Logic

Workshop 3 (out of 10 marks - 4% of your final grade)

LEARNING OUTCOMES

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SUBMISSION POLICY

All your work (all the files you create or modify) must contain your name, Seneca email and student number.

Late submission penalties

IN-LAB: (30%)

Download or clone workshop 3 (**WS03**) from **https://github.com/Seneca-144100/IPC-Workshops**

Code a program in `temps.c` that does the following:

1- Before the declaration of main define NUMS as 3: #define NUMS 3

2- Print the title of the application.

>---=== IPC Temperature Analyzer ===---<

3- Using a ***for loop***, prompt the user to enter the high and low values for each of ***NUMS*** days. The values entered must be between -40 and 40, and high must be greater than low.

Print the following messages:
>Enter the high value for day 1: < (or day 2, or day 3)
* Read the high value.

>Enter the low value for day 1: < (or day 2, or day 3)
* Read the low value.

4- Use a nested while (or do-while) loop to analyze the results, high must be greater than low, high must be less than 41, low must be greater than -41

*If any entry is incorrect, prompt the user to enter again until the entries pass the tests:

> Incorrect values, temperatures must be in the range -40 to 40, high must be greater than low. <

Then prompt again for the high and low temperatures for the day.

5- When the user has correctly entered the high and low temperatures, add them to variables that will store the total high and total low temperatures for NUMS days.

6- When the loop finishes calculate the average (mean) temperature for NUMS days and display:

> The average (mean) temperature was: -- <

OUTPUT EXAMPLE WITH ERRORS HANDLED *(use this data for submission)*

```
---=== IPC Temperature Analyzer ===---
Enter the high value for day 1:

Enter the low value for day 1:

Enter the high value for day 2:

Enter the low value for day 2:

Incorrect values, temperatures must be in the range -40 to 40, high must be greater than
low.

Enter the high value for day 2:

Enter the low value for day 2:

Enter the high value for day 3:

Enter the low value for day 3:

Incorrect values, temperatures must be in the range -40 to 40, high must be greater than
low.

Enter the high value for day 3:

Enter the low value for day 3:

The average (mean) temperature was: 4.50
```

IN_LAB SUBMISSION:

To test and demonstrate execution of your program use the same data as the output example above.

If not on matrix already, upload your `temps.c` to your matrix account. Compile and run your code and make sure everything works properly.

Then run the following script from your account: (replace profname.proflastname with your professors Seneca userid)

```
~profname.proflastname/submit 144_w3_lab <ENTER>
```

and follow the instructions.

Please Note

- A successful submission does not guarantee full credit for this workshop.
- If the professor is not satisfied with your implementation, your professor may ask you to resubmit. Resubmissions will attract a penalty.

AT_HOME: (30%)

After completing the in_lab section, upgrade temps.c to

- process a 4-day period using a single change to your in_lab code
- display the highest temperature, and on which day it occurred
- display the lowest temperature, and on which day it occurred
- calculate and display the mean temperature for the 4-day period.

OUTPUT EXAMPLE

```
---=== IPC Temperature Analyzer ===---
Enter the high value for day 1: 8

Enter the low value for day 1: -2

Enter the high value for day 2: 9

Enter the low value for day 2: -4

Enter the high value for day 3: 11

Enter the low value for day 3: 5

Enter the high value for day 4: 10

Enter the low value for day 4: 3

The average (mean) temperature was: 5.00
The highest temperature was 11, on day 3
The lowest temperature was -4, on day 2
```

AT-HOME REFLECTION (40%)

Please provide brief answers to the following questions in a text file named **reflect.txt.**

1) Name all the iteration constructs.
2) In two or three sentences explain the difference between a “do while” and a “while” loop?
3) In two or three sentences explain what is meant by the term conditional expression?

Note: when completing the workshop reflection it is a violation of academic policy to cut and paste content from the course notes or any other published source, or to copy the work of another student.

AT_HOME SUBMISSION:

To test and demonstrate execution of your program use the same data as the output example above… (8, -2, 9, -4, 11, 5, 10, 3)

If not on matrix already, upload your **temps.c and reflect.txt** to your matrix account. Compile and run your code and make sure everything works properly.

Then run the following script from your account: (replace profname.proflastname with your professors Seneca userid)

```
~profname.proflastname/submit 144_w3_home <ENTER>
```

and follow the instructions.

Please Note

- A successful submission does not guarantee full credit for this workshop.
- If the professor is not satisfied with your implementation, your professor may ask you to resubmit. Resubmissions will attract a penalty.