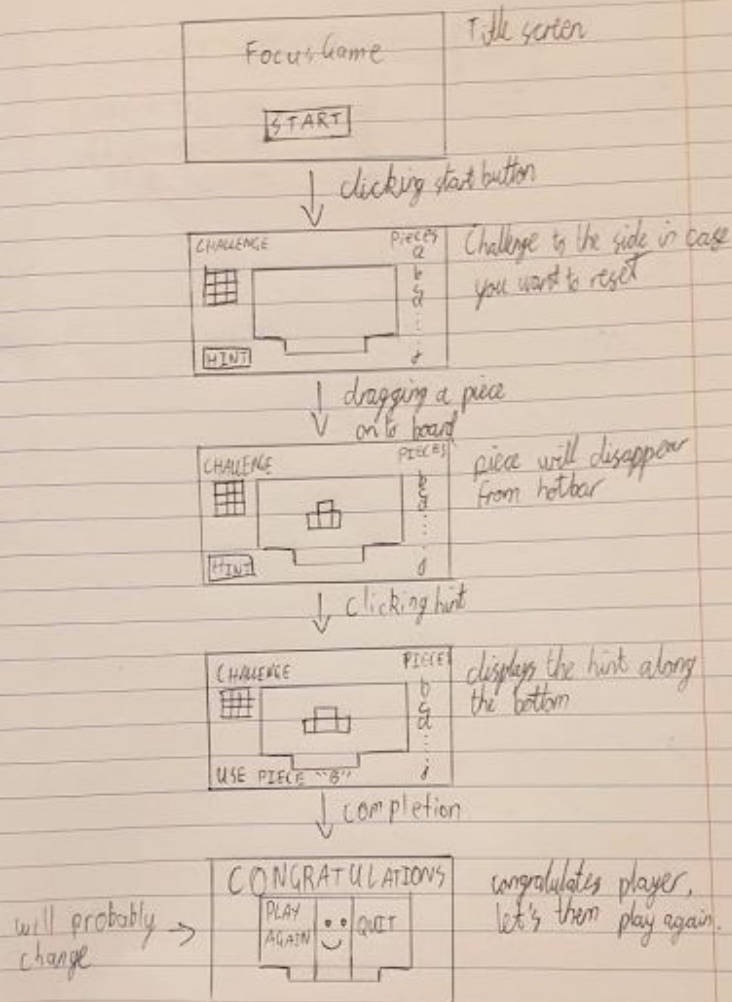




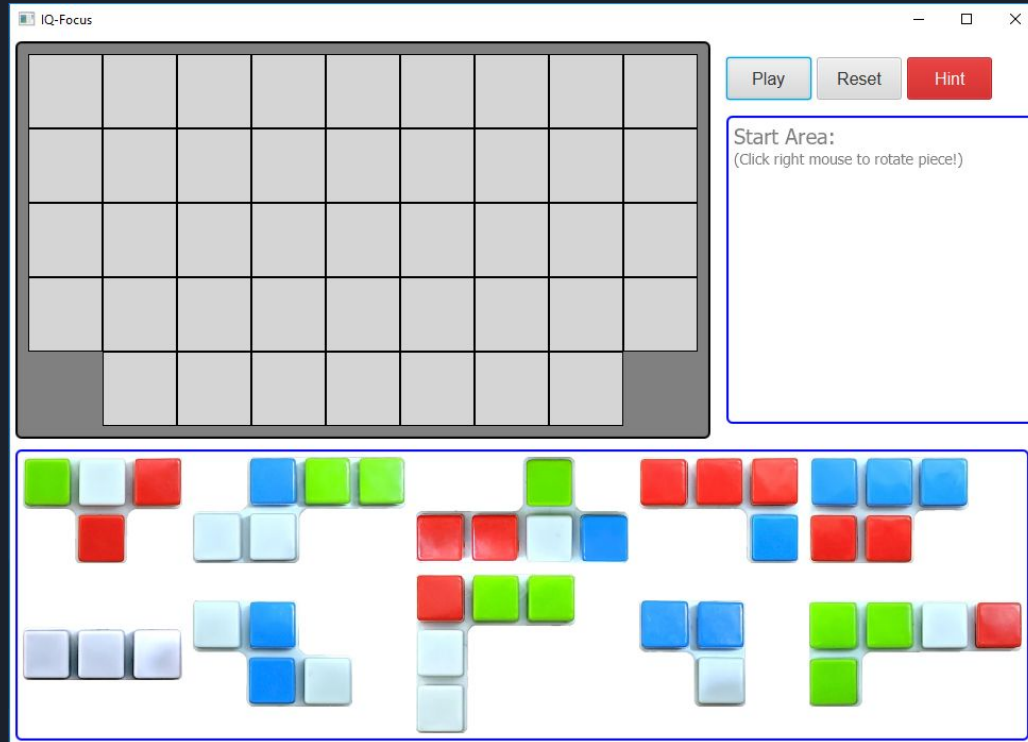
# IQ-Focus

**Structured Programming**  
**COMP 6710**  
**Tutorial - Tuesday 12**  
**Group - U**  
**Tutor - Yiyi Shao**

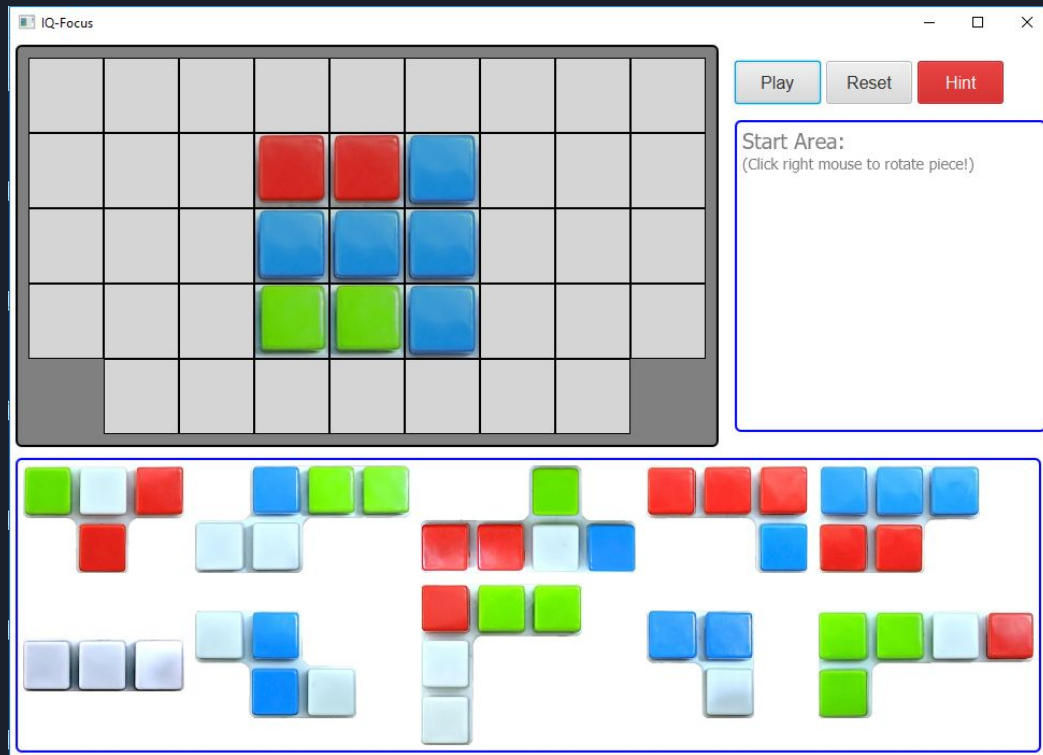
# Initial sketch of GUI



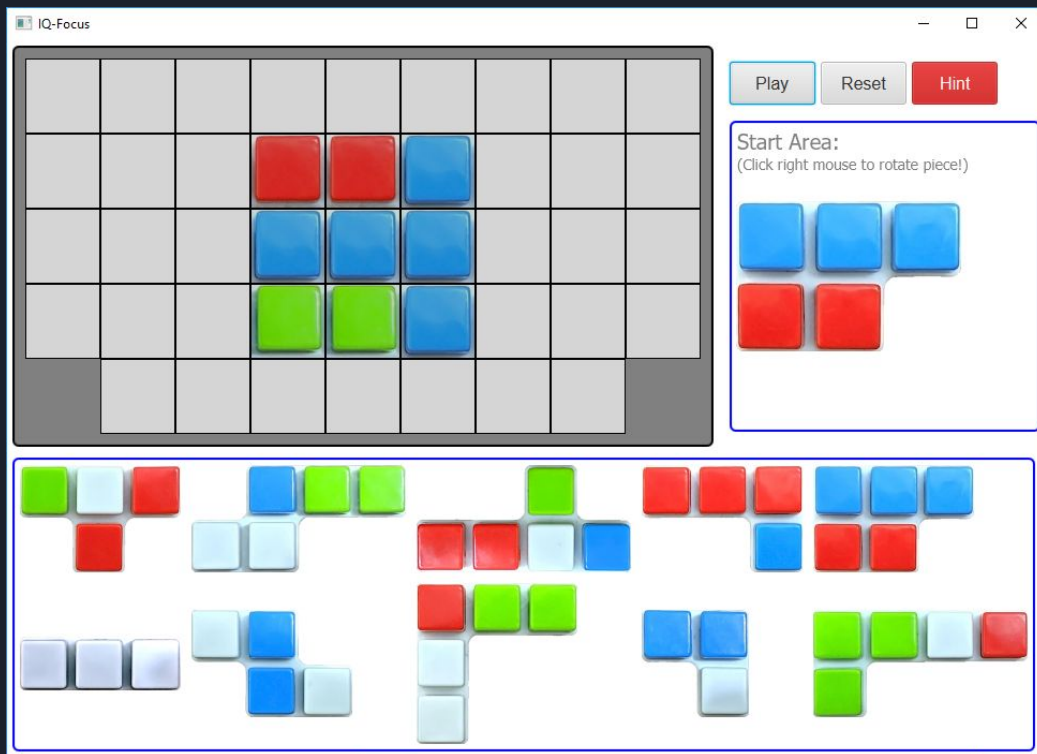
# Board Outline:



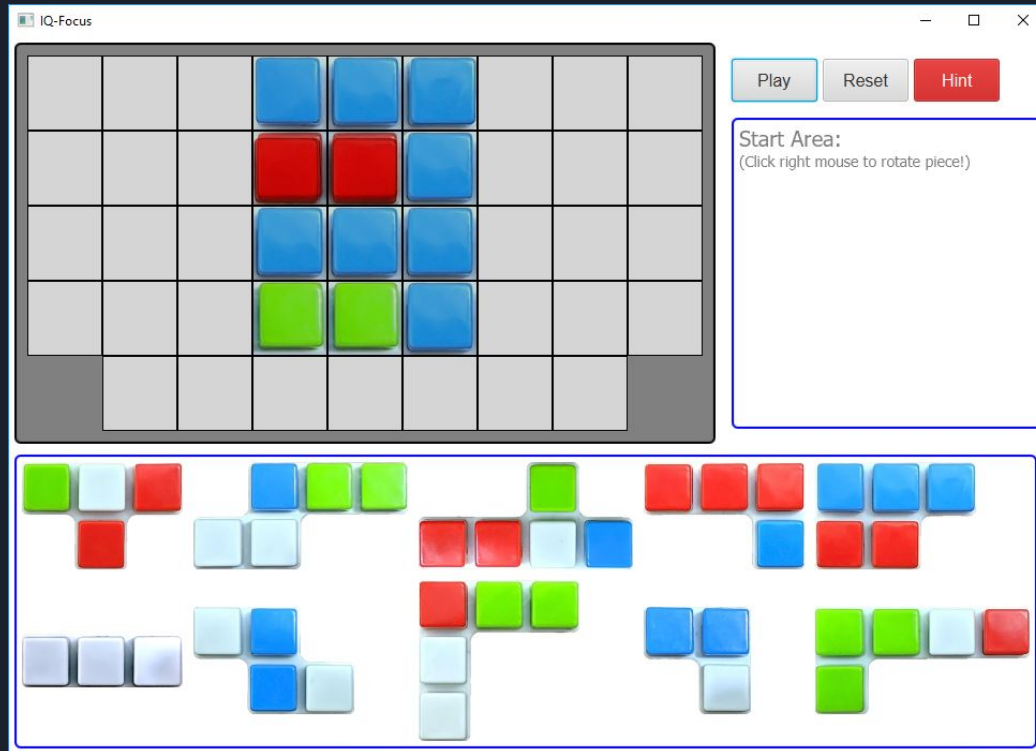
# Embedding the challenge:



# Displaying Selected Piece:



# Holding the hint button



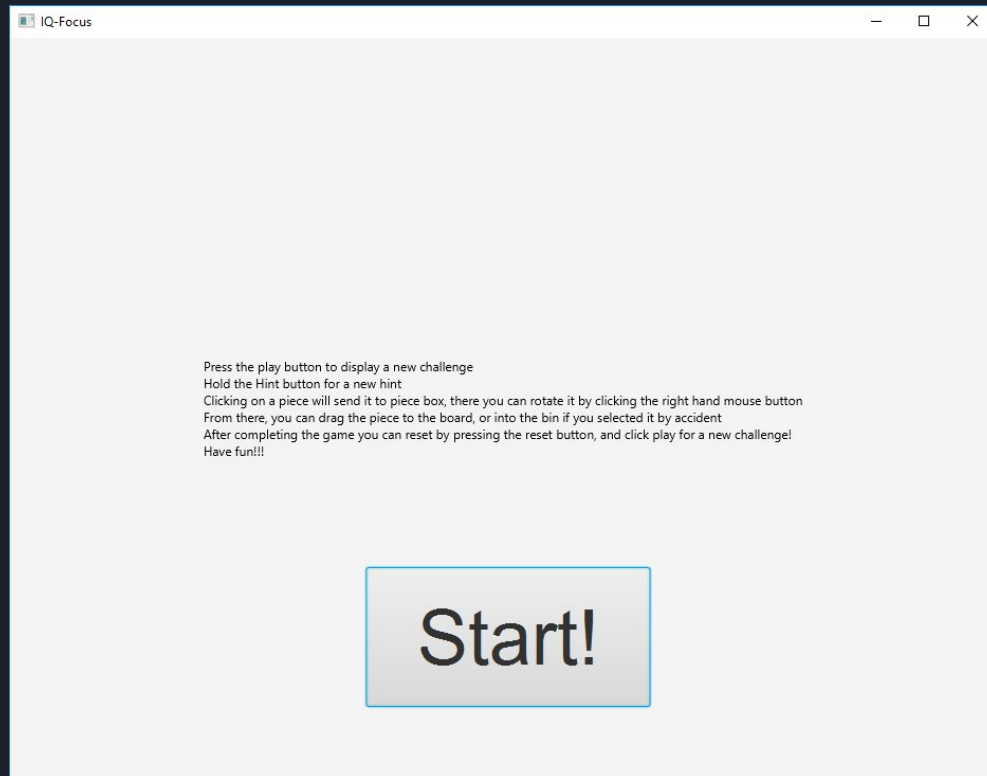


# GUI development:

Initial implementation	Final implementation
Challenge off to the side	Embedded challenge
Pieces to the left	Pieces along the bottom
End screen	No end screen
Hint displayed as text	Hint displayed by transparent piece on board
Instructions weren't accounted for	Instructions as the initial popup

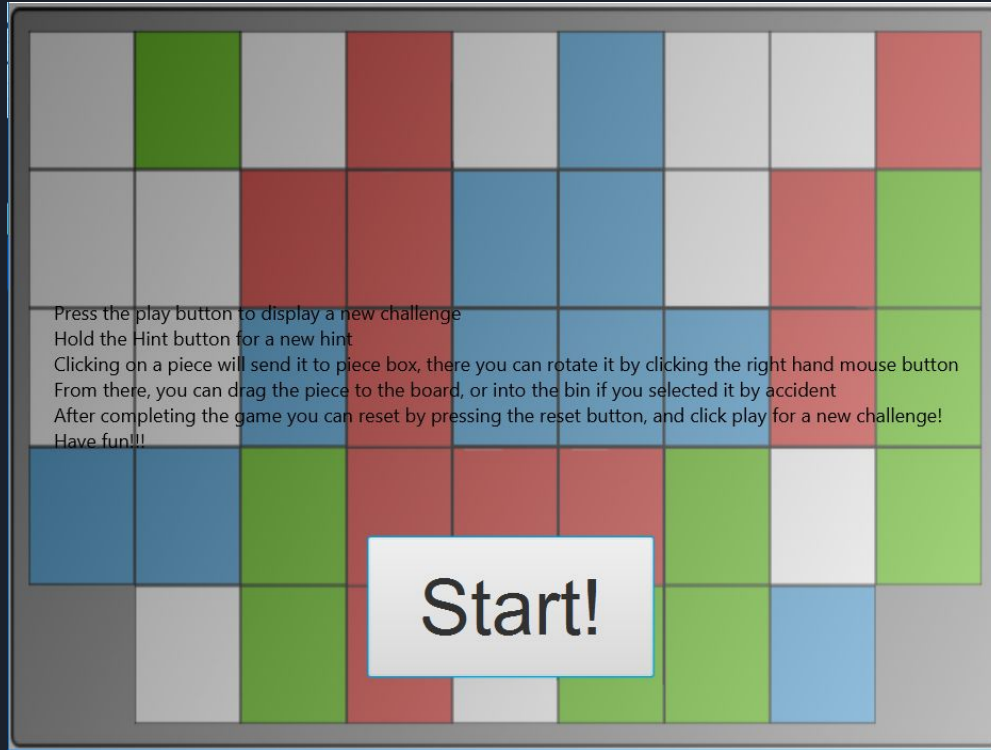


# Start Page:



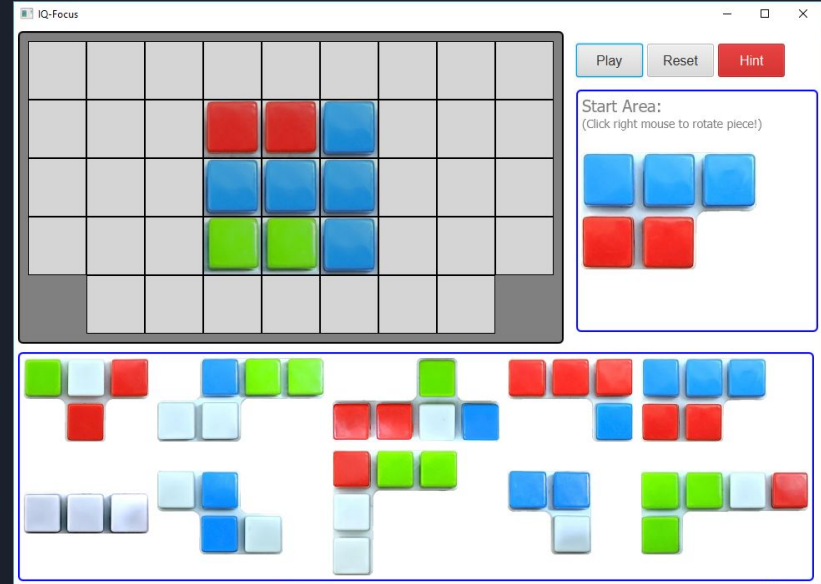


# Updated Start Page:



# Challenges creating an edge case

- ❖ There used to be a box underneath the piece box that showed the challenge
- ❖ Clicking the play button would add a challenge to that box, without erasing the previous challenge

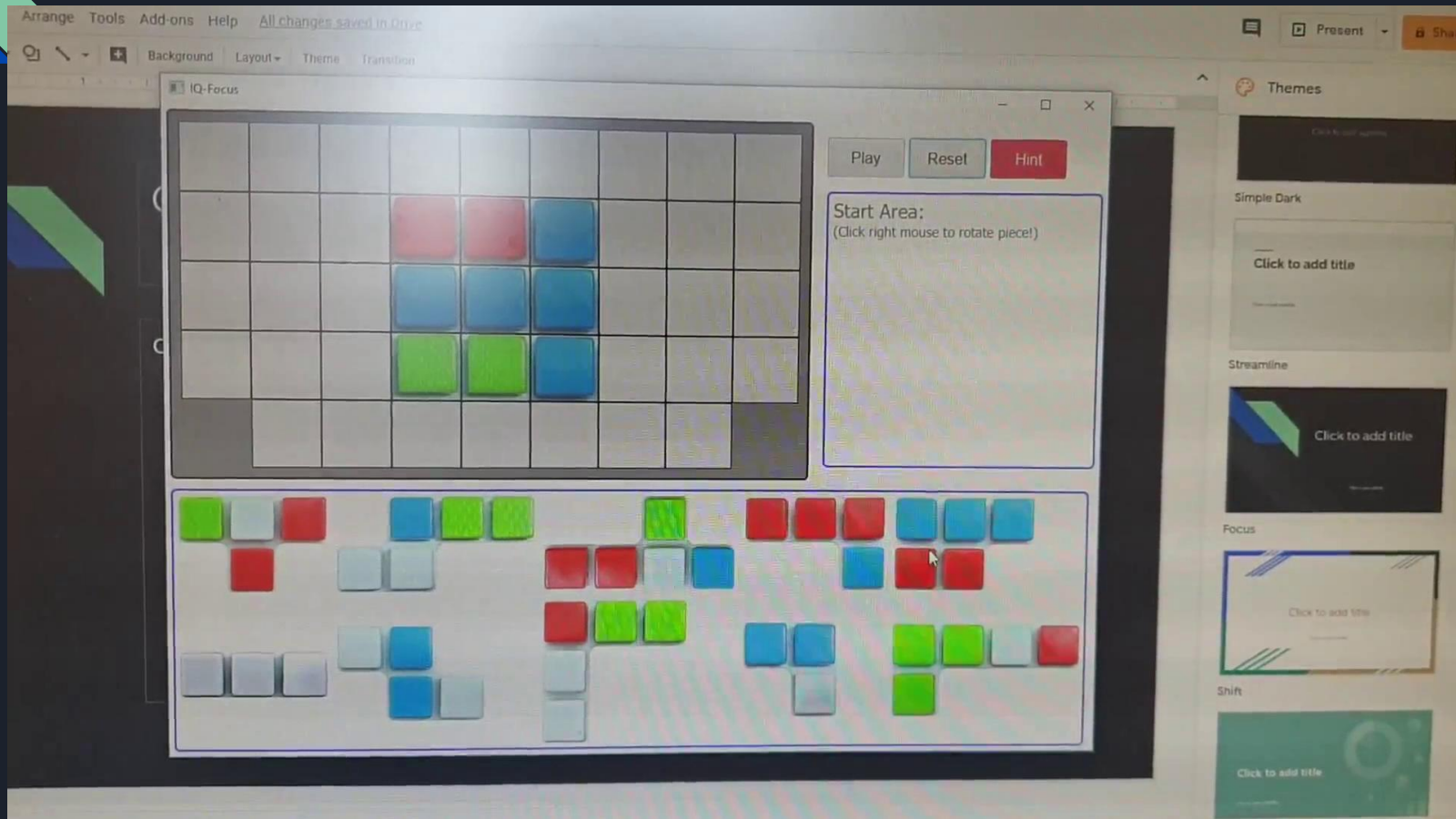




# Finding multiple solutions:

- ❖ Data Structure used : `List<Set<String>>`
- ❖ Purpose : Task 11
- ❖ An extension for Task 9.
- ❖ Reason :
  - Classifying the randomly generated challenges based on the number of solutions.

# A piece selection edge case



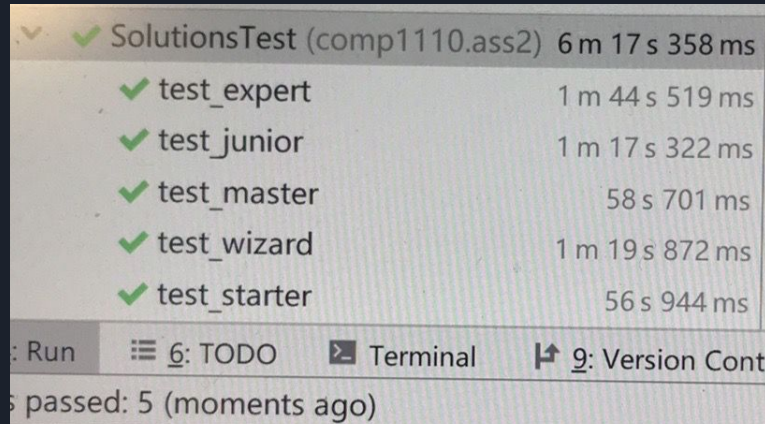
# An exercise in hardcoding

```
13 public static String[] challengesList = {
14     "RRRBWBRRB", "RWRRRRWW", "BGGWGGRW", "WRRWRGWW", "GWRGWGGG", "GRWGRWWW",
15     "RGGRGRRRB", "GGGRGRBBB", "RGGGRBGG", "BBBWRWGGG", "WBWWWWRWG", "BBGRWBRRB",
16     "WWRGWGGW", "WRRRRRWW", "WWWWRWBBB", "GBRRRRBBG", "BRRBWRBBB", "GGGWGGGB",
17     "GWRGGWGGG", "WWRGWRRWR", "WWRGGWGGW", "RBGWBBGWR", "BGWBWRBBB", "BGRWWWWW",
18     "WBWBWGGG", "WGBWGBWG", "BBBGGGWW", "GBBGWWGBB", "BWGGWGGWB", "WBWGGGBGW",
19     "GWGWBGGG", "BGGWGGWB", "GWWGWBGGG", "GBGWWBWG", "GWWBWWGBG", "BGBWWWBW",
20     "GGWGGGBG", "WBWWWGGG", "BBBGGGBB", "BBBWWBGB", "WGGBGGGBW", "GBGWWBGB",
21     "BWGWGWGB", "BGBBGGWB", "BGBWBGBB", "WGBBWBWB", "WBWGGGBGW", "BWBWGBWB",
22     "RRRRRRRR", "RRRRRWRW", "RWWWRRWR", "BWBWBWB", "BWBWBWB", "WWWBWBWB",
23     "BWBWBWB", "BBBWBWB", "BBBWBWB", "BBBWBWB", "WBWBWBWB", "BBBWBWB",
24     "WGGWGWGW", "GGGWGWGW", "GGWGGWGW", "WBWBWBWB", "BBBWBWB", "WBWBWBWB",
25     "WWRWRWR", "RRWRWR", "WWRWRWR", "WGGGGGGW", "WGGGGGGW", "GGGGGGGG",
26     "GGRBGRBB", "BGBGRGR", "WBWRWGW", "GGBRRGBRG", "GWWRWWWB", "BBRWBBGW",
27     "BGWBGW", "WBGWGGG", "BGBGBBGG", "GGRGRRRR", "GWGWGGG", "RRWGRGR",
28     "RRGGGRRG", "WBWRWGW", "RGGWGGRR", "GGGGGGRR", "GGRRRRRW", "RRWRRRRW",
29     "RRRBRRRB", "RRBWRWR", "WBWRWBWB", "WWWBRRRB", "RRWRWBWB", "RRRBRRRB",
30     "WWWWWW", "RRBBBGB", "GGGBBGRG", "GBRRRRRB", "GBRBBGGG", "GBWRBBRG",
31     "WBWGWWR", "BGRWBGG", "BGRBGRGG", "RRWRRRWB", "BBBRRWB", "BWRBWBWB",
32     "RRRBRRRB", "RWBWBWB", "BBBWRRB", "BBRRRRBB", "BBBWBWB", "BWRBWBWB",
33     "BBBWRRRR", "BBBWBWB", "RWBWBWB", "WBWRWBWB", "BWRBWBWB", "BBBRRRB",
34
35     };
```

Full list of 120 challenges provided by Solution.java

# Optimisation of tasks 6 & 9:

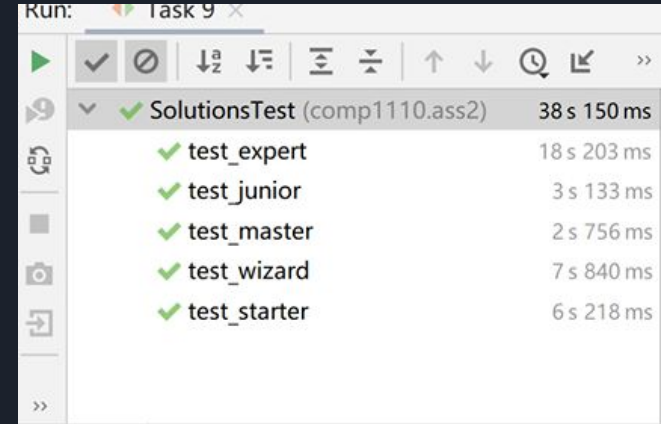
Putting a piece on the central area of the challenge majorly constrained the range of search



Run: 6: TODO Terminal 9: Version Cont

passed: 5 (moments ago)

SolutionsTest (comp1110.ass2) 6 m 17 s 358 ms	
✓ test_expert	1 m 44 s 519 ms
✓ test_junior	1 m 17 s 322 ms
✓ test_master	58 s 701 ms
✓ test_wizard	1 m 19 s 872 ms
✓ test_starter	56 s 944 ms

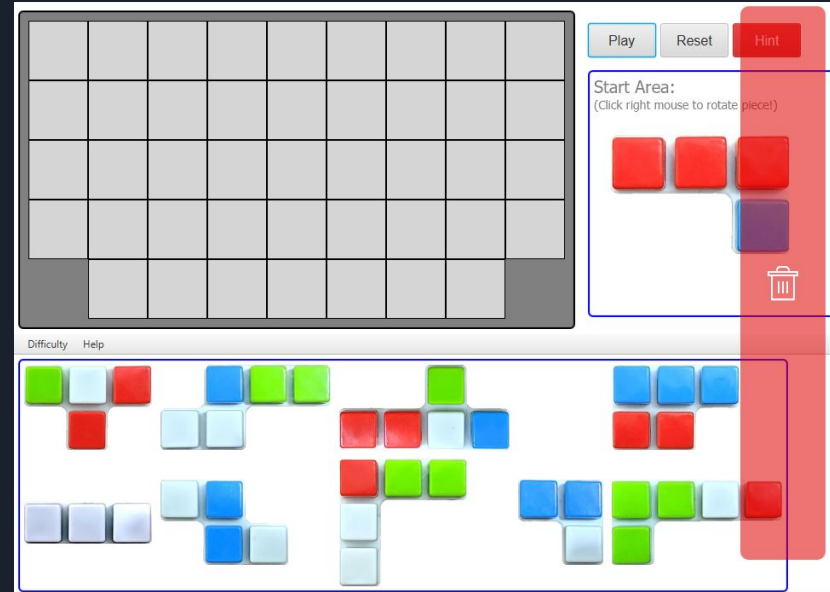
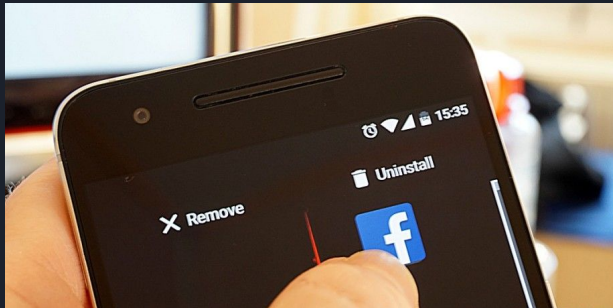


Run: Task 9

SolutionsTest (comp1110.ass2) 38 s 150 ms	
✓ test_expert	18 s 203 ms
✓ test_junior	3 s 133 ms
✓ test_master	2 s 756 ms
✓ test_wizard	7 s 840 ms
✓ test_starter	6 s 218 ms

# The removal function

- ❖ Idea of remove function: drag it to trash can!
  - Like the method in mobile phone OS



# The hint button and it's overlay features

Modify any incorrectly placed pieces and/or display the next correct step

