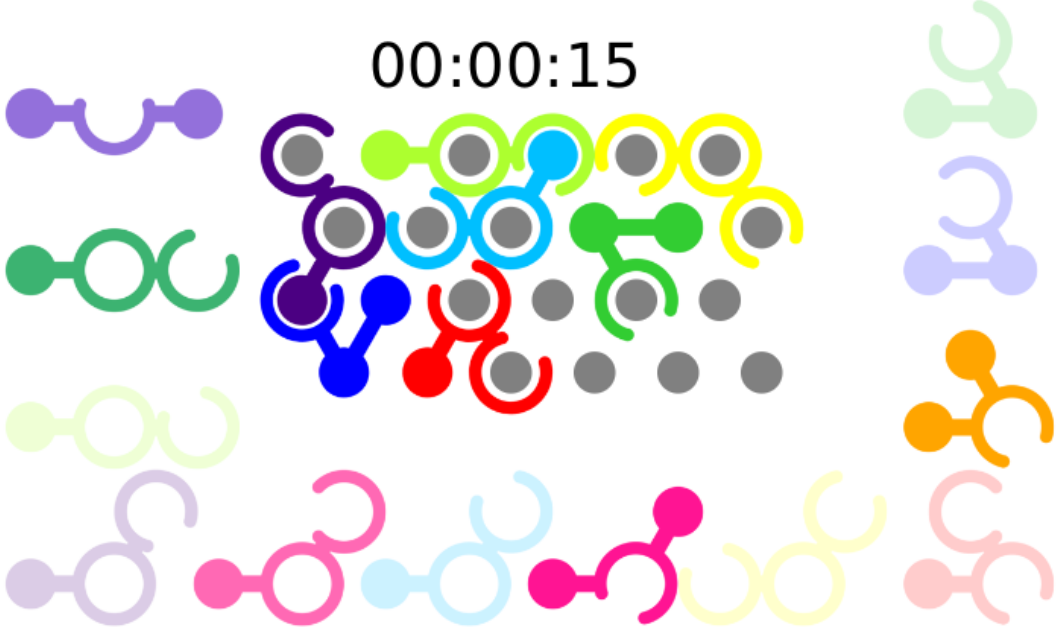
New Extension

• Timer & Help for New Users

• Training Mode & Adventure Mode

- Training Mode & Adventure Mode

• Score System

- Clearance Animation

Play the Demo

Design

UML: logical part

UML: GUI part
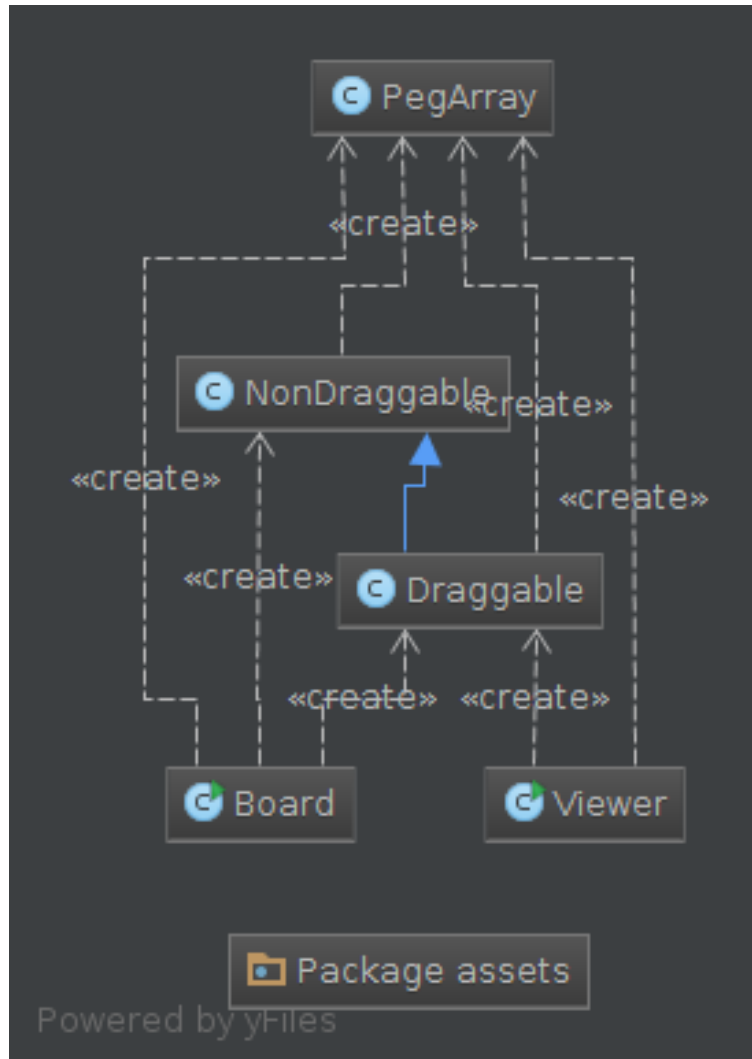
Main Problem

The method "getSolution(placement)" spend a long time

Loop: piece

    Loop: origin

        Loop: orientation

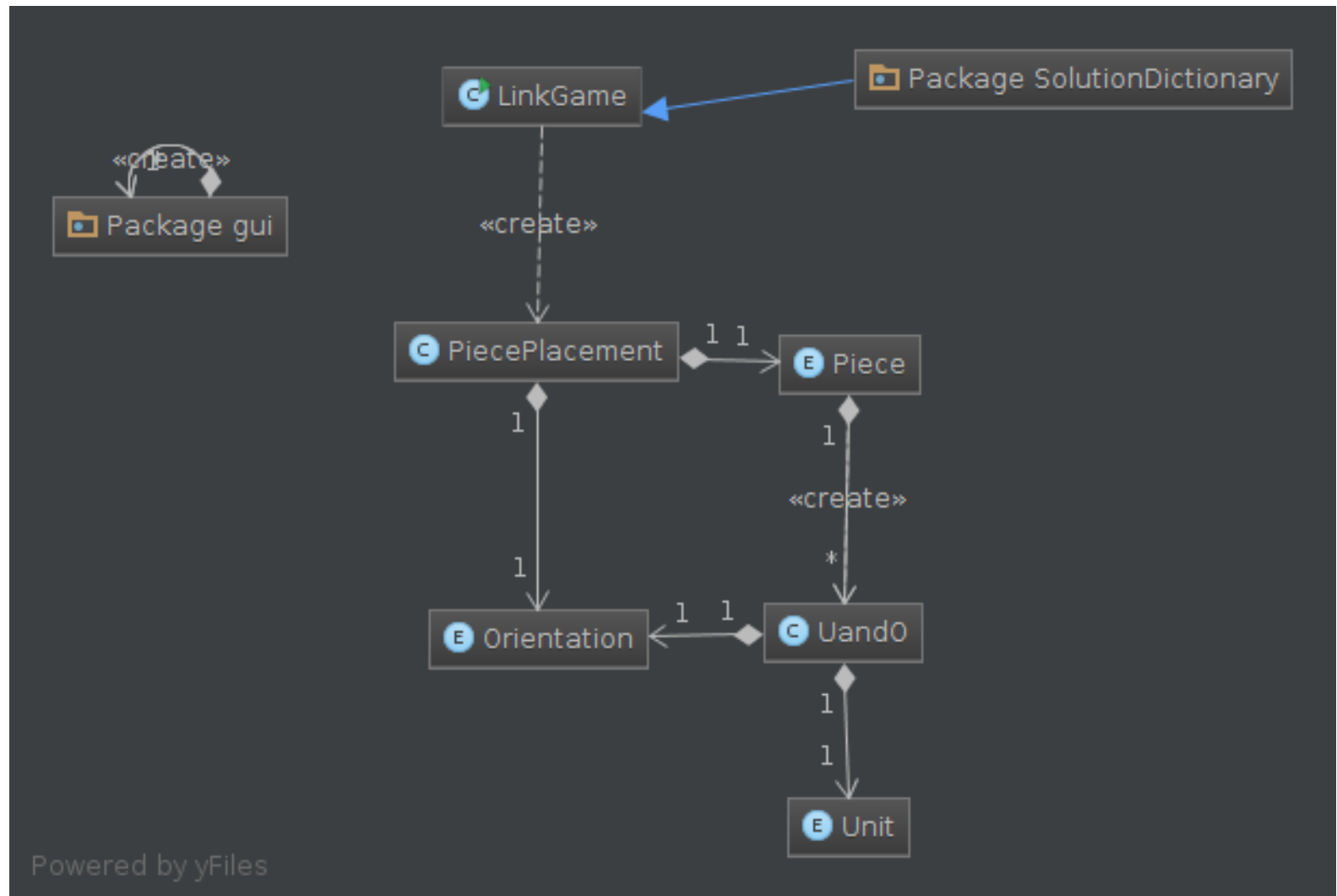   isValidplacement(placement , origin + piece + orientation)
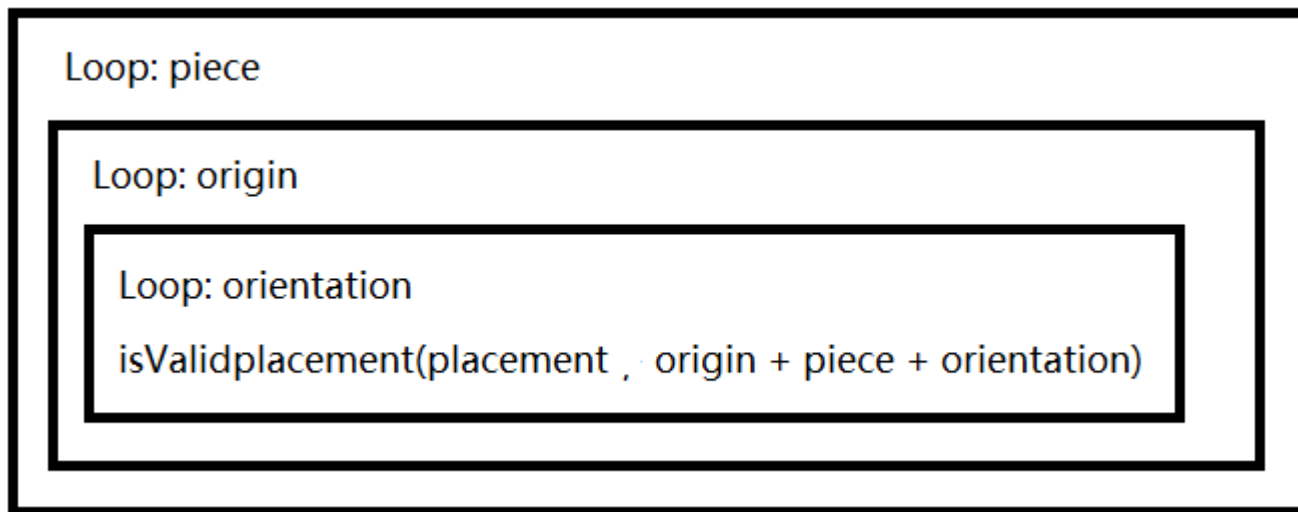
Optimize:

1. Record the data from last call of the function.
   Such as placement, occupation, peg index.

a. Only check the pegs occupied by the last piece
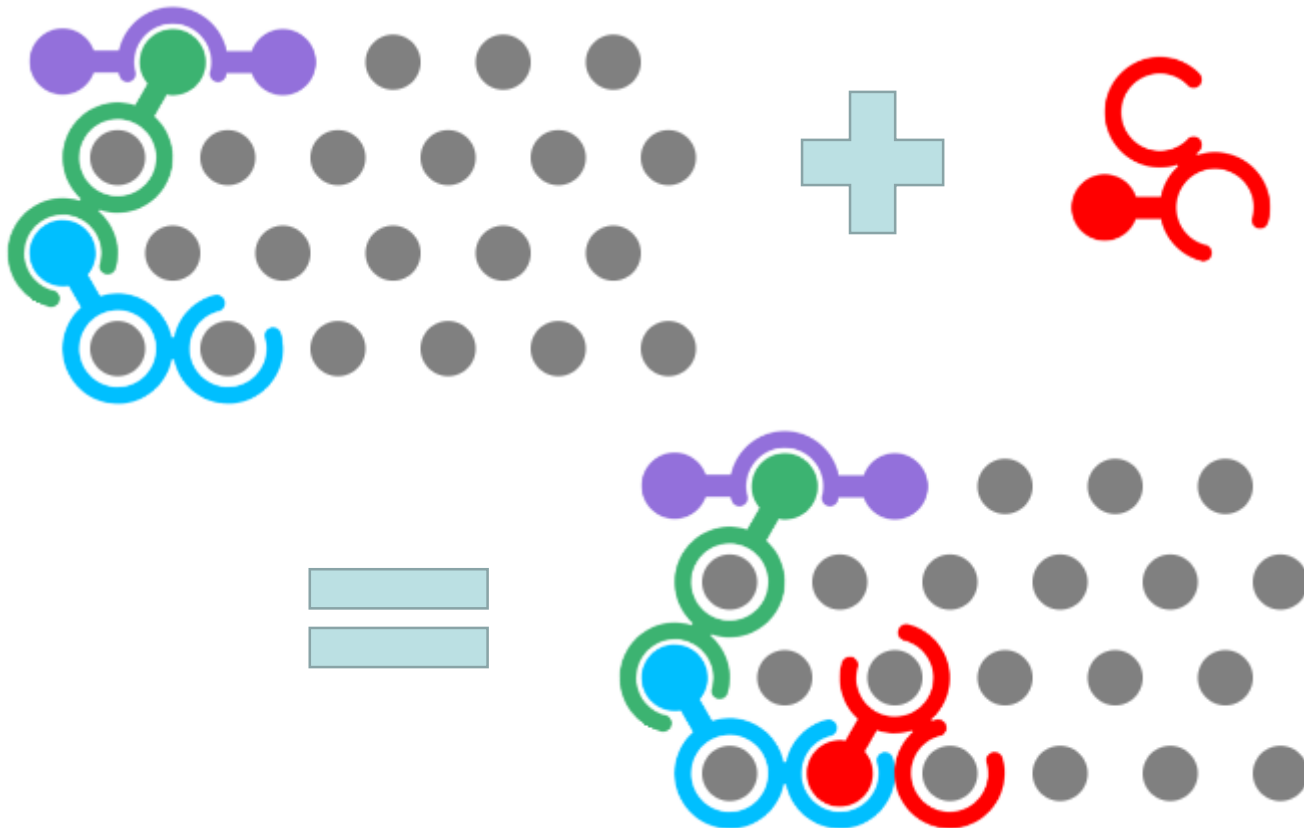
2. Pruning

- Neighbours of a piece

- Shape of a piece

- Unit in a piece

b. <Neighbor> Dead Point:

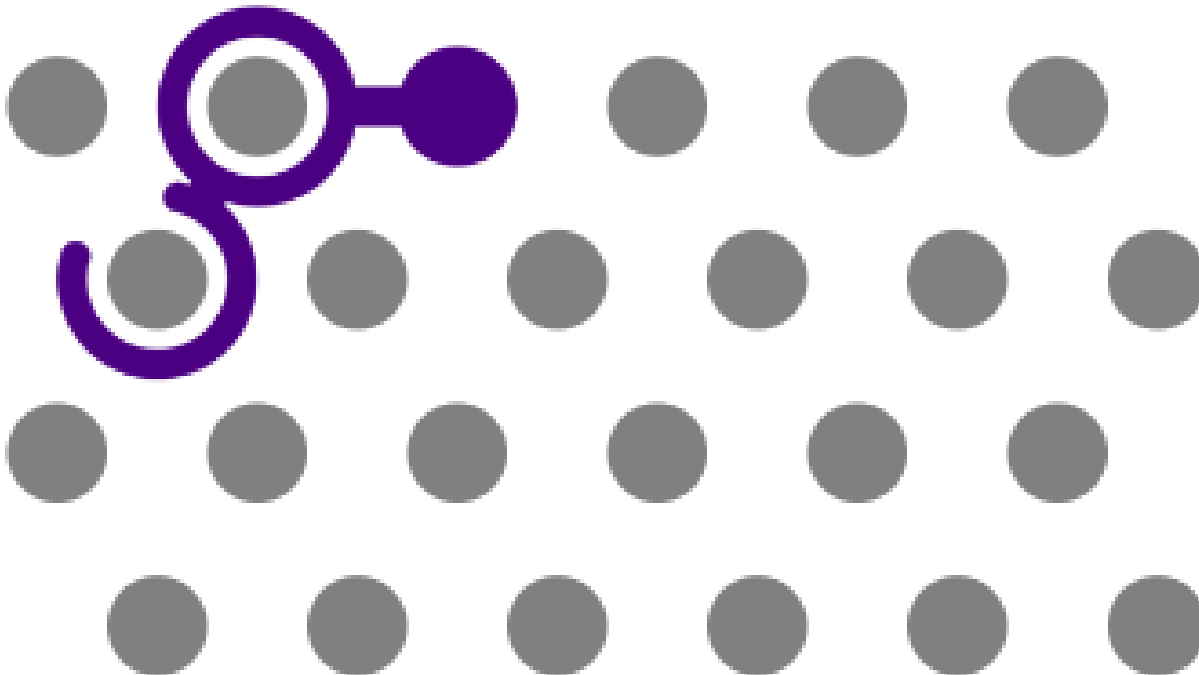Check the neighbors

Number of the available peg < 2,
this peg is invalid (Dead Point)
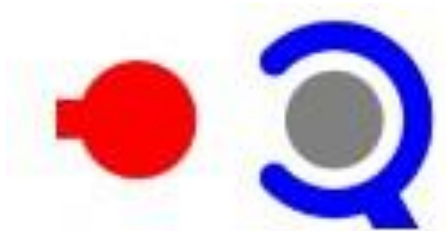
c. <Neighbor> Neighbor Dead Point.

Placing a piece on a peg will also affect the validity of its neighbors.

d. <Neighbor> Ring with one opening
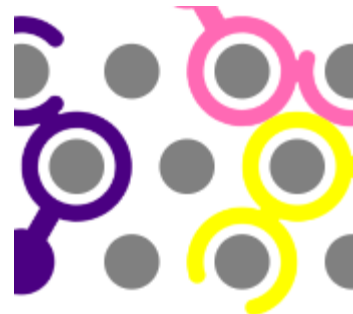
Available but invalid peg:

e. <Shape> Peg Neighbor & Shape

Straight angle:

Valid: Invalid:

e. <Shape> Peg Neighbor & Shape
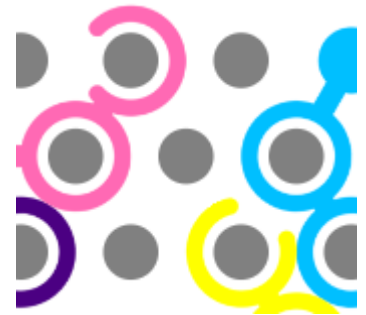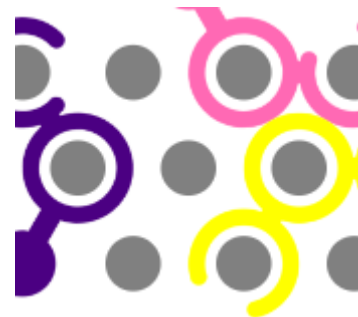
Acute angle:

Valid: Invalid:

e. <Shape> Peg Neighbor & Shape

Obtuse angle:

Valid: Invalid:

f. <Shape> Valid orientation:

For example: Piece C

Piece C only has two orientation can fit this placement. Which are C and K.

g. <Unit> Valid origin

centre of the piece:	Valid origin:

Summary

- Required features
- Extensions
- Object Oriented
- Partially optimized, still have space to improve

Thanks