

Test sheet 5

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WORKSHEET 5 – TESTING (Battleships)

For this worksheet, the program can be implemented in a number of different ways and demonstrate different features.

Create your own test set to demonstrate strengths and/or limitations of your solution. Use as many of the template boxes below as you need.

Original Code

```
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>
#include <Windows.h>
#include <time.h>
#include <math.h>
#include <stdlib.h>
#define PI 3.142
char board[5][5] =
{ {'X','S','X','X','X'},{'X','S','X','S','S'},{'X','S','X','X','X'},{'X','X','X','X','X'},{'X','S','S','S','X'} };
#include "Header.h"

void main()
{
    int ch1, ch2, low=0, high=4,c1,c2,found=0;

    printf("WELCOME TO BATTLESHIPS! \n");
    game();

    while (found == 0)
    {
        printf("What's The First Coordinate? (0,4) ");
        scanf("%d", &ch1);
        printf("What's The Second Coordinate? (0,4) ");
        scanf("%d", &ch2);

        if (board[ch1][ch2]=='S')
        {
            printf("AHH! YOU HIT ME!\n");
            board[ch1][ch2] = 'H';
            game();
        }
        else
        {
```

```

        printf("HAHA! YOU MISSED!\n");
    }
}

FOR THE HEADER!!!!

#pragma once
void game()
{
    int count = 0;
    for (int j = 0; j < 5; j++)
    {
        for (int i = 0; i < 5; i++)
        {
            if (board[j][i] == 'S')
            {
                printf("X ");
            }
            else
            {
                printf("%c ", board[j][i]);
            }

            if (board[j][i] == 'S')
            {
                count++;
            }

        }
        printf("\n");
    }
    if (count == 0)
    {
        printf("WELL DONE!!! END GAME!!!");
    }
}

```

Test: 1 Type a number as response (0,4)

Screenshot(s) of output:

```
What's The First Coordinate? (0,4) 2
What's The Second Coordinate? (0,4) 2
HAHA! YOU MISSED!
What's The First Coordinate? (0,4) 4
What's The Second Coordinate? (0,4) 2
AHH! YOU HIT ME!
X X X X X
X X X X X
X X X X X
X X X X X
X X H X X
```

The code works as intended and will allow me to fire at those targets

Test: 2 type number above 5

Screenshot(s) of output:

```
What's The First Coordinate? (0,4) 6
What's The Second Coordinate? (0,4) 7
HAHA! YOU MISSED!
What's The First Coordinate? (0,4) 9
What's The Second Coordinate? (0,4) 9
HAHA! YOU MISSED!
What's The First Coordinate? (0,4) 1
What's The Second Coordinate? (0,4) 1
AHH! YOU HIT ME!
X X X X X
X H X X X
X X X X X
X X X X X
X X H X X
What's The First Coordinate? (0,4)
```

It allows the number to be entered in which should not happen since there isn't a square that exists

Test: 3 type number bellow 0

Screenshot(s) of output:

```
What's The First Coordinate? (0,4) -3
What's The Second Coordinate? (0,4) -9
HAHA! YOU MISSED!
What's The First Coordinate? (0,4) 0
What's The Second Coordinate? (0,4) 0
HAHA! YOU MISSED!
What's The First Coordinate? (0,4) 1
What's The Second Coordinate? (0,4) 2
HAHA! YOU MISSED!
What's The First Coordinate? (0,4)
```

It allows the number to be entered in which should not happen since there isn't a square that exists

Test: 4 type a letter

Screenshot(s) of output:

```
WELCOME TO BATTLESHIPS!
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
What's The First Coordinate? (0,4) number
What's The Second Coordinate? (0,4)
C:\Users\2501949\OneDrive - University of
t 5.exe (process 27552) exited with code -
Press any key to close this window . . .
```

The code does stop the code from processing after realizing there was text, but I think an message display saying the only use numbers between (0,4) would be better

Test: 5 type a special character (etc \$ or ^)

Screenshot(s) of output:

```
WELCOME TO BATTLESHIPS!
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
What's The First Coordinate? (0,4) $
What's The Second Coordinate? (0,4)
C:\Users\2501949\OneDrive - University
t 5.exe (process 17028) exited with co
Press any key to close this window . . .
```

The code again does stop the code from processing after realizing there was text, but I think an message display saying the only use numbers between (0,4) would be better

Test: 6 only enter "" (nothing)

Screenshot(s) of output:

```
WELCOME TO BATTLESHIPS!
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
What's The First Coordinate? (0,4)

2
What's The Second Coordinate? (0,4)
```

It won't allow the code to run without the data needed

Test: 7 Beat the game

Screenshot(s) of output:

```
What's The First Coordinate? (0,4) 1
What's The Second Coordinate? (0,4) 4
AHH! YOU HIT ME!
X H X X X
X H X H H
X H X X X
X X X X X
X H H H X
WELL DONE!!! END GAME!!!What's The First Coordinate? (0,4)
```

The game is doing as intended and allowed me to beat the game

Test: 8 use a number with a letter

Screenshot(s) of output:

```
WELCOME TO BATTLESHIPS!
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
What's The First Coordinate? (0,4) 2d
What's The Second Coordinate? (0,4)
C:\Users\2501949\OneDrive - University
t 5.exe (process 25164) exited with co
Press any key to close this window .
```

The program stops after finding the letter in the program even though there is a number at the start of the data

Test: 9 use a number with a special character

Screenshot(s) of output:

```
WELCOME TO BATTLESHIPS!
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
What's The First Coordinate? (0,4) 3$
What's The Second Coordinate? (0,4)
C:\Users\2501949\OneDrive - University
.exe (process 25036) exited with code
Press any key to close this window .
```

The program stops after finding the letter in the program even though there is a number at the start of the data

Test: 10 use a number and add a space (etc "3 ")

Screenshot(s) of output:

```
C:\Users\2501949\OneDrive - University of Wales Trin
WELCOME TO BATTLESHIPS!
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
What's The First Coordinate? (0,4) 3
What's The First Coordinate? (0,4) 3
What's The Second Coordinate? (0,4) 2
HAHA! YOU MISSED!
What's The First Coordinate? (0,4) 1
What's The Second Coordinate? (0,4) 1
AHH! YOU HIT ME!
X X X X X
X H X X X
X X X X X
X X X X X
X X X X X
What's The First Coordinate? (0,4)
```

The code ignores the space and only uses the number's

Final code:

[Copy and paste your code here – note, do not use a screenshot.

Note that there is no “before” and “after” code for this Worksheet because it is “Open” – not done in class. Therefore just post your final code below]

```
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>
#include <Windows.h>
#include <time.h>
#include <math.h>
#include <stdlib.h>
#define PI 3.142
char board[5][5] =
{ {'X','S','X','X','X'},{'X','S','X','S','S'},{'X','S','X','X','X'},{'X','X','X','X','X'},{'X','S','S','S','X'} };
#include "Header.h"

void main()
{
    int ch1=9, ch2=9, low=0, high=4,c1,c2,found=0, validation;

    printf("WELCOME TO BATTLESHIPS! \n");
    game();

    while (found == 0)
    {
        while (ch1 > 4 || ch1 < 0)
        {
            printf("What's The First Coordinate? (0,4) ");
            validation=scanf("%d", &ch1);

            if (validation != 1)
            {
                printf("Only use digits please.\n");
                while (getchar() != '\n');
            }
            else if (ch1 > 4 || ch1 < 0)
            {
                printf("Please use numbers between 0 to 4!! ");
            }
        }
        while (ch2 > 4 || ch2 < 0)
        {
            printf("What's The Second Coordinate? (0,4) ");
            validation=scanf("%d", &ch2);
```

```

        if (validation != 1)
        {
            printf("Only use digits please.\n");
            while (getchar() != '\n');

        }
        else if (ch2 > 4 || ch2 < 0)
        {
            printf("Please use numbers between 0 to 4!! ");
        }
    }

    if (board[ch1][ch2]=='S')
    {
        printf("AHH! YOU HIT ME!\n");
        board[ch1][ch2] = 'H';
        game();
        ch1 = 9;
        ch2 = 9;
    }
    else
    {
        printf("HAHA! YOU MISSED!\n");
        ch1 = 9;
        ch2 = 9;
    }
}
}

```

FOR THE HEADER!!

```

#pragma once
void game()
{
    int count = 0;
    for (int j = 0; j < 5; j++)
    {
        for (int i = 0; i < 5; i++)

```

```
        {
            if (board[j][i] == 'S')
            {
                printf("X ");
            }
            else
            {
                printf("%c ", board[j][i]);
            }

            if (board[j][i] == 'S')
            {
                count++;
            }

        }
        printf("\n");
    }
    if (count == 0)
    {
        printf("WELL DONE!!! END GAME!!!");
    }
}
```

Test sheet 5

GRADEMARK REPORT

FINAL GRADE

18/0

GENERAL COMMENTS

WORKSHEET 5

Coding-

You have created a reasonable battleships game with ability to sink ships and end the game once all have been sunk. You are missing more advanced features such as randomising the game (this in turn brings problems to solve, such as boats not overlapping on the grid)

Good use of the function for printing the board. Could also consider moving the code to decide on hit or miss to streamline the program.

9/15

Testing - After a good writing style in Worksheets 3 and 4 you have slipped back into "I" and "me" in your writing here. No need to us "I think" - "a message could be displayed" instead.

Testing is quite extensive, although you do need more discussion it's a bit brief. 9/15

Overall mark Worksheet 5: 18/30

Organisation of report, writing style, presentation of work,

Writing style is a bit up and down - Worksheet 3 was the best one I think. Overall though, screenshots

presented well and generally work is presented neatly. 7/10

Overall mark for assignment (5 worksheets) - 67.5%

Test mark - 72%

Good work overall. You have lost a few marks in the written work - tidy this up and your work would be in the first class category.

Overall mark for module: 69%

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