

Test Sheet 2

by Connor Johnson

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Name: Connor Johnson

Student Number: 2517511

WORKSHEET 2 – TESTING (Tiles)

1. Original code:

```
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>
#include <string.h>
#include <math.h>

void main()
{
    float tileLength = 20, tileHeight = 20, tilesNeededForLength1, tilesNeededForHeight1,
    totalTilesNeeded;
    float wallLength, wallHeight, tilesNeededForHeight2, tilesNeededForLength2;

    printf("Please enter the height of your wall in cm: ");
    scanf("%f", &wallHeight);

    while (wallHeight <= 0)
    {
        printf("invalid height entered!\n");
        printf("Please enter the height of your wall: ");
        scanf("%f", &wallHeight);
    }

    printf("Please enter the length of your wall in cm: ");
    scanf("%f", &wallLength);
    while (wallLength <= 0)
    {
        printf("invalid length entered!\n");
        printf("Please enter the length of your wall: ");
        scanf("%f", &wallLength);
    }

    tilesNeededForHeight1 = wallHeight / tileHeight;
    tilesNeededForLength1 = wallLength / tileLength;

    tilesNeededForHeight2 = ceil(tilesNeededForHeight1);
    tilesNeededForLength2 = ceil(tilesNeededForLength1);

    totalTilesNeeded = tilesNeededForHeight2 * tilesNeededForLength2;
    printf("total tiles needed for your wall: %.2f", totalTilesNeeded);
}
```

2. Code Testing

For each test below (i – vii), run your code and enter the values provided. Provide a screenshot of the of what happened when the programme ran. Did the programme behave correctly or did it do something unexpected, and if so, why?

Input:

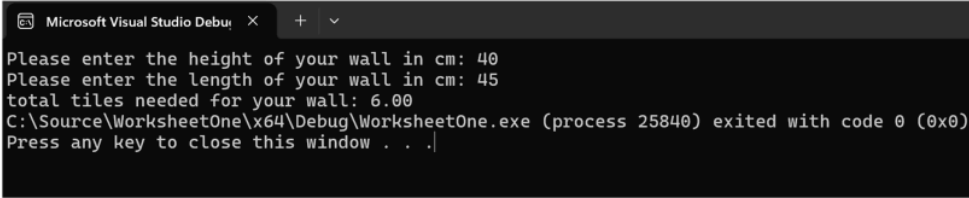
- i. Enter dimensions: Width 40 Length 45
- ii. Enter dimensions: Width 100000 Length 200000
- iii. Enter dimensions: Width -16 Length -20

Logic:

- iv. Enter dimensions: Width 80 Length 80. The result should be 16 tiles
- v. Enter dimensions: Width 40 Length 45. The result should be 6 tiles
- vi. Enter dimensions: Width 85 Length 90. The result should be 25 tiles.
- vii. Enter dimensions: Width 15 Length 15. The result should be 1 tile.

Note: If you decide to extend your program to allow a tile to be cut such that 2 pieces can be used from the same tile, your results may differ from the above. In this case, explain your logic as part of your answer)

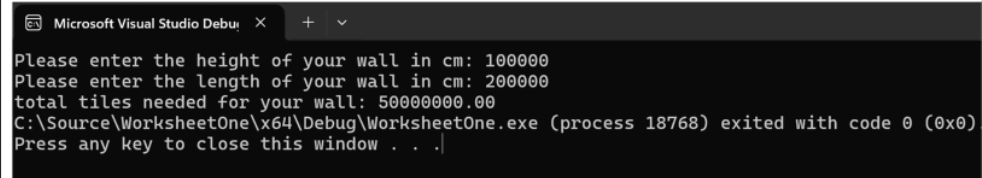
Fill in a box for each test above. You should present 7 separate boxes, 1 for each test. (Note: the first box is provided as a template)

Test i: Enter dimensions: width 40 length 45
Screenshot(s) of output: 
Result: Did the programme behave as expected ie syntactically and logically correct? YES The programme functioned as expected and the math was correct.

Test:

Enter dimensions: Width 100000 Length 200000

Screenshot(s) of output:



```
Microsoft Visual Studio Debug Console
Please enter the height of your wall in cm: 100000
Please enter the length of your wall in cm: 200000
total tiles needed for your wall: 50000000.00
C:\Source\WorksheetOne\x64\Debug\WorksheetOne.exe (process 18768) exited with code 0 (0x0)
Press any key to close this window . . .
```

Result: Did the programme behave as expected ie syntactically and logically correct?

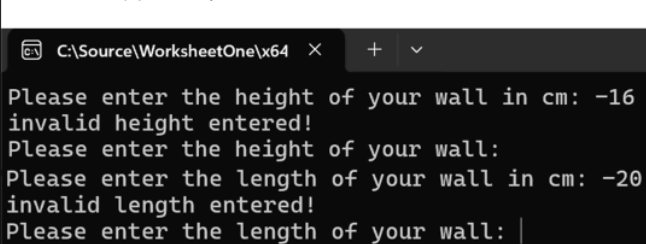
YES

The code here, although unlikely to have a real-world scenario of a wall that size, still functioned correctly.

Test:

Enter dimensions: Width -16 Length -20

Screenshot(s) of output:



```
C:\Source\WorksheetOne\x64\Debug\WorksheetOne.exe (process 18768) exited with code 0 (0x0)
Please enter the height of your wall in cm: -16
invalid height entered!
Please enter the height of your wall:
Please enter the length of your wall in cm: -20
invalid length entered!
Please enter the length of your wall: |
```

Result: Did the programme behave as expected ie syntactically and logically correct?

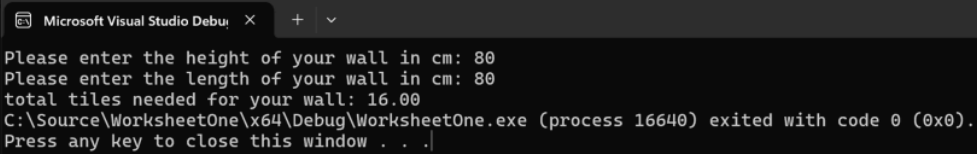
YES

The programme behaved as expected here. The validation within the code kept the inputs logical and didn't allow walls of negative sizes. The code also asks that you re-enter your value upon invalid entry.

Test:

Enter dimensions: Width 80 Length 80. The result should be 16 tiles

Screenshot(s) of output:



```
Microsoft Visual Studio Debug Console
Please enter the height of your wall in cm: 80
Please enter the length of your wall in cm: 80
total tiles needed for your wall: 16.00
C:\Source\WorksheetOne\x64\Debug\WorksheetOne.exe (process 16640) exited with code 0 (0x0).
Press any key to close this window . . .
```

Result: Did the programme behave as expected ie syntactically and logically correct?

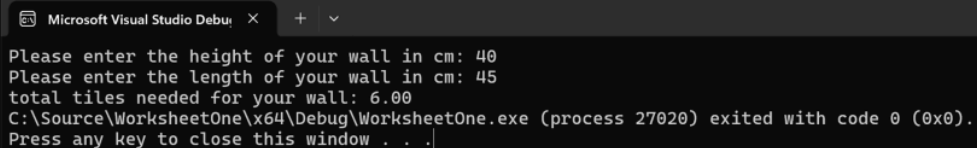
YES

Again, the programme here functioned as expected the inputs and outputs work and the math is correct.

Test:

Enter dimensions: Width 40 Length 45. The result should be 6 tiles

Screenshot(s) of output:

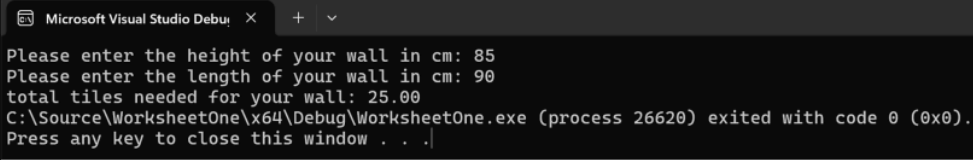


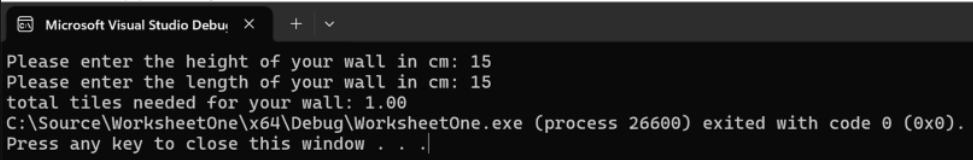
```
Microsoft Visual Studio Debug Console
Please enter the height of your wall in cm: 40
Please enter the length of your wall in cm: 45
total tiles needed for your wall: 6.00
C:\Source\WorksheetOne\x64\Debug\WorksheetOne.exe (process 27020) exited with code 0 (0x0).
Press any key to close this window . . .
```

Result: Did the programme behave as expected ie syntactically and logically correct?

YES

The programme here allowed me to correctly enter the values asked and displayed the correct value for tiles needed as shown.

Test:
Enter dimensions: Width 85 Length 90. The result should be 25 tiles.
Screenshot(s) of output:
 <pre> Microsoft Visual Studio Debug Console Please enter the height of your wall in cm: 85 Please enter the length of your wall in cm: 90 total tiles needed for your wall: 25.00 C:\Source\WorksheetOne\x64\Debug\WorksheetOne.exe (process 26620) exited with code 0 (0x0). Press any key to close this window . . . </pre>
Result: Did the programme behave as expected ie syntactically and logically correct? YES The programme worked flawlessly again. The code allowed me to enter the inputs asked and displayed the correct output as expected.

Test:
Enter dimensions: Width 15 Length 15. The result should be 1 tile
Screenshot(s) of output:
 <pre> Microsoft Visual Studio Debug Console Please enter the height of your wall in cm: 15 Please enter the length of your wall in cm: 15 total tiles needed for your wall: 1.00 C:\Source\WorksheetOne\x64\Debug\WorksheetOne.exe (process 26600) exited with code 0 (0x0). Press any key to close this window . . . </pre>
Result: Did the programme behave as expected ie syntactically and logically correct? YES The code here worked as expected. The test was to enter a width and length of 15 with the expected answer of 1 tile needed. This was accurately demonstrated within my programme.

3. Consider the results of the above tests and revisit your code in order to solve any problems discovered at the testing phase. (Note: you may not be able to solve all of them, but solve as many as you can.)

Paste your revised code here:

```
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>
#include <string.h>
#include <math.h>

void main()
{
    float tileLength = 20, tileHeight = 20, tilesNeededForLength1, tilesNeededForHeight1,
    totalTilesNeeded;
    float wallLength, wallHeight, tilesNeededForHeight2, tilesNeededForLength2;

    printf("Please enter the height of your wall in cm: ");
    scanf("%f", &wallHeight);

    while (wallHeight <= 0)
    {
        printf("invalid height entered!\n");
        printf("Please enter the height of your wall: ");
        scanf("%f", &wallHeight);
    }

    printf("Please enter the length of your wall in cm: ");
    scanf("%f", &wallLength);

    while (wallLength <= 0)
    {
        printf("invalid length entered!\n");
        printf("Please enter the length of your wall: ");
        scanf("%f", &wallLength);
    }

    tilesNeededForHeight1 = wallHeight / tileHeight;
    tilesNeededForLength1 = wallLength / tileLength;

    tilesNeededForHeight2 = ceil(tilesNeededForHeight1);
    tilesNeededForLength2 = ceil(tilesNeededForLength1);

    totalTilesNeeded = tilesNeededForHeight2 * tilesNeededForLength2;

    printf("total tiles needed for your wall: %.2f", totalTilesNeeded);

}
```


Test Sheet 2

GRADEMARK REPORT

FINAL GRADE

7/10

GENERAL COMMENTS

WORKSHEET 2

Coding- Good, your algorithm is suitable. You could also consider that where there is less than half a tile in the calculation, the other half could be utilised (as the pattern on this particular tile can be used in any direction)and this would save a tile. Consider the validation - you could also consider validating for an upper limit

3.5/5

Testing - Good dicussion, clearly written, just the odd "you" and "me" creeping in. Test ii isn't really logically correct as you would be extremely unlikely to tile a wall that size, particularly with 20cm tiles.

4/5

Overall- 7.5/10

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