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/*
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Lab #9
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Description: This program creates a playable tic tac toe board with with an AI to play against.
*/

#include <iostream>
#include <cstdlib>

using namespace std;
int wincheck( char[]);
void boards( char[]);

int main()
{
        // Declaring Variables
        char sqr[10] = {'o','1','2','3','4','5','6','7','8','9'};
        int player = 1,i,choice;
        char flag;
        do //do while loop
{
        boards(sqr); //calling board tic tac toe
        if(player%2==1)
        player=1;
        else
        player=2;
        if(player==2)
{
        cout << "Players " << player<<endl;
        cout<<"Press Enter for CPU"<<endl;
        choice=rand()%9;
        flag='O';
        int turn=1;
        int placed=0;
        while(placed==0)
{
        if (choice == 1 && sqr[1] == '1'){
        sqr[1] = flag;
        placed=1;
}
        else if (choice == 2 && sqr[2] == '2'){
        sqr[2] = flag;
        placed=1;
}
        else if (choice == 3 && sqr[3] == '3'){
        sqr[3] = flag;
        placed=1;
}
        else if (choice == 4 && sqr[4] == '4'){
        placed=1;
        sqr[4] = flag;
}
        else if (choice == 5 && sqr[5] == '5'){
        sqr[5] = flag;
        placed=1;
}
        else if (choice == 6 && sqr[6] == '6'){
        sqr[6] = flag;
        placed=1;
}
        else if (choice == 7 && sqr[7] == '7'){
        sqr[7] = flag;
        placed=1;
}
        else if (choice == 8 && sqr[8] == '8'){
        sqr[8] = flag;
        placed=1;
}
        else if (choice == 9 && sqr[9] == '9'){
        sqr[9] = flag;
        placed=1;
}
        else
{
        choice=rand()%9;
}
}
        i=wincheck(sqr);
        player++;
        boards(sqr);
}
// player 1 inputs
        else if(player==1)
{
        cout << "Players " << player << ", enter a number: ";
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        cin >> choice;
        flag='X';
        if (choice == 1 && sqr[1] == '1')
        sqr[1] = flag;
        else if (choice == 2 && sqr[2] == '2')
        sqr[2] = flag;
        else if (choice == 3 && sqr[3] == '3')
        sqr[3] = flag;
        else if (choice == 4 && sqr[4] == '4')
        sqr[4] = flag;
        else if (choice == 5 && sqr[5] == '5')
        sqr[5] = flag;
        else if (choice == 6 && sqr[6] == '6')
        sqr[6] = flag;
        else if (choice == 7 && sqr[7] == '7')
        sqr[7] = flag;
        else if (choice == 8 && sqr[8] == '8')
        sqr[8] = flag;
        else if (choice == 9 && sqr[9] == '9')
        sqr[9] = flag;
        else
        {
                cout<<"Illegal move ";
                player--;
        }
        i=wincheck(sqr);
        player++;
}
}
        while(i==-1);
        boards(sqr);
        if(i==1)
        cout<<"\nPlayer "<<--player<<" wins! ";
        else
        cout<<"Draw!";
}
void boards(char sqr[])
{
        system("cls");
        cout << "\n\n\tTic Tac Toe\n\n"; // Displays the tic tac toe board
        cout << "Player 1 (X) - Player 2 (O)" << endl << endl;
        cout << endl;
        cout << "     |     | " << endl;
        cout << "  " << sqr[1] << "  |  " << sqr[2] << "  |  " << sqr[3] << endl;
        cout << "_____|_____|_____" << endl;
        cout << "     |     | " << endl;
        cout << "  " << sqr[4] << "  |  " << sqr[5] << "  |  " << sqr[6] << endl;
        cout << "_____|_____|_____" << endl;
        cout << "     |     |     " << endl;
        cout << "  " << sqr[7] << "  |  " << sqr[8] << "  |  " << sqr[9] << endl;
        cout << "     |     | " << endl << endl;
}

int wincheck(char sqr[]) // Checks the board for any wins
{
        if (sqr[1] == sqr[2] && sqr[2] == sqr[3])
        return 1;
        else if (sqr[4] == sqr[5] && sqr[5] == sqr[6])
        return 1;
        else if (sqr[7] == sqr[8] && sqr[8] == sqr[9])
        return 1;
        else if (sqr[1] == sqr[4] && sqr[4] == sqr[7])
        return 1;
        else if (sqr[2] == sqr[5] && sqr[5] == sqr[8])
        return 1;
        else if (sqr[3] == sqr[6] && sqr[6] == sqr[9])
        return 1;
        else if (sqr[1] == sqr[5] && sqr[5] == sqr[9])
        return 1;
        else if (sqr[3] == sqr[5] && sqr[5] == sqr[7])
        return 1;
        else if (sqr[1] != '1' && sqr[2] != '2' && sqr[3] != '3'
        && sqr[4] != '4' && sqr[5] != '5' && sqr[6] != '6'
        && sqr[7] != '7' && sqr[8] != '8' && sqr[9] != '9')
        return 0;
        else
        return -1;
}
```