

The explanation about how to run this game and the unit tests in details.

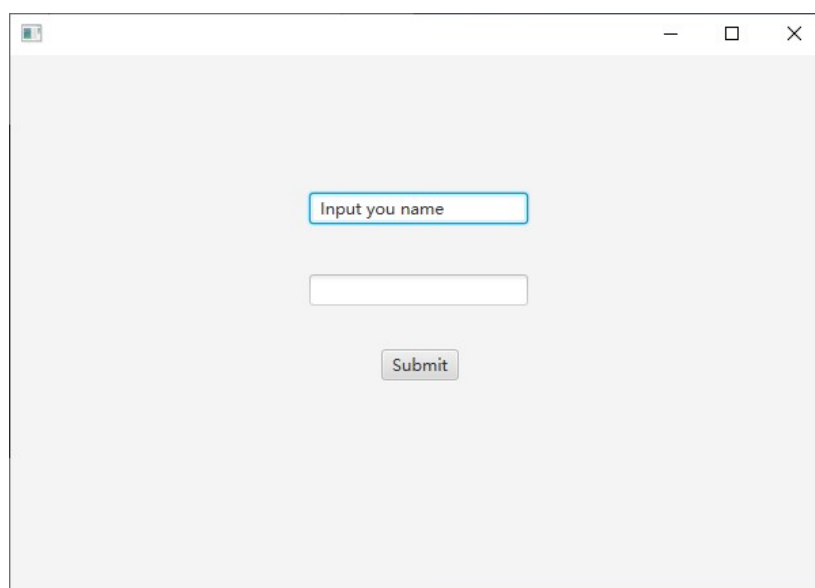
-----Warning: the paths of pictures should always be absolute path, and there should not be “%” symbol in the path. -----

```
APP.java x scoreboard.fxml x ProjectTest.java x InitNumericalMap.java x Controller.java x layout.fxml x Login.java x
129 circleToTal.setText(String.valueOf(dynamicShapeCount[0]));
130 hexagonToTal.setText(String.valueOf(dynamicShapeCount[1]));
131 pentagonToTal.setText(String.valueOf(dynamicShapeCount[2]));
132 rectangleToTal.setText(String.valueOf(dynamicShapeCount[3]));
133 triangleToTal.setText(String.valueOf(dynamicShapeCount[4]));
134 }
135
136 /**
137  * set placed {@code shape} picture in {@code index} imageview position
138  * @param index the position of imageview to display picture
139  * @param shape the shape to display
140  */
141 @private void setPlacedShapePicture(Integer index, Integer shape){
142     Image circleSelected=new Image( s: "file:/F:/SimonPullze/picture/circleSelected.png")
143     ,hexagonSelected=new Image( s: "file:/F:/SimonPullze/picture/hexagonSelected.png")
144     ,pentagonSelected=new Image( s: "file:/F:/SimonPullze/picture/pentagonSelected.png")
145     ,rectangleSelected=new Image( s: "file:/F:/SimonPullze/picture/rectangleSelected.png")
146     ,triangleSelected=new Image( s: "file:/F:/SimonPullze/picture/triangleSelected.png");
147     switch (shape){
148         case 0:
149             imageViewList.get(index).setImage(circleSelected);
```

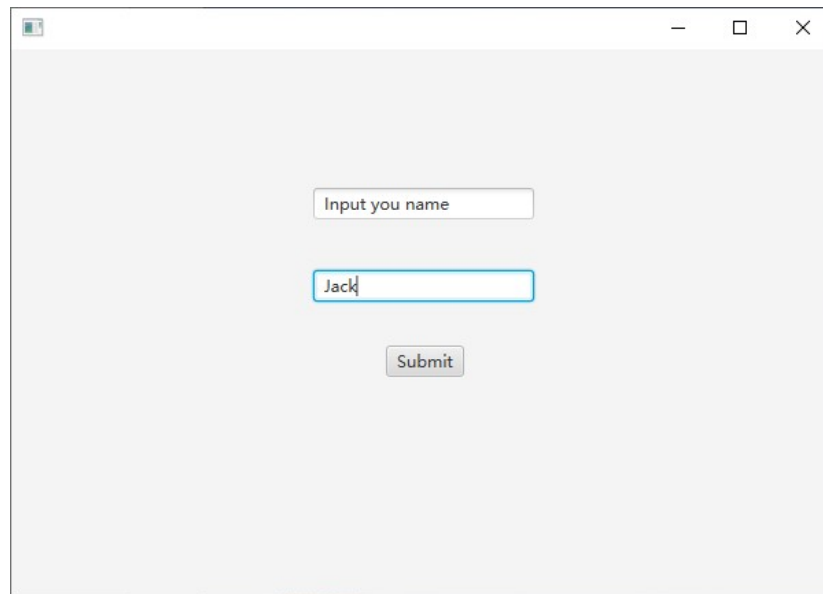
1.run this game through main method.

```
44
45
46 public static void main(String[] args) {
47     Application.launch(APP.class);
48 }
49
50 }
```

This is entrance of the program, you are able to enter game by clicking the start.



The first GUI allows you to input your name before the game starts, and you are able to submit your name by clicking the button.

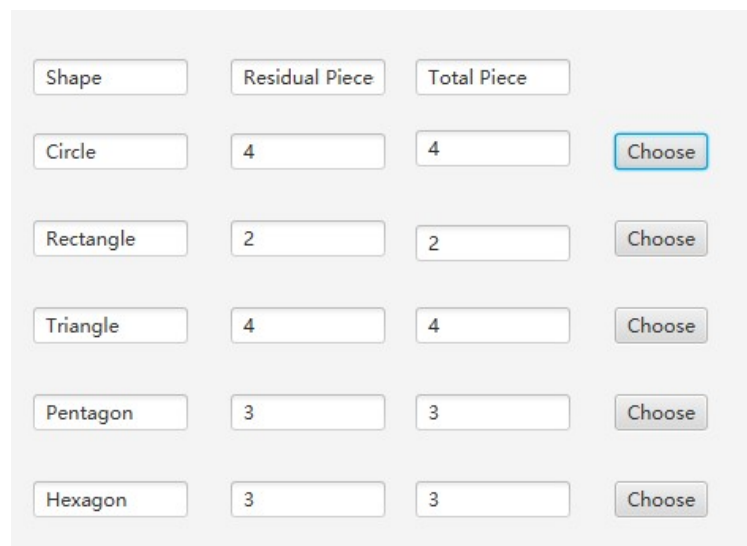


A screenshot of a simple GUI window. It has a title bar with a small icon and standard window controls (minimize, maximize, close). The main area is light gray. In the center, there is a text input field with the placeholder text "Input you name". Below it, the name "Jack" has been entered. At the bottom center, there is a "Submit" button.

2.The introduction about parameters of Residual piece and Total piece.

The name you have submitted will be showed on the top-left corner of the GUI.

hello:Jack



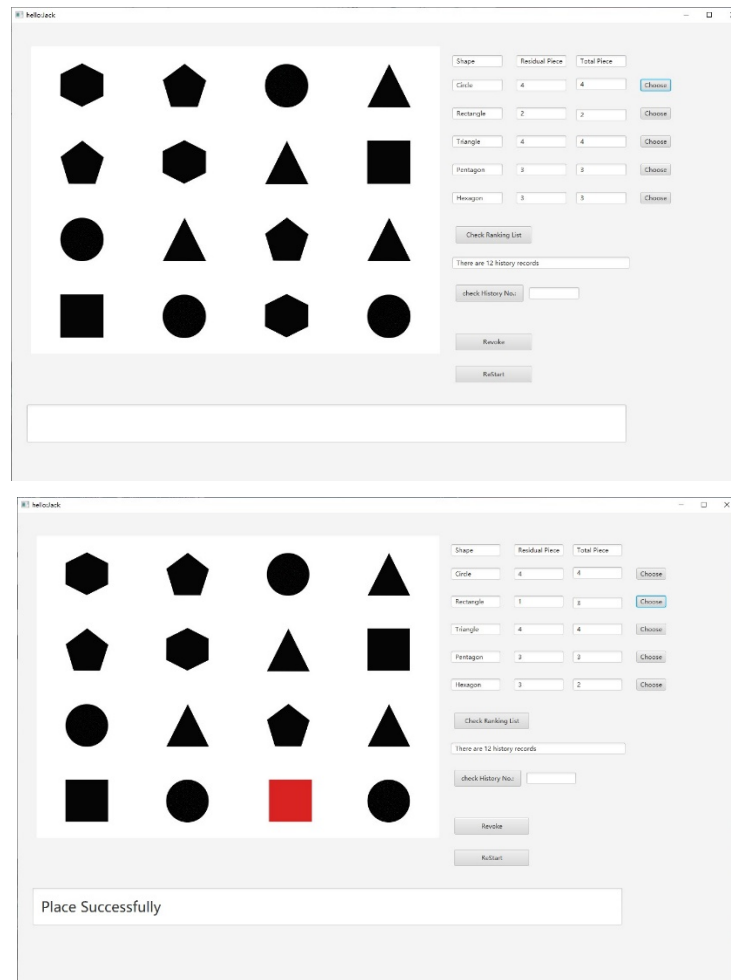
A screenshot of a GUI window showing a table of puzzle pieces. The table has three columns: "Shape", "Residual Piece", and "Total Piece". There are six rows of data. The first row is highlighted. To the right of the table, there are "Choose" buttons for each row.

Shape	Residual Piece	Total Piece
Circle	4	4
Rectangle	2	2
Triangle	4	4
Pentagon	3	3
Hexagon	3	3

The Residual Piece indicates how many pieces of puzzles you have left to fill in, and all the residual pieces are 0, which means victory.

Total Piece represents the total number of filled puzzles and unfilled puzzle shapes in the picture, and this data must be kept at 23344 all the time.

3.The instance illustration about game rules.



For example, here we cover a hexagon with a square, then the remaining square puzzle is reduced from 2 to 1, the number of squares in the figure is changed from 2 to 3(2 black and 1 red), and the number of hexagons in the figure is changed from 3 to 2, while the number of remaining hexagonal puzzles remains unchanged, and the total piece remains at 23344, and then Place Successfully will be displayed below after successful placement.

4.Some special conditions

If the same shape in the picture is covered with the same puzzle, it will show below "You cannot place here, because they are the same shape".

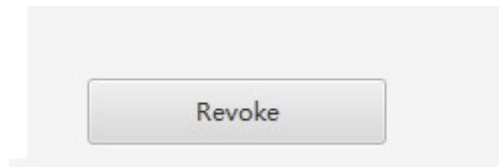
If the periphery has the same shape, it will shows that "Against With Same Shape Not Adjacent Rule!".

If the total piece can't keep 23344 after overwriting, it will shows that "Against With 23344 Rule!".

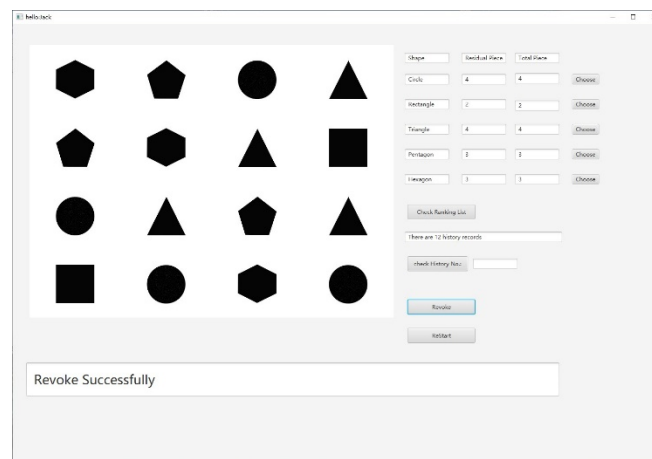
Pay attention to click the Choose button on the right to select a puzzle to cover the shapes

in the figure, otherwise it will shows that “You have not selected the shape to place”.

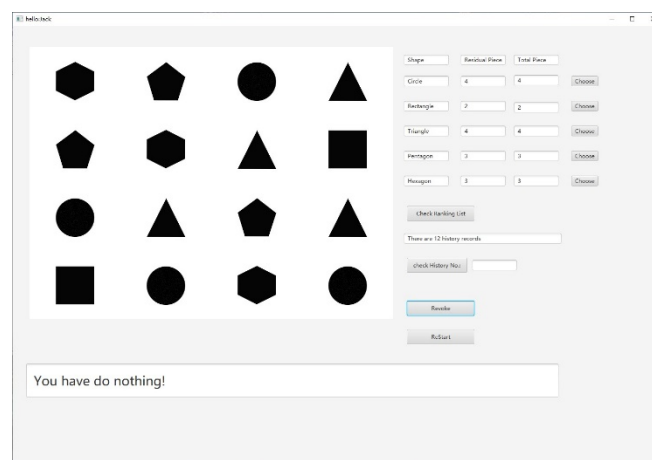
5.The revoke function



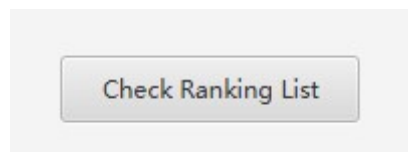
The Revoke button has backtracking function. Click once to backtrack one step. If backtracking succeeds, the following will show Revoke Successfully. After backtracking to the initial state, the following will show that “you have done nothing!”. For example, just covered the hexagon with a square, and now clicking backtracking will change to the original state, and the figure and the residual piece, total piece on the right will change back.



It will show that “You have done nothing!”, if you keep clicking the button more than one time.



5.The function of checking previous ranking list



Clicking the Check Ranking List button, you can check the ranking list.

A window titled "Score Board" with a light gray background. It contains a table with three columns: "Ranking", "Name", and "Score". The table has 10 rows. The second row is highlighted with a blue border. The text "6554" is entered in the "Name" field of the second row.

Ranking	Name	Score
1.	Bob	1830
2.	6554	1750
3.	Mary	1720
4.	Jack	1600
5.	Jack	1600
6.	Joe	1420
7.	Jim	1200
8.	5412	1194
9.	1111	1116
10.		

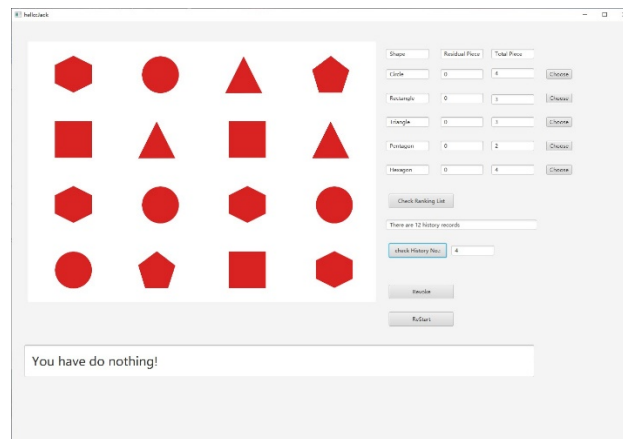
A section with a light gray background. It contains a text box with the text "There are 12 history records". Below it is a button labeled "check History No.:" and an input field containing the number "4".

There are 12 history records

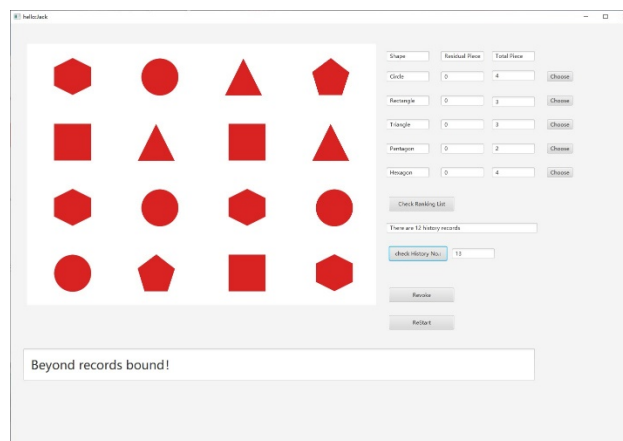
check History No.: 4

Input a number before you click the button "check History No.", and you will see the specific

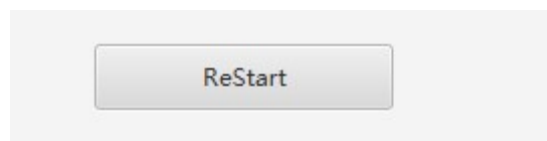
history record.



At this time, the parameters of residual piece, total piece on the right will also be reloaded.



If the history to be loaded exceeds the maximum number of records indicated above, it will shows that "Beyond records bound!".



Clicking this button, you can restart the game immediately.

As for the unit tests, I added the comments about all unit tests in the code to help understand purposes of each them.