Dear Mr. Watchorn,

**Executive Summary:**

In the past week, I've been working on two separate C programs to deepen my understanding of variables, flow control, and user interactions. The first program calculates and displays the Body Mass Index (BMI) and converts Fahrenheit temperatures to Celsius. The second program uses 2-dimensional arrays to mimic an LED matrix and allows user interaction.

**Discussion:**

Throughout the development of these programs, the primary decisions I made were concerning variable data types and user prompts. For the first program, I used the ‘float’ type for all variables to ensure accurate calculations since both equations involved division. For user prompts in the second program, I decided to use a combination of ‘printf’ and ‘scanf’ functions for user interaction.

For the second program, I chose to create images of an 'O' and an 'X' in a 5x5 LED matrix. The choice for these images was inspired by the idea of simplicity and clarity, as these images are simple enough to be represented clearly in a 5x5 matrix and are recognizable to most users. The decision to use a do-while loop ensures the program runs until the user decides to quit.

**Outcomes:**

Both programs compiled successfully on my system (AMD Ryzen) using the CLion IDE. The first program correctly calculated the BMI and converted the temperature, displaying them with the ‘printf’ function.

The second program successfully created a pseudo-LED matrix and interacted with the user, correctly displaying the chosen image based on the user's input, and continued to do so until the user chose to quit the program.

**Conclusions:**

The completed assignment effectively demonstrated the usage of different data types, flow control, and user interaction in C programming. It also gave me an opportunity to understand how mathematical formulas can be implemented in code and how to create simple console-based graphics.

Please find the photos showing both programs in action.

Best Regards,

Michael Dekoski

Attachments



Attachment 1: The successful completion of program 1.

A screen shot of a computer

Description automatically generated with medium confidence

Attachment 2: The successful completion of the flow control in program 2 to show the second image.

A black screen with white text

Description automatically generated with low confidence

Attachment 2: The successful completion of the flow control in program 2 to show the first image.



Attachment 2: The successful completion of the flow control in program 2 to show the program quitting.