public class ConnectFourObjects

{

String p1name;

String p1colstring;

int p1col;

String p2name;

String p2colstring;

int p2col;

}

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\* Period A

\*

\* \*\*\*\*\*Program Description\*\*\*\*\*

\* This is a Tic Tac Toe program, where 2 players input their names then play the game

\*

\* \*\*\*\*\*Variable Dictionary\*\*\*\*\*

\* int count - tracks what block is being saved to in the array

\* int count2 - tracks how many turns hav taken place

\* int col - determines what column is being written to

\* String gb [] [] - the array that is the gameboard

\* ConnectFourObjects list [] - calls the objects

\* ConnectFourObjects names - for saving the names of the players

\* int row - determines what row is being written to

\*/

import javax.swing.JOptionPane;

public class ConnectFour

{

public static void main (String args [])

{

String gb [] [] = new String [7] [8];

ConnectFourObjects list [] = new ConnectFourObjects [10];

ConnectFourObjects names = new ConnectFourObjects ();

for (int row = 1; row <= 6; row++)

for (int col = 1; col <= 7; col++)

gb [row] [col] = " ";

menu (names);

game (gb, list, names);

}

public static void menu (ConnectFourObjects names)

{

JOptionPane.showMessageDialog (null, "Welcome to Connect 4!\nClick OK to input player names.");

names.p1name = JOptionPane.showInputDialog ("Player 1's name?");

names.p2name = JOptionPane.showInputDialog ("Player 2's name?");

JOptionPane.showMessageDialog (null, names.p1name + " will be R, and " + names.p2name + " will be B\n");

JOptionPane.showMessageDialog (null, "On each turn, select what column you would like to drop your piece in.\n" +

"There will then be a window showing the current board.\nIf the column you have chosen is full, you will need to input again.");

}

public static void game (String gb [] [], ConnectFourObjects list [], ConnectFourObjects names)

{

int count = 1;

int count2 = 0;

while (count <= 9)

{

ConnectFourObjects pointer = new ConnectFourObjects ();

list [count] = pointer;

list [count].p1colstring = JOptionPane.showInputDialog (null, names.p1name + ": In what column do you want to place R?");

list [count].p1col = Integer.parseInt (list [count].p1colstring);

if (gb [6] [list[count].p1col] == " ")

gb [6] [list[count].p1col] = "R";

else if (gb [5] [list[count].p1col] == " ")

gb [5] [list[count].p1col] = "R";

else if (gb [4] [list[count].p1col] == " ")

gb [4] [list[count].p1col] = "R";

else if (gb [3] [list[count].p1col] == " ")

gb [3] [list[count].p1col] = "R";

else if (gb [2] [list[count].p1col] == " ")

gb [2] [list[count].p1col] = "R";

else if (gb [1] [list[count].p1col] == " ")

gb [1] [list[count].p1col] = "R";

else

{

JOptionPane.showMessageDialog (null, "This colum is already full. Choose a different column.");

JOptionPane.showMessageDialog (null, "==Current Board==\n"+gb[1][1]+" | "+gb[1][2]+" | "+gb[1][3]+" | "+gb[1][4]+" | "+gb[1][5]+" | "+gb[1][6]+" | "+gb[1][7]

+"\n"+gb[2][1]+" | "+gb[2][2]+" | "+gb[2][3]+" | "+gb[2][4]+" | "+gb[2][5]+" | "+gb[2][6]+" | "+gb[2][7]

+"\n"+gb[3][1]+" | "+gb[3][2]+" | "+gb[3][3]+" | "+gb[3][4]+" | "+gb[3][5]+" | "+gb[3][6]+" | "+gb[3][7]

+"\n"+gb[4][1]+" | "+gb[4][2]+" | "+gb[4][3]+" | "+gb[4][4]+" | "+gb[4][5]+" | "+gb[4][6]+" | "+gb[4][7]

+"\n"+gb[5][1]+" | "+gb[5][2]+" | "+gb[5][3]+" | "+gb[5][4]+" | "+gb[5][5]+" | "+gb[5][6]+" | "+gb[5][7]

+"\n"+gb[6][1]+" | "+gb[6][2]+" | "+gb[6][3]+" | "+gb[6][4]+" | "+gb[6][5]+" | "+gb[6][6]+" | "+gb[6][7]);

list [count].p1colstring = JOptionPane.showInputDialog (null, names.p1name + ": In what column do you want to place R?");

list [count].p1col = Integer.parseInt (list [count].p1colstring);

if (gb [6] [list[count].p1col] == " ")

gb [6] [list[count].p1col] = "R";

else if (gb [5] [list[count].p1col] == " ")

gb [5] [list[count].p1col] = "R";

else if (gb [4] [list[count].p1col] == " ")

gb [4] [list[count].p1col] = "R";

else if (gb [3] [list[count].p1col] == " ")

gb [3] [list[count].p1col] = "R";

else if (gb [2] [list[count].p1col] == " ")

gb [2] [list[count].p1col] = "R";

else if (gb [1] [list[count].p1col] == " ")

gb [1] [list[count].p1col] = "R";

}

JOptionPane.showMessageDialog (null, "==Current Board==\n"+gb[1][1]+" | "+gb[1][2]+" | "+gb[1][3]+" | "+gb[1][4]+" | "+gb[1][5]+" | "+gb[1][6]+" | "+gb[1][7]

+"\n"+gb[2][1]+" | "+gb[2][2]+" | "+gb[2][3]+" | "+gb[2][4]+" | "+gb[2][5]+" | "+gb[2][6]+" | "+gb[2][7]

+"\n"+gb[3][1]+" | "+gb[3][2]+" | "+gb[3][3]+" | "+gb[3][4]+" | "+gb[3][5]+" | "+gb[3][6]+" | "+gb[3][7]

+"\n"+gb[4][1]+" | "+gb[4][2]+" | "+gb[4][3]+" | "+gb[4][4]+" | "+gb[4][5]+" | "+gb[4][6]+" | "+gb[4][7]

+"\n"+gb[5][1]+" | "+gb[5][2]+" | "+gb[5][3]+" | "+gb[5][4]+" | "+gb[5][5]+" | "+gb[5][6]+" | "+gb[5][7]

+"\n"+gb[6][1]+" | "+gb[6][2]+" | "+gb[6][3]+" | "+gb[6][4]+" | "+gb[6][5]+" | "+gb[6][6]+" | "+gb[6][7]);

//row win test

for (int row = 0; row <= 6; row++)

{

int rcount = 0;

for (int col = 1; col <= 7; col++)

{

if (gb[row][col] == "R" && gb[row][col] == gb[row][col-1])

rcount++;

else

rcount = 1;

if (rcount >= 4)

{

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

//column win test

for (int col = 0; col <= 7; col++)

{

int rcount = 0;

for (int row = 1; row <= 6; row++)

{

if (gb[row][col] == "R" && gb[row][col] == gb[row-1][col])

rcount++;

else

rcount = 1;

if (rcount >= 4)

{

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

//diagonal win test

for (int i = 5; i > 1; i-- ) {

for(int j = 0; j < 4; j++) {

if ( gb[i][j] == "R" &&

gb[i-1][j+1] == "R" &&

gb[i-2][j+2] == "R" &&

gb[i-3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 5; i > 1; i--) {

for (int j = 1; j < 4; j++) {

if (gb[i][j] == "R" &&

gb[i-1][j+1] == "R" &&

gb[i-2][j+2] == "R" &&

gb[i-3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 0; i < 4; i++) {

for (int j = 4; j < 7; j++) {

if ( gb[i][j] == "R" &&

gb[i+1][j-1] == "R" &&

gb[i+2][j-2] == "R" &&

gb[i+3][j-3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 1; i < 2; i++) {

for (int j = 6; j > 5; j--) {

if ( gb[i][j] == "R" &&

gb[i+1][j-1] == "R" &&

gb[i+2][j-2] == "R" &&

gb[i+3][j-3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 4; i < 5; i++){

for (int j = 2; j < 3; j++){

if (gb[i][j] == "R" &&

gb[i-1][j+1] == "R" &&

gb[i-2][j+2] == "R" &&

gb[i-3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 0; i < 4; i++) {

for (int j = 3; j > 0; j--) {

if (gb[i][j] == "R" &&

gb[i+1][j+1] == "R" &&

gb[i+2][j+2] == "R" &&

gb[i+3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for(int i =0; i < 1; i++) {

for (int j = 0; j <1; j++) {

if (gb[i][j] == "R" &&

gb[i+1][j+1] == "R" &&

gb[i+2][j+2] == "R" &&

gb[i+3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int j = 0; j < 1; j++) {

for(int i =1 ; i < 3; i++) {

if (gb[i][j] == "R" &&

gb[i+1][j+1] == "R" &&

gb[i+2][j+2] == "R" &&

gb[i+3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int j = 3; j < 4; j++) {

for (int i = 0; i < 3; i++) {

if (gb[i][j] == "R" &&

gb[i+1][j+1] == "R" &&

gb[i+2][j+2] == "R" &&

gb[i+3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 2; i < 3; i++) {

for (int j = 2; j > 0; j--) {

if (gb[i][j] == "R" &&

gb[i+1][j+1] == "R" &&

gb[i+2][j+2] == "R" &&

gb[i+3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 1; i < 2; i++) {

for (int j = 2; j < 3; j++){

if (gb[i][j] == "R" &&

gb[i+1][j+1] == "R" &&

gb[i+2][j+2] == "R" &&

gb[i+3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

for (int i = 1; i < 2; i++) {

for (int j = 1; j < 2; j++){

if (gb[i][j] == "R" &&

gb[i+1][j+1] == "R" &&

gb[i+2][j+2] == "R" &&

gb[i+3][j+3] == "R") {

JOptionPane.showMessageDialog (null, names.p1name + " wins!");

return;

}

}

}

count2++;

if (count2 == 42)

{

JOptionPane.showMessageDialog (null,"It's a draw! Nobody has won!");

return;

}

list [count].p2colstring = JOptionPane.showInputDialog (null, names.p2name + ": In what column do you want to place B?");

list [count].p2col = Integer.parseInt (list [count].p2colstring);

if (gb [6] [list[count].p2col] == " ")

gb [6] [list[count].p2col] = "B";

else if (gb [5] [list[count].p2col] == " ")

gb [5] [list[count].p2col] = "B";

else if (gb [4] [list[count].p2col] == " ")

gb [4] [list[count].p2col] = "B";

else if (gb [3] [list[count].p2col] == " ")

gb [3] [list[count].p2col] = "B";

else if (gb [2] [list[count].p2col] == " ")

gb [2] [list[count].p2col] = "B";

else if (gb [1] [list[count].p2col] == " ")

gb [1] [list[count].p2col] = "B";

else

{

JOptionPane.showMessageDialog (null, "This colum is already full. Choose a different column.");

JOptionPane.showMessageDialog (null, "==Current Board==\n"+gb[1][1]+" | "+gb[1][2]+" | "+gb[1][3]+" | "+gb[1][4]+" | "+gb[1][5]+" | "+gb[1][6]+" | "+gb[1][7]

+"\n"+gb[2][1]+" | "+gb[2][2]+" | "+gb[2][3]+" | "+gb[2][4]+" | "+gb[2][5]+" | "+gb[2][6]+" | "+gb[2][7]

+"\n"+gb[3][1]+" | "+gb[3][2]+" | "+gb[3][3]+" | "+gb[3][4]+" | "+gb[3][5]+" | "+gb[3][6]+" | "+gb[3][7]

+"\n"+gb[4][1]+" | "+gb[4][2]+" | "+gb[4][3]+" | "+gb[4][4]+" | "+gb[4][5]+" | "+gb[4][6]+" | "+gb[4][7]

+"\n"+gb[5][1]+" | "+gb[5][2]+" | "+gb[5][3]+" | "+gb[5][4]+" | "+gb[5][5]+" | "+gb[5][6]+" | "+gb[5][7]

+"\n"+gb[6][1]+" | "+gb[6][2]+" | "+gb[6][3]+" | "+gb[6][4]+" | "+gb[6][5]+" | "+gb[6][6]+" | "+gb[6][7]);

list [count].p1colstring = JOptionPane.showInputDialog (null, names.p2name + ": In what column do you want to place B?");

list [count].p1col = Integer.parseInt (list [count].p2colstring);

if (gb [6] [list[count].p2col] == " ")

gb [6] [list[count].p2col] = "B";

else if (gb [5] [list[count].p2col] == " ")

gb [5] [list[count].p2col] = "B";

else if (gb [4] [list[count].p2col] == " ")

gb [4] [list[count].p2col] = "B";

else if (gb [3] [list[count].p2col] == " ")

gb [3] [list[count].p2col] = "B";

else if (gb [2] [list[count].p2col] == " ")

gb [2] [list[count].p2col] = "B";

else if (gb [1] [list[count].p2col] == " ")

gb [1] [list[count].p2col] = "B";

}

JOptionPane.showMessageDialog (null, "==Current Board==\n"+gb[1][1]+" | "+gb[1][2]+" | "+gb[1][3]+" | "+gb[1][4]+" | "+gb[1][5]+" | "+gb[1][6]+" | "+gb[1][7]

+"\n"+gb[2][1]+" | "+gb[2][2]+" | "+gb[2][3]+" | "+gb[2][4]+" | "+gb[2][5]+" | "+gb[2][6]+" | "+gb[2][7]

+"\n"+gb[3][1]+" | "+gb[3][2]+" | "+gb[3][3]+" | "+gb[3][4]+" | "+gb[3][5]+" | "+gb[3][6]+" | "+gb[3][7]

+"\n"+gb[4][1]+" | "+gb[4][2]+" | "+gb[4][3]+" | "+gb[4][4]+" | "+gb[4][5]+" | "+gb[4][6]+" | "+gb[4][7]

+"\n"+gb[5][1]+" | "+gb[5][2]+" | "+gb[5][3]+" | "+gb[5][4]+" | "+gb[5][5]+" | "+gb[5][6]+" | "+gb[5][7]

+"\n"+gb[6][1]+" | "+gb[6][2]+" | "+gb[6][3]+" | "+gb[6][4]+" | "+gb[6][5]+" | "+gb[6][6]+" | "+gb[6][7]);

//row win test

for (int row = 0; row <= 6; row++)

{

int bcount = 0;

for (int col = 1; col <= 7; col++)

{

if (gb[row][col] == "B" && gb[row][col] == gb[row][col-1])

bcount++;

else

bcount = 1;

if (bcount >= 4)

{

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

//column win test

for (int col = 0; col <= 7; col++)

{

int bcount = 0;

for (int row = 1; row <= 6; row++)

{

if (gb[row][col] == "B" && gb[row][col] == gb[row-1][col])

bcount++;

else

bcount = 1;

if (bcount >= 4)

{

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

//diagonal win test

for (int i = 5; i > 1; i-- ) {

for(int j = 0; j < 4; j++) {

if ( gb[i][j] == "B" &&

gb[i-1][j+1] == "B" &&

gb[i-2][j+2] == "B" &&

gb[i-3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 5; i > 1; i--) {

for (int j = 1; j < 4; j++) {

if (gb[i][j] == "B" &&

gb[i-1][j+1] == "B" &&

gb[i-2][j+2] == "B" &&

gb[i-3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 0; i < 4; i++) {

for (int j = 4; j < 7; j++) {

if ( gb[i][j] == "B" &&

gb[i+1][j-1] == "B" &&

gb[i+2][j-2] == "B" &&

gb[i+3][j-3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 1; i < 2; i++) {

for (int j = 6; j > 5; j--) {

if ( gb[i][j] == "B" &&

gb[i+1][j-1] == "B" &&

gb[i+2][j-2] == "B" &&

gb[i+3][j-3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 4; i < 5; i++){

for (int j = 2; j < 3; j++){

if (gb[i][j] == "B" &&

gb[i-1][j+1] == "B" &&

gb[i-2][j+2] == "B" &&

gb[i-3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 0; i < 4; i++) {

for (int j = 3; j > 0; j--) {

if (gb[i][j] == "B" &&

gb[i+1][j+1] == "B" &&

gb[i+2][j+2] == "B" &&

gb[i+3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for(int i =0; i < 1; i++) {

for (int j = 0; j <1; j++) {

if (gb[i][j] == "B" &&

gb[i+1][j+1] == "B" &&

gb[i+2][j+2] == "B" &&

gb[i+3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int j = 0; j < 1; j++) {

for(int i =1 ; i < 3; i++) {

if (gb[i][j] == "B" &&

gb[i+1][j+1] == "B" &&

gb[i+2][j+2] == "B" &&

gb[i+3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int j = 3; j < 4; j++) {

for (int i = 0; i < 3; i++) {

if (gb[i][j] == "B" &&

gb[i+1][j+1] == "B" &&

gb[i+2][j+2] == "B" &&

gb[i+3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 2; i < 3; i++) {

for (int j = 2; j > 0; j--) {

if (gb[i][j] == "B" &&

gb[i+1][j+1] == "B" &&

gb[i+2][j+2] == "B" &&

gb[i+3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 1; i < 2; i++) {

for (int j = 2; j < 3; j++){

if (gb[i][j] == "B" &&

gb[i+1][j+1] == "B" &&

gb[i+2][j+2] == "B" &&

gb[i+3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

for (int i = 1; i < 2; i++) {

for (int j = 1; j < 2; j++){

if (gb[i][j] == "B" &&

gb[i+1][j+1] == "B" &&

gb[i+2][j+2] == "B" &&

gb[i+3][j+3] == "B") {

JOptionPane.showMessageDialog (null, names.p2name + " wins!");

return;

}

}

}

count++;

count2++;

if (count2 == 42)

{

JOptionPane.showMessageDialog (null,"It's a draw! Nobody has won!");

return;

}

}

}

}