

Worksheet One - Assignment FINAL.docx

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WORKSHEET 1 – TESTING (Using Variables)

1. Original code:

```
void main()
{
    char surname[255];
    char nationalInsurance[10];
    int userAge;
    float workingHours;

    printf("Please enter your Surname: ");
    scanf("%s", &surname);

    printf("Please enter your National Insurance Number: ");
    scanf("%s", &nationalInsurance);

    printf("How old are you? ");
    scanf("%d", &userAge);

    printf("How many hours have you worked this week? ");
    scanf("%f", &workingHours);

    if (strlen(surname) > 2)
    {
        printf("\n\nHello %s!\n", surname);
        if (strlen(nationalInsurance) == 9)
        {
            printf("Here is your National Insurance Number: %s\n",
nationalInsurance);
            if (userAge <= !0 || userAge >= !130)
            {
                printf("You are %d years old!\n", userAge);
                if (workingHours < 0)
                {
                    printf("You have completed %.1f hours this
week.\n", workingHours);
                }
            }
        }
    }
}
```

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: Surname i. Enter JONES

Screenshot(s) of output:

A screenshot of a terminal window showing the text "Hello JONES!" in a monospaced font.

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

YES

If YES, comment on what happened

Outputted Hello JONES!

Test:

Surname ii Leave blank

Screenshot(s) of output:

A screenshot of a terminal window showing the text "Please enter your Surname:" in a monospaced font.

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

YES

If YES, comment on what happened

Due to limitations, the program is unable to register a blank entry thus continues to wait for a value.

Test: Surname iii Enter A

Screenshot(s) of output:

A screenshot of a terminal window showing a long line of asterisks, likely representing a buffer overflow or a long string of output.

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

NO

If NO, what went wrong?

No syntax to output an error when user enters a surname that isn't "appropriate".

Test: Surname iii Enter 123

Screenshot(s) of output:

Hello 123!

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

NO

If NO, what went wrong?

No validation for when the user enters a surname with integers.

Test: National Insurance I. Enter PE534121B

Screenshot(s) of output:

Here is your National Insurance Number: PE534121B

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

YES

If YES, comment on what happened

Outputted the correct National Insurance in the correct format.

Test: National Insurance ii. Leave blank

Screenshot(s) of output:

Please enter your National Insurance Number:

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

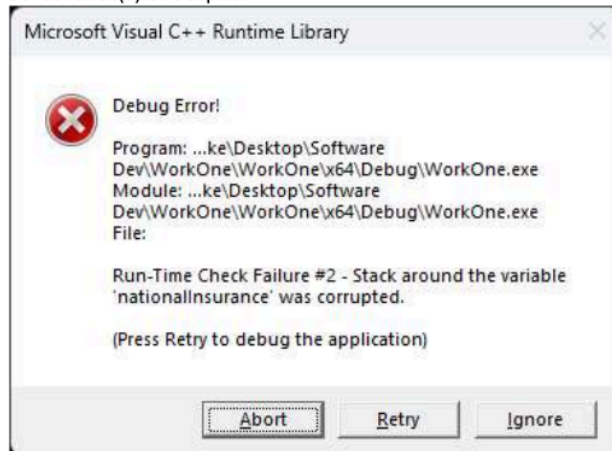
YES

If YES, comment on what happened

Due to limitations, the program is unable to register a blank entry thus continues to wait for a value.

Test: National Insurance iii. Enter AB11223344556677

Screenshot(s) of output:



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

No

Completely crashed the program when finishing the remaining entries. No syntax to prevent overflow.

Test: Age i. Enter 34

Screenshot(s) of output:

You are 34 years old!

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

YES

If YES, comment on what happened

Outputted the correct Age in the correct format.

Test: Age II. Enter 150

Screenshot(s) of output:

You are 150 years old!

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

No

Outputted the age correctly, incorrect validation, currently no record of an individual being over the age of 130.

Test: Age III. Enter -4

Screenshot(s) of output:

You are -4 years old!

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

NO

Outputted the age correctly, incorrect validation, currently impossible for an individual to be less than 0 years old.

Test: Age iv. Enter a letter

Screenshot(s) of output:

You are -858993460 years old!

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

NO

Does not output an accurate age, no validation to detect if it's a character.

Test: Working Hours i. Enter 37.5

Screenshot(s) of output:



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

No

Does not output a value.

Test: Working Hours ii. Enter 105

Screenshot(s) of output:



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

No

Does not output a value.

Test: Working Hours iii. Enter 0

Screenshot(s) of output:



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

NO

Does not output.

Test: Working Hours iv . -2

Screenshot(s) of output:

You have completed -2.0 hours this week.

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

NO

Logically incorrect, no validation for when its entered as a negative value.

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]
void main()
{
    char userSurname[255];
    char userNationalInsurance[10];
    int userAge;
    float userWorkingHours;

    printf("What is your surname? ");
    scanf("%s", &userSurname);
    printf("What is your national insurance number? ");
    scanf("%s", &userNationalInsurance);
    printf("How old are you? ");
    scanf("%d", &userAge);
    printf("How many hours have you worked this week? ");
    scanf("%f", &userWorkingHours);
    // all values obtained lets validate....

    while (strlen(userSurname) <= 0)
    {
        printf("Please enter a valid surname: ");
        scanf("%s", userSurname);
    }
    while (strlen(userNationalInsurance) < 9 || strlen(userNationalInsurance) > 9)
    {
        printf("Please enter a valid national insurance number: ");
        scanf("%s", &userNationalInsurance);
    }
    while (userAge <= 0 || userAge > 130)
    {
        printf("Please enter a valid age: ");
        scanf("%d", &userAge);
    }
    while (userWorkingHours < 0 || userWorkingHours >= 78)
    {
        printf("Please enter a valid number of working hours: ");
        scanf("%f", &userWorkingHours);
    }

    printf("\n\nHello %s!", userSurname);
    printf("\nHere is your national insurance number! %s", userNationalInsurance);
    printf("\nYou are currently %d years old!", userAge);
    printf("\nYou have worked %.1f hours this week!", userWorkingHours);
}
```

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GRADEMARK REPORT

FINAL GRADE

7/10

GENERAL COMMENTS

WORKSHEET 1

Coding- Some good progression between class work and final solution. You might think about validating the format of NI number and surname - a maximum length and that it should be letters only.

3.5/5

Testing - You need to show more of a screenshot - it's cut off too much. Show what happened by including the next line - this will show it in context. Other than that, a good discussion for most tests

3.5/5

Overall - 7/10

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