#include <stdio.h>

#include <stdlib.h>

void FirstShipCoordinates();

void SecondShipCoordinates();

void ThirdShipCoordinates();

int turn = 1;

void main (){

puts("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

puts("\nThis program enables users to play a game of battleship on 10x10 boards:\n");

puts("Both players will get a chance to input the coordinates for their ships");

puts("on the following board: \n");

int board\_1[10][10] = {0};

int board\_2[10][10] = {0};

for (int i = 0; i < 10; i++){

for (int j = 0; j < 10; j++){

if (i == 0 && j == 0){

printf(" ");

for (int num = 0; num < 10; num++){

printf("%4d", num);

}

printf("\n");

}

if (i == 0 && j ==0) {printf("%4d", board\_1[i][j]);}

if (i != 0 && j == 0){

printf("%4d", i);

}

printf("%4d", board\_1[i][j]);

}

printf("\n");

}

puts ("\nFirst player should get ready to place their ships on the board:");

FirstShipCoordinates(board\_1);

SecondShipCoordinates(board\_1);

ThirdShipCoordinates(board\_1);

for (int i = 0; i < 10; i++){

for (int j = 0; j < 10; j++){

if (i == 0 && j == 0){

printf(" ");

for (int num = 0; num < 10; num++){

printf("%4d", num);

}

printf("\n");

}

if (i == 0 && j ==0) {printf("%4d", board\_1[i][j]);}

if (i != 0 && j == 0){

printf("%4d", i);

}

printf("%4d", board\_1[i][j]);

}

printf("\n");

}

puts("In the above-shown grid, '7' marks the locations of your ships");

puts("Before following the next command, please verify the locations of your ships");

char ch;

LOOP: printf("Press 'Y' or 'y' to clear the screen: ");

scanf(" %c", &ch);

if (ch == 'Y' || ch == 'y'){

system("clear");

}

else {goto LOOP;}

FirstShipCoordinates(board\_2);

SecondShipCoordinates(board\_2);

ThirdShipCoordinates(board\_2);

for (int i = 0; i < 10; i++){

for (int j = 0; j < 10; j++){

if (i == 0 && j == 0){

printf(" ");

for (int num = 0; num < 10; num++){

printf("%4d", num);

}

printf("\n");

}

if (i == 0 && j ==0) {printf("%4d", board\_1[i][j]);}

if (i != 0 && j == 0){

printf("%4d", i);

}

printf("%4d", board\_1[i][j]);

}

printf("\n");

}

puts("In the above-shown grid, '7' marks the locations of your ships");

puts("Before following the next command, please verify the locations of your ships");

char ch2;

LOOP2: printf("Press 'Y' or 'y' to clear the screen: ");

scanf(" %c", &ch2);

if (ch2 == 'Y' || ch2 == 'y'){

system("clear");

}

else {goto LOOP2;}

printf("Now, the guessing game starts:\n");

int hitCountPlayer1 = 0;

int hitCountPlayer2 = 0;

while ((hitCountPlayer1 < 12) || (hitCountPlayer2 < 12)){

int guess\_depth = 10, guess\_width = 10;

int guess\_depth2 = 10, guess\_width2 = 10;

puts("PLAYER 1, enter your guessing coordinate:");

printf("Please enter the depth/vertical location of your opponents' ship (0-9): ");

scanf("%d", &guess\_depth);

printf("Please enter the width/horizontal location of your opponents' ship (0-9): ");

scanf("%d", &guess\_width);

if (board\_2[guess\_depth][guess\_width] == 7){

hitCountPlayer1 += 1;

puts(":)You have just hit the opponents ship");

}

else {puts("Too bad, your guess was wrong, please hand over the control to the other player now...");}

puts("Please hand over the keyboard to PLAYER 2");

printf("Please enter the depth/vertical location of your opponents' ship (0-9): ");

scanf("%d", &guess\_depth2);

printf("Please enter the width/horizontal location of your opponents' ship (0-9): ");

scanf("%d", &guess\_width2);

if (board\_1[guess\_depth2][guess\_width2] == 7){

hitCountPlayer2 += 1;

puts(":)You have just hit the opponents ship");

}

else {puts("Too bad, your guess was wrong, please hand over the control to the other player now...");}

}

if (hitCountPlayer1 == 12) {puts("!!!!!!!!Congrats, Player 1 have won the game!!!!!!!!");}

else {puts("!!!!!!!!Congrats, Player 2 have won the game!!!!!!!!");}

}

void FirstShipCoordinates(int shipOne[10][10]){

printf("\n\*\*\*\*Now, the display screen must be facing Player #%d only\*\*\*\*\n", turn);

puts("\*\*\*\*Dimensions of the first ship are 1 X 5\*\*\*\*\n");

unsigned int depth = 10, width = 10;

while (depth > 9 && width > 9) {

printf("Please enter the depth/vertical location of the first ship (0-9): ");

scanf("%d", &depth);

printf("Please enter the width/horizontal location of the first ship (0-9): ");

scanf("%d", &width);

}

printf("\nPlease select one of the following options (The ship will\n");

printf("be oriented accordingly):\n1.(Vertical)\t ");

int d = depth;

int w = width;

unsigned int depth\_limit = depth + 5;

unsigned int width\_limit = width + 5;

for (d; d < depth\_limit; d++){

printf("%d,%d; ", d, width);

}

printf("\n2.(Horizontal)\t ");

for (w; w < width\_limit; w++){

printf("%d,%d; ", depth, w);

} printf("\n");

int orientation;

loop1: printf("Please select one of the above-written options (1-Vertical or 2-Horizontal): ");

scanf("%d", &orientation);

if (orientation == 1){

for (int x = depth; x < (depth + 5); x++){

shipOne[x][width] = 7;

}

}

else if (orientation == 2){

for (int x = width; x < (width + 5); x++){

shipOne[depth][x] = 7;

}

}

else {

puts ("!!!Please select a valid input");

goto loop1;

}

turn += 1;

}

void SecondShipCoordinates (int shipTwo[10][10]){

puts("\n\*\*\*\*Dimensions of the second ship are 1 X 3\*\*\*\*\n");

unsigned int depth = 10, width = 10;

loop2: do {

depth = 10, width = 10;

while (depth > 9 && width > 9) {

printf("Please enter the depth/vertical location of the first ship (0-9): ");

scanf("%d", &depth);

printf("Please enter the width/horizontal location of the first ship (0-9): ");

scanf("%d", &width);

}

if (shipTwo[depth][width] == 7){

puts("\n!!!Please try a new coordinate value, because ship-one holds this place\n");

goto loop2;

}

} while (shipTwo[depth][width] == 7);

printf("\nPlease select one of the following options (The ship will\n");

printf("be oriented accordingly):\n1.(Vertical)\t ");

int d = depth;

int w = width;

unsigned int depth\_limit = depth + 3;

unsigned int width\_limit = width + 3;

for (d; d < depth\_limit; d++){

printf("%d,%d; ", d, width);

}

printf("\n2.(Horizontal)\t ");

for (w; w < width\_limit; w++){

printf("%d,%d; ", depth, w);

} printf("\n");

int orientation;

loop3: printf("Please select one of the above-written options (1-Vertical or 2-Horizontal): ");

scanf("%d", &orientation);

if (orientation == 1){

for (int x = depth; x < (depth + 3); x++){

shipTwo[x][width] = 7;

}

}

else if (orientation == 2){

for (int x = width; x < (width + 3); x++){

shipTwo[depth][x] = 7;

}

}

else {

puts ("!!!Please select a valid input");

goto loop3;

}

}

void ThirdShipCoordinates (int shipThree[10][10]){

puts("\n\*\*\*\*Dimensions of the third ship are 1 X 4\*\*\*\*\n");

unsigned int depth = 10, width = 10;

loop4: do {

depth = 10, width = 10;

while (depth > 9 && width > 9) {

printf("Please enter the depth/vertical location of the first ship (0-9): ");

scanf("%d", &depth);

printf("Please enter the width/horizontal location of the first ship (0-9): ");

scanf("%d", &width);

}

if (shipThree[depth][width] == 7){

puts("\n!!!Please try a new coordinate value, because ship-one/two holds this place\n");

goto loop4;

}

} while (shipThree[depth][width] == 7);

printf("\nPlease select one of the following options (The ship will\n");

printf("be oriented accordingly):\n1.(Vertical)\t ");

int d = depth;

int w = width;

unsigned int depth\_limit = depth + 4;

unsigned int width\_limit = width + 4;

for (d; d < depth\_limit; d++){

printf("%d,%d; ", d, width);

}

printf("\n2.(Horizontal)\t ");

for (w; w < width\_limit; w++){

printf("%d,%d; ", depth, w);

} printf("\n");

int orientation;

loop5: printf("Please select one of the above-written options (1-Vertical or 2-Horizontal): ");

scanf("%d", &orientation);

if (orientation == 1){

for (int x = depth; x < (depth + 4); x++){

shipThree[x][width] = 7;

}

}

else if (orientation == 2){

for (int x = width; x < (width + 4); x++){

shipThree[depth][x] = 7;

}

}

else {

puts ("!!!Please select a valid input");

goto loop5;

}

}