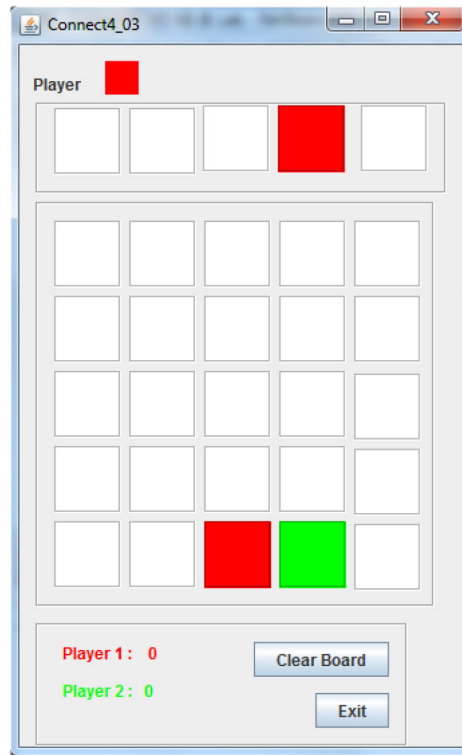


## 04 - Connect4 5X5 kb Interface



### Form attributes

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

### renderSubBoard()

```
void renderSubBoard() {
    _0.setBackground(Color.WHITE);
    _1.setBackground(Color.WHITE);
    _2.setBackground(Color.WHITE);
    _3.setBackground(Color.WHITE);
    _4.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());  
} else if (subBoard[4]) {  
    _4.setBackground(Player.getBackground());  
}  
}
```

switchPlayer()

```
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);  
    }  
}
```

findWinner()

```
public int findWinner() {  
    int r, c, sum;  
    // checking columns  
    for(c=0;c<5;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;
    sum=0;
    for(r=1;r<5;r++)
    {
        sum=sum+board[r][c];
    }
    if(sum==0) return 1;
    else if(sum==4) return 2;
}
// check rows
for(r=0;r<5;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;
    sum=0;
    for(c=1;c<5;c++)
    {
        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;  
}  
  
sum = 0;  
for (r = 1; r < 5; 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 = 1; r < 5; r++) {  
    sum = sum + board[r][c];  
    c--;  
}  
if (sum == 0) {  
    return 1;  
} else if (sum == 4) {  
    return 2;  
}  
  
sum = 0;  
c = 4;  
for (r = 0; r < 4 ; r++) {
```



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

    // diagonal 4
    sum = 0;
    c = 4;
    for (r = 1; r < 5; r++) {
        sum = sum + board[r][c];
        c--;
    }
    if (sum == 0) {
        return 1;
    } else if (sum == 4) {
        return 2;
    }
}
```

```
return 0;
}
```

checkWinner()

```
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);
    }
}
```

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));
}
}
```

finishGame()

```
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 (_04.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
        _04.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 (_14.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _14.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 (_24.getBackground().getRGB() ==  
Color.WHITE.getRGB()) {  
            _24.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);
}
if (_34.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _34.setBackground(Color.BLACK);
}
if (_40.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _40.setBackground(Color.BLACK);
}
if (_41.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _41.setBackground(Color.BLACK);
}
if (_42.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _42.setBackground(Color.BLACK);
}
if (_43.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
    _43.setBackground(Color.BLACK);
}
if (_44.getBackground().getRGB() ==
Color.WHITE.getRGB()) {
```

```
_44.setBackground(Color.BLACK);  
}  
}
```

```
_00MouseClicked()  
if(board[4][0]==10)  
    play40();  
else if(board[3][0]==10)  
    play30();  
else if(board[2][0]==10)  
    play20();  
else if(board[1][0]==10)  
    play10();  
else  
    play00();
```

```
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();  
    }  
}
```

\_01MouseClicked()

```
private void _01MouseClicked(java.awt.event.MouseEvent evt)
{
    if(board[4][1]==10)
        play41();
    else if(board[3][1]==10)
        play31();
    else if(board[2][1]==10)
        play21();
    else if(board[1][1]==10)
        play11();
    else
        play01();
}
```

\_10MouseClicked

```
private void _10MouseClicked(java.awt.event.MouseEvent evt)
{
    if(board[4][0]==10)
        play40();
    else if(board[3][0]==10)
        play30();
    else if(board[2][0]==10)
        play20();
    else
        play10();
}
```

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();
}
}
```

\_20MouseClicked

```
private void _20MouseClicked(java.awt.event.MouseEvent evt)
{
    if(board[4][0]==10)
        play40();
    else if(board[3][0]==10)
        play30();
    else
        play20();
}
```

play20()

```
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();
}
}
```

\_30MouseClicked

```
private void _30MouseClicked(java.awt.event.MouseEvent evt)
{
    if(board[4][0]==10)
        play40();
    else if(board[3][0]==10)
        play30();
}
```

play30()

```
public void play30() {
    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;
        }
        checkWinner();
    }
}
```

|  |                                    |
|--|------------------------------------|
|  | <pre>switchPlayer();     } }</pre> |
|--|------------------------------------|

|  |                                                                                                            |
|--|------------------------------------------------------------------------------------------------------------|
|  | <pre>_40MouseClicked() private void _40MouseClicked(java.awt.event.MouseEvent evt) {     play40(); }</pre> |
|--|------------------------------------------------------------------------------------------------------------|

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <pre>play40() void play40() {     if (_40.getBackground().getRGB() == Color.WHITE.getRGB()) {         _40.setBackground(Player.getBackground());         if (_40.getBackground().getRGB() == Color.RED.getRGB())         {             board[4][0] = 0;         } else if (_40.getBackground().getRGB() == Color.GREEN.getRGB()) {             board[4][0] = 1;         }         checkWinner();         switchPlayer();     } }</pre> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|  |                                                                                                                      |
|--|----------------------------------------------------------------------------------------------------------------------|
|  | <pre>formKeyPressed private void formKeyPressed(java.awt.event.KeyEvent evt) {     switch (evt.getKeyCode()) {</pre> |
|--|----------------------------------------------------------------------------------------------------------------------|

```
case KeyEvent.VK_LEFT:
    if (subBoard[0]) {
        subBoard[0] = false;
        subBoard[4] = 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[3] = false;
        subBoard[2] = true;
    } else if (subBoard[4]) {
        subBoard[4] = false;
        subBoard[3] = 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[3] = false;
        subBoard[4] = true;
    } else if (subBoard[4]) {
        subBoard[4] = 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);
    } else if (subBoard[4]) {
        _04MouseClicked(null);
    }
    break;
}
renderSubBoard();
```