

03 - Connect4 4X4 kb Interface



Form attribute

```
public int[][] board = {{10, 10, 10, 10}, {10, 10, 10, 10}, {10, 10, 10, 10}, {10, 10, 10, 10}};
Boolean[] subBoard = {true, false, false, false};
```

```
void renderSubBoard() {
```

```
    _0.setBackground(Color.WHITE);
    _1.setBackground(Color.WHITE);
    _2.setBackground(Color.WHITE);
    _3.setBackground(Color.WHITE);
    if (subBoard[0]) {
        _0.setBackground(Player.getBackground());
    } else if (subBoard[1]) {
        _1.setBackground(Player.getBackground());
    } else if (subBoard[2]) {
```

```
_2.setBackground(Player.getBackground());  
} else if (subBoard[3]) {  
    _3.setBackground(Player.getBackground());  
}  
}
```

```
public void switchPlayer() {  
    if (Player.getBackground().getRGB() == Color.GREEN.getRGB()) {  
        Player.setBackground(Color.red);  
    } else if (Player.getBackground().getRGB() ==  
        Color.RED.getRGB()) {  
        Player.setBackground(Color.GREEN);  
    }  
}
```

```
public int findWinner() {  
    int r, c, sum;  
    // checking rows  
    for (r = 0; r < 4; r++) {  
        sum = 0;  
        for (c = 0; c < 4; c++) {  
            sum = sum + board[r][c];  
        }  
        if (sum == 0) {  
            return 1;  
        } else if (sum == 4) {  
            return 2;  
        }  
    }  
    // check columns  
    for (c = 0; c < 4; c++) {  
        sum = 0;
```

```
        for (r = 0; r < 4; r++) {
            sum = sum + board[r][c];
        }
        if (sum == 0) {
            return 1;
        } else if (sum == 4) {
            return 2;
        }
    }
}
// diagonal 1
sum = 0;
for (r = 0; r < 4; r++) {
    sum = sum + board[r][r];
}
if (sum == 0) {
    return 1;
} else if (sum == 4) {
    return 2;
}
// diagonal 2
sum = 0;
c = 3;
for (r = 0; r < 4; r++) {
    sum = sum + board[r][c];
    c--;
}
if (sum == 0) {
    return 1;
} else if (sum == 4) {
    return 2;
}
return 0;
}
```

```
public void checkWinner() {  
    int w = findWinner();  
    if (w == 1) {  
        JOptionPane.showMessageDialog(this, "Plater 1 (Red)  
wins.");  
        finishGame();  
        updateScore(w);  
    } else if (w == 2) {  
        JOptionPane.showMessageDialog(this, "Plater 2 (Green)  
wins.");  
        finishGame();  
        updateScore(w);  
    }  
}
```

```
public void updateScore(int w) {  
    if (w == 1) {  
        int score = Integer.parseInt(Player1.getText());  
        score++;  
        Player1.setText(Integer.toString(score));  
    } else if (w == 2) {  
        int score = Integer.parseInt(Player2.getText());  
        score++;  
        Player2.setText(Integer.toString(score));  
    }  
}
```

```
public void finishGame() {  
    if (_00.getBackground().getRGB() == Color.WHITE.getRGB()) {  
        _00.setBackground(Color.BLACK);  
    }  
}
```



```
        if (_01.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _01.setBackground(Color.BLACK);  
        }  
        if (_02.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _02.setBackground(Color.BLACK);  
        }  
        if (_03.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _03.setBackground(Color.BLACK);  
        }  
        if (_10.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _10.setBackground(Color.BLACK);  
        }  
        if (_11.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _11.setBackground(Color.BLACK);  
        }  
        if (_12.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _12.setBackground(Color.BLACK);  
        }  
        if (_13.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _13.setBackground(Color.BLACK);  
        }  
        if (_20.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _20.setBackground(Color.BLACK);  
        }  
        if (_21.getBackground().getRGB() ==
```

```
Color.WHITE.getRGB()) {
    _21.setBackground(Color.BLACK);
}
if (_22.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _22.setBackground(Color.BLACK);
}
if (_23.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _23.setBackground(Color.BLACK);
}
if (_30.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _30.setBackground(Color.BLACK);
}
if (_31.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _31.setBackground(Color.BLACK);
}
if (_32.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _32.setBackground(Color.BLACK);
}
if (_33.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _33.setBackground(Color.BLACK);
}
for (int r = 0; r < 4; r++) {
    for (int c = 0; c < 4; c++) {
        board[r][c] = 10;
    }
}
}
```

	private void _00MouseClicked(java.awt.event.MouseEvent evt) {
	if (board[3][0] == 10) {
	play30();
	} else if (board[2][0] == 10) {
	play20();
	} else if (board[1][0] == 10) {
	play10();
	} else {
	play00();
	}

	public void play00() {
	if (_00.getBackground().getRGB() ==
	Color.WHITE.getRGB()) {
	_00.setBackground(Player.getBackground());
	if (_00.getBackground().getRGB() == Color.RED.getRGB())
	{
	board[0][0] = 0;
	} else if (_00.getBackground().getRGB() ==
	Color.GREEN.getRGB()) {
	board[0][0] = 1;
	}
	checkWinner();
	switchPlayer();
	}
	}

	private void _01MouseClicked(java.awt.event.MouseEvent evt) {

```
public void play01() {
```

```
private void _02MouseClicked(java.awt.event.MouseEvent evt)
```

```
public void play02() {
```

```
private void _03MouseClicked(java.awt.event.MouseEvent  
evt) {
```

```
public void play03() {
```

```
private void _10MouseClicked(java.awt.event.MouseEvent  
evt) {  
    if (board[3][0] == 10) {  
        play30();  
    } else if (board[2][0] == 10) {  
        play20();  
    } else {  
        play10();  
    }  
}
```

```
public void play10() {
```

```
if (_10.getBackground().getRGB() == Color.WHITE.getRGB()) {
```

```

        _10.setBackground(Player.getBackground());
        if (_10.getBackground().getRGB() == Color.RED.getRGB())
        {
            board[1][0] = 0;
        } else if (_10.getBackground().getRGB() ==
Color.GREEN.getRGB()) {
            board[1][0] = 1;
        }
        checkWinner();
        switchPlayer();
    }
}

```

```

private void _11MouseClicked(java.awt.event.MouseEvent
evt) {

```

```

public void play11() {

```

```

private void _12MouseClicked(java.awt.event.MouseEvent
evt) {

```

```

public void play12() {

```

```

private void _13MouseClicked(java.awt.event.MouseEvent
evt) {

```

```
public void play13() {
```

```
public void play20() {  
    if (_20.getBackground().getRGB() == Color.WHITE.getRGB()) {  
        _20.setBackground(Player.getBackground());  
        if (_20.getBackground().getRGB() == Color.RED.getRGB())  
        {  
            board[2][0] = 0;  
        } else if (_20.getBackground().getRGB() ==  
Color.GREEN.getRGB()) {  
            board[2][0] = 1;  
        }  
        checkWinner();  
        switchPlayer();  
    }  
}
```

```
private void _20MouseClicked(java.awt.event.MouseEvent  
evt) {  
    if (board[3][0] == 10) {  
        play30();  
    } else {  
        play20();  
    }  
}
```

```
private void _21MouseClicked(java.awt.event.MouseEvent  
evt) {
```

```
public void play21() {
```

--	--

	<pre>private void _22MouseClicked(java.awt.event.MouseEvent evt) {</pre>

	<pre>public void play22() {</pre>

	<pre>private void _23MouseClicked(java.awt.event.MouseEvent evt) {</pre>

	<pre>public void play23() {</pre>

	<pre>private void _30MouseClicked(java.awt.event.MouseEvent evt) {</pre>

	<pre>public void play30() {</pre>
	<pre>if (_30.getBackground().getRGB() == Color.WHITE.getRGB()) { _30.setBackground(Player.getBackground()); if (_30.getBackground().getRGB() == Color.RED.getRGB()) { board[3][0] = 0; } else if (_30.getBackground().getRGB() == Color.GREEN.getRGB()) { board[3][0] = 1; } }</pre>

```
        checkWinner();  
        switchPlayer();  
    }  
}
```

```
private void _31MouseClicked(java.awt.event.MouseEvent  
evt) {  
    play30();
```

```
public void play31() {
```

```
private void _32MouseClicked(java.awt.event.MouseEvent  
evt) {
```

```
public void play32() {
```

```
private void _33MouseClicked(java.awt.event.MouseEvent  
evt) {
```

```
public void play33() {
```

```
Clear
```

```
finishGame();  
_00.setBackground(Color.WHITE);  
_01.setBackground(Color.WHITE);
```



```
_02.setBackground(Color.WHITE);
_03.setBackground(Color.WHITE);
_10.setBackground(Color.WHITE);
_11.setBackground(Color.WHITE);
_12.setBackground(Color.WHITE);
_13.setBackground(Color.WHITE);
_20.setBackground(Color.WHITE);
_21.setBackground(Color.WHITE);
_22.setBackground(Color.WHITE);
_23.setBackground(Color.WHITE);
_30.setBackground(Color.WHITE);
_31.setBackground(Color.WHITE);
_32.setBackground(Color.WHITE);
_33.setBackground(Color.WHITE);
Player.setBackground(Color.RED);
```

formKeyPressed

```
switch (evt.getKeyCode()) {
    case KeyEvent.VK_LEFT:
        if (subBoard[0]) {
            subBoard[0] = false;
            subBoard[3] = true;
        } else if (subBoard[1]) {
            subBoard[1] = false;
            subBoard[0] = true;
        } else if (subBoard[2]) {
            subBoard[2] = false;
            subBoard[1] = true;
        } else if (subBoard[3]) {
            subBoard[2] = false;
            subBoard[2] = true;
        }
}
```

```
        break;
    case KeyEvent.VK_RIGHT:
        if (subBoard[0]) {
            subBoard[0] = false;
            subBoard[1] = true;
        } else if (subBoard[1]) {
            subBoard[1] = false;
            subBoard[2] = true;
        } else if (subBoard[2]) {
            subBoard[2] = false;
            subBoard[3] = true;
        } else if (subBoard[3]) {
            subBoard[2] = false;
            subBoard[0] = true;
        }

        break;
    case KeyEvent.VK_UP:

        break;
    case KeyEvent.VK_DOWN:
        if (subBoard[0]) {
            _00MouseClicked(null);
        } else if (subBoard[1]) {
            _01MouseClicked(null);
        } else if (subBoard[2]) {
            _02MouseClicked(null);
        } else if (subBoard[3]) {
            _03MouseClicked(null);
        }
        break;
    }
    renderSubBoard();
```




جامعة الأهرام الكندية
AHRAM CANADIAN UNIVERSITY