

TEST1&2

by Noah Cooper

Submission date: 03-Dec-2025 10:21AM (UTC+0000)

Submission ID: 269420062

File name: 66086_Noah_Cooper_TEST12_703116_175390303.docx (450.9K)

Word count: 2130

Character count: 10983

Name: Noah Cooper

Student Number: 2501949

WORKSHEET 1 – TESTING (Using Variables)

1. Original code:

[Copy and paste your original code from Moodle into this box. Do not change it.]

```
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>
#include <math.h>
#include <ctype.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <Windows.h>

void main()
{
    char surname[12], nin[9];
    int age=111;
    float hpw=1111;

    printf("what is your surname? ");
    scanf("%s", &surname);

    while (strlen(surname) >= 13 || strlen(surname) <= 3)
    {
        printf("Sorry out of range");
        printf("what is your surname? ");
        scanf("%s", &surname);
    }

    printf("what is your national insurance number? ");
    scanf("%s", &nin);
    while (strlen(nin) <= 8)
    {
        printf("Sorry out of range");
        printf("what is your national insurance number? ");
        scanf("%s", &nin);
    }

    printf("how old are you? ");
    scanf("%d", &age);
    while (age < 16 || age >120)
    {
```

```
        printf("Sorry out of range");
        printf("how old are you? ");
        scanf("%d", &age);
    }

    printf("how many hours do you work per week? ");
    scanf("%f", &hpw);
    while (hpw < 1 || hpw>60)
    {
        printf("Sorry out of range");
        printf("how many hours do you work per week? ");
        scanf("%f", &hpw);
    }

    printf("The data is \n%s", surname);
    printf("\n%s", nin);
    printf("\n%d", age);
    printf("\n%f", hpw);
}
```

2. Code Testing

For each test below, run your code and enter the values provided. Present a screenshot of the programme running. Did the programme behave correctly or did it do something unexpected, and if so, why?

Surname:

- i. Enter *JONES*
- ii. Leave blank
- iii. Enter *A*
- iv. Enter *123*

National Insurance Number:

- i. Enter PE534121B
- ii. Leave blank
- iii. Enter AB11223344556677 (ie too long for National Insurance number format)

Age

- i. Enter 34
- ii. Enter 150
- iii. Enter -4
- iv. Enter a letter

Number of working hours per week:

- i. Enter 37.5
- ii. Enter 105
- iii. Enter 0
- iv. Enter -2

Fill in a box for each test above. You should present 15 separate boxes, 1 for each test. (Note: the two boxes are provided as a template)

Test: i
Surname i. Enter JONES

Screenshot(s) of output:



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

YES/NO (delete as appropriate)

If NO, what went wrong?

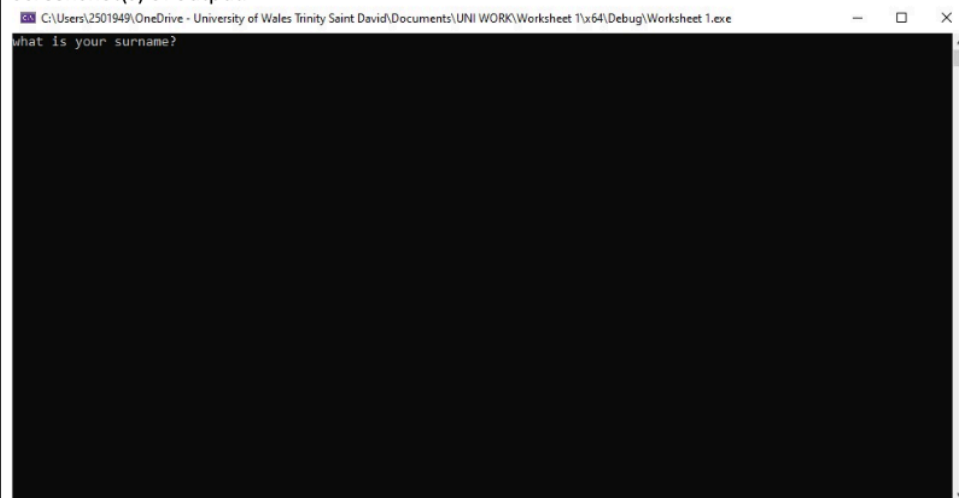
If YES, comment on what happened

It worked well

Test: ii

Surname ii Leave blank

Screenshot(s) of output:



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

YES/NO (delete as appropriate)

If NO, what went wrong?

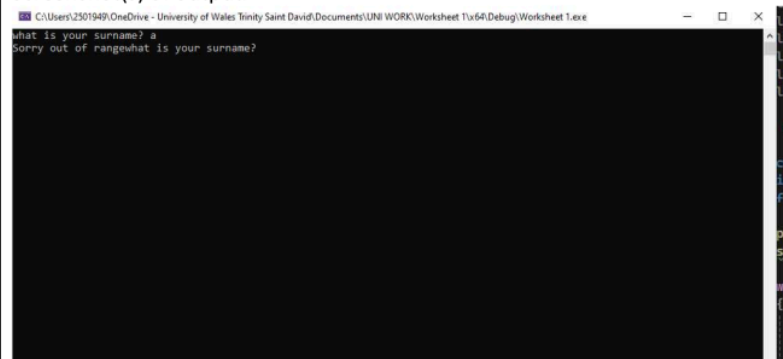
If YES, comment on what happened

It does work but wish it also had a message with it, however it won't let the code continue Until it the user has typed something in

Test: A

iii

Screenshot(s) of output:



```
C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNI WORK\Worksheet T\64\Debug\Worksheet 1.exe
what is your surname? a
Sorry out of rangewhat is your surname?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

Yes, it worked well

Test: 123

iv

Screenshot(s) of output:



```
C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNI WORK\Worksheet T\64\Debug\Worksheet 1.exe
what is your surname? 123
Sorry out of rangewhat is your surname?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

It had worked

Test: PE534121B

i

Screenshot(s) of output:

C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNI WORK\Wo

```
what is your surname? 123
sorry out of rangewhat is your surname? Nahs
what is your national insurance number? PE534121B
how old are you?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

It worked well

Test: nothing entered

ii

Screenshot(s) of output:

C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNI WORK\Worksheet 1\64\Debug\Worksheet 1.exe

```
what is your surname? ADASFDSDA
what is your national insurance number?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

The code did stop but wish it had a message; however it won't let the code continue Until it the user has typed something in

Test: AB11223344556677

iii

Screenshot(s) of output:

C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNI WORK\Worksheet 1\64\Debug\Worksheet 1.exe

```
what is your surname? GDSDFSD
what is your national insurance number? AB11223344556677
how old are you?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

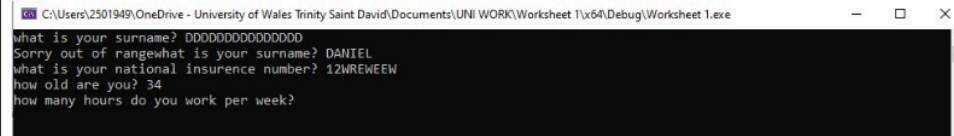
If YES, comment on what happened

It did not catch that which means it didn't work as planned

Test: 34

iv

Screenshot(s) of output:



```
C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNIL WORK\Worksheet 1\Debug\Worksheet 1.exe
What is your surname? DDDDDDDDDDDDDDDDD
Sorry out of rangeWhat is your surname? DANIEL
What is your national insurance number? 12WREWEW
How old are you? 34
How many hours do you work per week?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

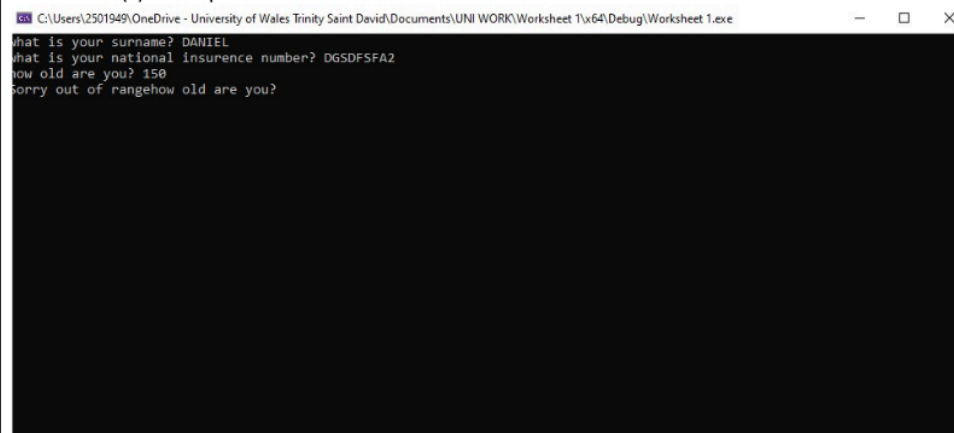
If YES, comment on what happened

Yes, it has worked as planned

Test: 150

i

Screenshot(s) of output:



```
C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNIL WORK\Worksheet 1\Debug\Worksheet 1.exe
What is your surname? DANIEL
What is your national insurance number? DGSDFSFA2
How old are you? 150
Sorry out of rangeHow old are you?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

It has worked as planned

Test: -4

ii

Screenshot(s) of output:

```
C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNI WORK\Worksheet 1\64\Debug\Worksheet 1.exe
what is your surname? DANIEL
what is your national insurance number? DFJH3483
Sorry out of rangewhat is your national insurance number? SFEFRW3R3
how old are you? -4
Sorry out of rangehow old are you?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

It has worked well as planned

Test: a

iii

Screenshot(s) of output:

Select C:\Users\2501949\OneDrive - University of Wales Trinity Saint David\Documents\UNI WORK\Worksheet T\6x6\Debug\Worksheet 1.exe

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

YES/NO (delete as appropriate)

If NO, what went wrong?

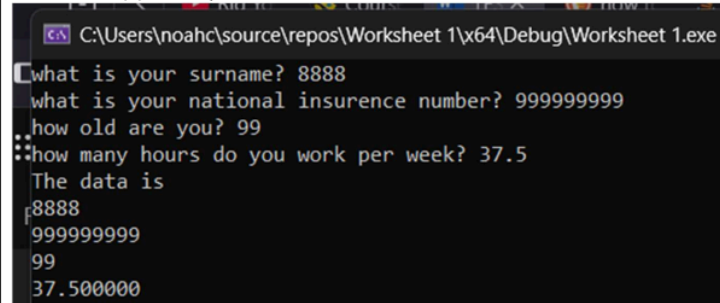
If YES, comment on what happened

It catches it but had it repeated over and over and over...

Test: 37.5

i

Screenshot(s) of output:



```
C:\Users\noahc\source\repos\Worksheet 1\x64\Debug\Worksheet 1.exe
what is your surname? 8888
what is your national insurance number? 999999999
how old are you? 99
how many hours do you work per week? 37.5
The data is
8888
999999999
99
37.500000
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

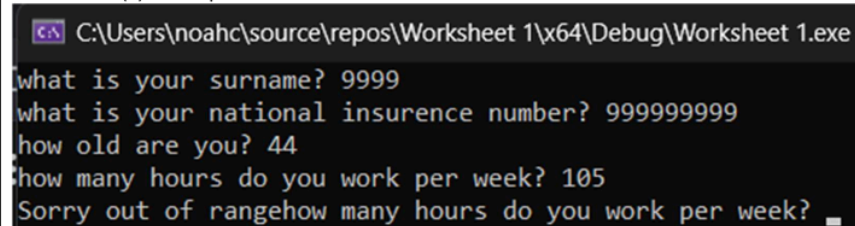
If YES, comment on what happened

It has worked, but would be better if I had rounded it to .00

Test: 105

ii

Screenshot(s) of output:



```
C:\Users\noahc\source\repos\Worksheet 1\x64\Debug\Worksheet 1.exe
what is your surname? 9999
what is your national insurance number? 999999999
how old are you? 44
how many hours do you work per week? 105
Sorry out of rangehow many hours do you work per week? _
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

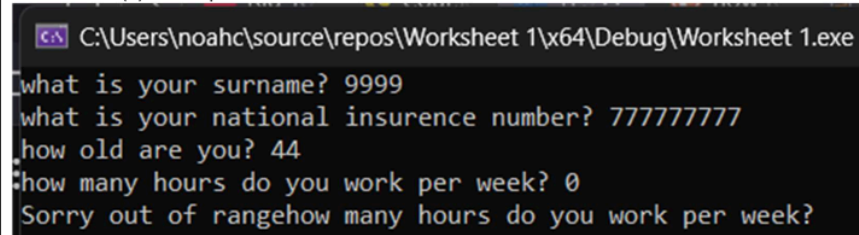
If YES, comment on what happened

It has worked as intended

Test: 0

iii

Screenshot(s) of output:



```
C:\Users\noahc\source\repos\Worksheet 1\x64\Debug\Worksheet 1.exe
what is your surname? 9999
what is your national insurance number? 77777777
how old are you? 44
how many hours do you work per week? 0
Sorry out of rangehow many hours do you work per week?
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

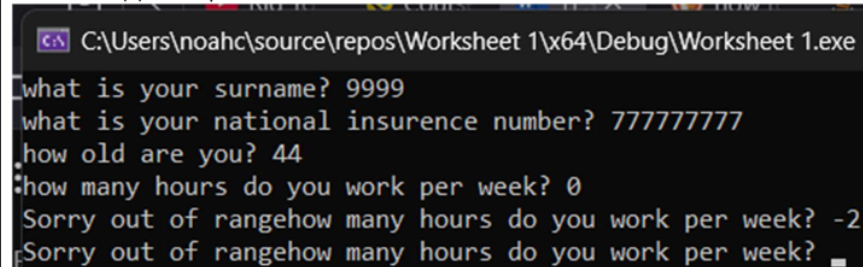
If YES, comment on what happened

It has worked as intended

Test: -2

iv

Screenshot(s) of output:



```
C:\Users\noahc\source\repos\Worksheet 1\x64\Debug\Worksheet 1.exe
what is your surname? 9999
what is your national insurance number? 77777777
how old are you? 44
how many hours do you work per week? 0
Sorry out of rangehow many hours do you work per week? -2
Sorry out of rangehow many hours do you work per week? _
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

Has worked as intended

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

Paste your revised code here:

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

```
#define _CRT_SECURE_NO_WARNINGS

#include <stdio.h>

#include <math.h>

#include <stdlib.h>

#include <string.h>

#include <ctype.h>

int main()
{
    char surname[12], nin[9];

    int age = 0;

    float hpw = 0.0;

    int validate;

    printf("what is your surname? ");

    scanf("%s", surname);

    while (strlen(surname) >= 13 || strlen(surname) <= 3)
    {
        printf("Sorry out of range\n");

        printf("what is your surname? ");

        scanf("%s", surname);
    }

    printf("what is your national insurance number? ");

    scanf("%s", nin);
```

```

while (strlen(nin) <= 7 || strlen(nin) >= 9)
{
    printf("Sorry out of range\n");

    printf("what is your national insurance number? ");
    scanf("%s", nin);
}

while (1)
{
    printf("how old are you? ");
    validate = scanf("%d", &age);

    if (validate != 1)
    {
        printf("Invalid input, please enter digits only.\n");
        while (getchar() != '\n');
    }
    else
    {
        if (age >= 16 && age <= 120)
        {
            break;
        }
        else
        {
            printf("Sorry out of range\n");
        }
    }
}

```

```

    }

    }

}

while (1)
{
    printf("How many hours do you work per week? ");

    validate = scanf("%f", &hpw);

    if (validate != 1)
    {
        printf("Invalid input, please enter a number.\n");
        while (getchar() != '\n');
    }
    else
    {
        if (hpw >= 1 && hpw <= 60) {
            break;
        }
        else
        {
            printf("Sorry out of range\n");
        }
    }
}

printf("The data is \n%s", surname);

```

```
printf("\n%s", nin);  
printf("\n%d", age);  
printf("\n%f", hpw);  
return 0;  
}
```

Name: Noah Cooper

Student Number:
2501949

WORKSHEET 2 – TESTING (Tiles)

1. Original code:

```
#define _CRT_SECURE_NO_WARNINGS #include <stdio.h> #include <math.h> #include <ctype.h>  
#include <stdlib.h> #include <string.h> #include <time.h> #include <Windows.h>
```

```

void main() { float wallX, wallY, tileacross, tileupwards, total;

printf("choose the width Meaurement of wall");
scanf("%f", &wallX);

while (wallX > 200 || wallX < 40) //who even wants 2 tiles?
{
    printf("Incorrect Data");
    printf("choose the width Meaurement of wall");
    scanf("%f", &wallX);

}
printf("choose the width Meaurement of wall");
scanf("%f", &wallY);

while (wallY > 200 || wallY < 40) //who even wants 2 tiles?
{
    printf("Incorrect Data");
    printf("choose the width Meaurement of wall");
    scanf("%f", &wallY);
}

tileacross = wallX / 20;
tileacross = ceil(tileacross); //rounds up
tileupwards = wallY / 20;
tileupwards = ceil(tileupwards); //rounds up
total = tileacross * tileupwards; //the ammount of tiles

printf("The minimum ammount of tiles would be %f", total);

```

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:

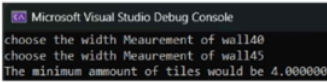
- i. Enter dimensions: Width 40 Length 45
- ii. Enter dimensions: Width 100000 Length 200000
- iii. Enter dimensions: Width -16 Length -20

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)

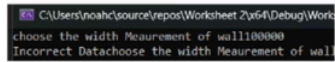
Fill in a box for each test above. You should present 7 separate boxes, 1 for each test. (Note: the first box is provided as a template)

Test i: Input - Enter dimensions: width 40 length 45
Screenshot(s) of output: 
Result: Did the programme behave as expected ie syntactically and logically correct? YES/NO (delete as appropriate) If NO, what went wrong? If YES, comment on what happened Yes it took the 2 numbers and made the correct calculations

Test: **Enter dimensions: Width 100000 Length 200000**

ii

Screenshot(s) of output:



```
C:\Users\nahc\source\repos\Worksheet 2\64\Debug\Worksheet 2.exe
choose the width Measurement of wall100000
Incorrect Datachoose the width Measurement of wall
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

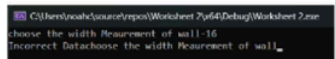
If YES, comment on what happened

It had what it was supposed to do by stopping the program to add sensible measurements only

Test: **Enter dimensions: Width -16 Length -20**

iii

Screenshot(s) of output:



```
C:\Users\nahc\source\repos\Worksheet 2\64\Debug\Worksheet 2.exe
choose the width Measurement of wall-16
Incorrect Datachoose the width Measurement of wall_
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

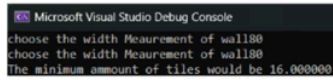
If YES, comment on what happened

It had what it was supposed to do by stopping the program to add sensible measurements only

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

iv

Screenshot(s) of output:



```
Microsoft Visual Studio Debug Console
choose the width Measurement of wall180
choose the width Measurement of wall180
The minimum amount of tiles would be 16.000000
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

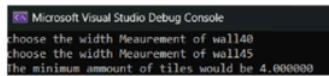
If YES, comment on what happened

It produced the right amount of tiles!

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

V

Screenshot(s) of output:



```
Microsoft Visual Studio Debug Console
choose the width Measurement of wall140
choose the width Measurement of wall145
The minimum amount of tiles would be 4.000000
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

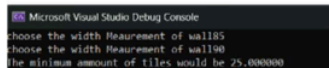
If YES, comment on what happened

It wasn't correct, I think I may have messed up the division in the code

Test: Enter dimensions: Width 85 Length 90. The result should be 25 tiles.

vi

Screenshot(s) of output:



```
Microsoft Visual Studio Debug Console
choose the width Measurement of wall185
choose the width Measurement of wall190
The minimum amount of tiles would be 25.000000
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

The code worked perfectly well here, just want the code to be a single number and not 25.000000

Test: Enter dimensions: Width 15 Length 15. The result should be 1 tile.

vii

Screenshot(s) of output:

```
C:\Users\paul\source\repos\Worksheet 2\6\Debug\Worksheet 2.exe
Choose the width Measurement of wall15
Incorrect Datachoose the width Measurement of wall15
Incorrect Datachoose the width Measurement of wall15
Incorrect Datachoose the width Measurement of wall15
```

IF I USED 40 WHICH IS THE LOWEST I HAVE ON HERE TYPED

```
Incorrect Datachoose the width Measurement of wall40
Choose the width Measurement of wall40
The minimum amount of tiles would be 4.000000
```

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

YES/NO (delete as appropriate)

If NO, what went wrong?

If YES, comment on what happened

This did not work since the lowest the tile can go is 40 not 15 for me, however the code put out 4.000000 when i did the lowest values 40x40

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:

```
[Copy and paste your revised code here – note, do not use a screenshot]
#define _CRT_SECURE_NO_WARNINGS #include <stdio.h> #include <math.h> #include <stdlib.h>
#include <string.h>

void main() { int tileacross, tileupwards, total; float wallX, wallY;

printf("choose the width Meaurement of wall");
scanf("%f", &wallX);

while (wallX > 200 || wallX < 15) //who even wants 2 tiles?
{
    printf("Incorrect Data");
    printf("choose the width Meaurement of wall");
    scanf("%f", &wallX);
}
printf("choose the width Meaurement of wall");
scanf("%f", &wallY);

while (wallY > 200 || wallY < 15) //who even wants 2 tiles?
{
    printf("Incorrect Data");
    printf("choose the width Meaurement of wall");
    scanf("%f", &wallY);
}

tileacross = ceil(wallX / 20.0);
tileupwards = ceil(wallY / 20.0);
total = tileacross * tileupwards;

printf("The minimum ammount of tiles would be %d", total);

}
```

TEST1&2

GRADEMARK REPORT

FINAL GRADE

7/10

GENERAL COMMENTS

WORKSHEET 1

Coding- Be careful with your limits - with surname in particular, a double barrelled surname could easily exceed 13, and Mr Li would be quite unhappy too :) National Insurance number has been improved in the final code. You could also consider validating for format of National Insurance number. I don't really like while(1) try to exit with a condition rather than have random breaks.

3.5/5

Testing - Just be careful with your proofreading, it's not always clear what you mean, grammar could be improved (built-in Word tools can help you with this) Avoid the temptation to use "I", one crept in on "would be better if I had rounded it to .00" ->"would be better if it had been rounded to two decimal places". It would be better to have a more meaningful comment rather than "it had worked". For example for test 123 on the surname you might write "The program ran successfully prompting the user to re-enter a surname". Where it didn't work, give more detail "It didn't work as planned" - why not? How would it be improved?

3.5/5

Overall - 7/10

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17

PAGE 18

PAGE 19

PAGE 20
