include <iostream>

using namespace std;

// global variables

char gameboard[3][3] = { {'1','2','3'},{'4','5','6'},{'7','8','9'} };

char in\_play;

int player;

// function to display the board set up for the game

void showboard()

{

​cout << " " << gameboard[0][0] << " | " << gameboard[0][1] << " | " << gameboard[0][2] << endl;

​cout << "------------- \n";

​cout << " " << gameboard[1][0] << " | " << gameboard[1][1] << " | " << gameboard[1][2] << endl;

​cout << "------------- \n";

​cout << " " << gameboard[2][0] << " | " << gameboard[2][1] << " | " << gameboard[2][2] << endl;

}

// function to show the set up of a coloumn and the row

bool marker(int spot)

{

​int row;

​int col;

​if (spot % 3 == 0) row = (spot / 3) - 1;

​else spot = spot / 3;

​if (spot % 3 == 0) col = 2;

​else col = spot % 3 - 1;

​cout << row << ',' << col << endl;

​if (gameboard[row][col] != 'X' && gameboard[row][col] != 'O')

​{

​​gameboard[row][col] = in\_play;

​​return true;

​}

​else return false;

}

// function that will show the winner for the game

char who\_won()

{

​for (int i = 0; i < 3; i++)

​{

​​// determining how a player won by a row

​​if (gameboard[i][0] == gameboard[i][1] && gameboard[i][1] == gameboard[i][2])

​​​return player;

​​// determining how a player won by a coloumn

​​if (gameboard[0][i] == gameboard[1][i] && gameboard[1][i] == gameboard[2][i])

​​​return player;

​}

​// determining how a player won diagonally

​if (gameboard[0][0] == gameboard[1][1] && gameboard[1][1] == gameboard[2][2])

​​return player;

​if (gameboard[0][2] == gameboard[1][1] && gameboard[1][1] == gameboard[2][0])

​​return player;

​return 0;

}

// this function will allow the players to take turn in inputting their marker on the board

void player\_change()

{

​if (in\_play == 'X') in\_play = 'O';

​else in\_play = 'X';

​if (player == 1) player = 2;

​else player = 1;

}

// this function will allow each player to make a move and enter their marker.

// playing the game

void start\_game()

{

​cout << "Please chose your Marker : ";

​char player1\_marker;

​cin >> player1\_marker;

​player = 1;

​in\_play = player1\_marker;

​// using the showboard function here so this function calls it and run the board here when the player makes their move

​showboard();

​// creating variable to check who won the game

​int player\_won;

​// use the for loop so that it can run the moves for the players up to 9 times during the game

​for (int i = 0; i < 9; i++)

​{

​​cout << "This is player " << player << "'s turn. Enter your slot : ";

​​int slot;

​​cin >> slot;

​​// validate that the slot player wants to play is not invalid

​​

​​if(slot < 1 || slot > 9)

​​{

​​​cout << " That slot is Not Valid! Please try Again!";

​​​i--; break;

​​}

​​// setting the function from before so it can run again in the game

​​if (!marker(slot))

​​{

​​​cout << " That slot is taken! Please try another slot!";

​​​i--;

​​​continue;

​​}

​​

​​// using the showboard function here so this function calls it and run the board here when the player makes their move

​​showboard();

​​//creating a function that can call the who\_won function to show if a player won the game

​​player\_won = who\_won();

​​// displaying the winner

​​if (player\_won == 1) {cout << "Player 1 is the Winner! Congratulations Player 1!"; break; }

​​if (player\_won == 2)

​​{

​​​cout << "Player 2 is the Winner! Congratulations Player 2!"; break;

​​}

​​

​​player\_change();

​}

​if (player\_won == 0)

​​cout << "No one won the Game, it's a tie!" << endl;

​cout << " \*\*\* GAME DRAW \*\*\* " << endl;

}

int main()

{

​// only calling the start game function in the main becuase all the parts of the game is liste in this function

​start\_game();

}