CSC 3320: System-Level Programming

Week of 09/23/2024

Lab 4

© INSTRUCTOR: DR. MD. MAHFUZUR RAHMAN

100 Points

Objectives:

Today we will be covering the following topics:

1. Use of variables, expressions, and formatted I/O in a C program.

2. Practice type conversion during evaluation of C expression.

Instructions:

- Attendance is mandatory.
- Labs must be completed individually.
- If you have any questions, please do not hesitate to ask TA.
- Follow submission instructions in the deliverable section.
- Lab assignments are due at midnight on the day of your lab (i.e., by 11:59 PM)

1. Write a program to convert a Celsius temperature to its equivalent Fahrenheit temperature using the `vi` editor and save it as `lab4.c`. Use the following formula for conversion.

$$F = \frac{9}{5}C + 32$$

Your program will ask for a Celsius temperature from the user and produce its equivalent Fahrenheit temperature. Use two decimal places in your output. For example, it will look like the following on the terminal:

```
Enter Celsius temperature: 100.00          (e.g., 100 is user input and then PRESS Enter)
Equivalent Fahrenheit temperature: 212.00
```

Do the following tasks:

(a) (10 points) Make sure you are taking Celsius input as a floating point number. [`check your scanf function`]

(b) (20 points) Make sure you used two decimal places for printing output. [`use appropriate format specifier`]

(c) (20 points) Make sure you are doing appropriate type conversion to ensure floating-point computation.

(d) (10 points) Start recording your session using the `script` utility.

(e) (10 points) Show the contents of lab4.c using the `cat` command.

(f) (10 points) Compile lab4.c using the `gcc` compiler. Use appropriate flag for the object file name using `-o`.
For example: `gcc c_filename -o obj_filename`

(g) (10 points) Run your program using appropriate command.
For example: `./obj_filename`

(h) (10 points) Finish your recording (use the `exit` command).

Deliverables

For today's lab, clean the text file (.txt) you recorded during your terminal session, if there are unwanted characters. In other words, make it as you observed during your terminal session. Please name your text file as **lastname_firstname_lab04.txt**. You will need to submit the text file (terminal session record) and your C file (lab4.c) to the **Lab 04** dropbox in iCollege.