SIT 111 COMPUTER SYSTEMS

TASK 3.3 p Arduino LED Control via Button

Summary:

In this task I worked with a software called Arduino uno. This task focused on writing a small code and the objective was to make the two LED blink by pressing the respective button for the following. The materials I required were

• Arduino Uno (or similar Arduino board)

• 2 LEDs (different colors)

 • 2 push buttons

• 4 resistors (220-ohm for LEDs and 10k-ohm for buttons)

 • Breadboard • Jumper wires

• USB cable to connect the Arduino to a computer

• Arduino IDE installed on the computer

I followed the sample circuit picture on the task sheet and formed the circuit in the same way. For this task the code was not provided so I used my previous learning experiences of coding and took help from youtube videos to deepen my understanding of how to code for such projects like In our Arduino code, we define the button pin as an input using pinMode(), and in the loop() function, utilize digitalRead() to check the button's state. When the button is pressed (HIGH), execute the desired actions using conditional statements. This straightforward process enables us to integrate button functionality into your Arduino projects with ease. I then verified and compiled and uploaded my code .

int (Integer): The integer data type is instrumental for working with whole numbers.

float (Floating-Point): UFloating-point data types are employed when precision with decimal point values is required. These data types accommodate real numbers with fractional parts.

char (Character): The character data type is used for storing individual characters, which can be letters, numbers, or symbols. It's invaluable when working with strings or textual data.

boolean: booleans are essential when dealing with binary logic and conditions. They represent either a true or false value, making them indispensable for decision-making in control structures like if statements.
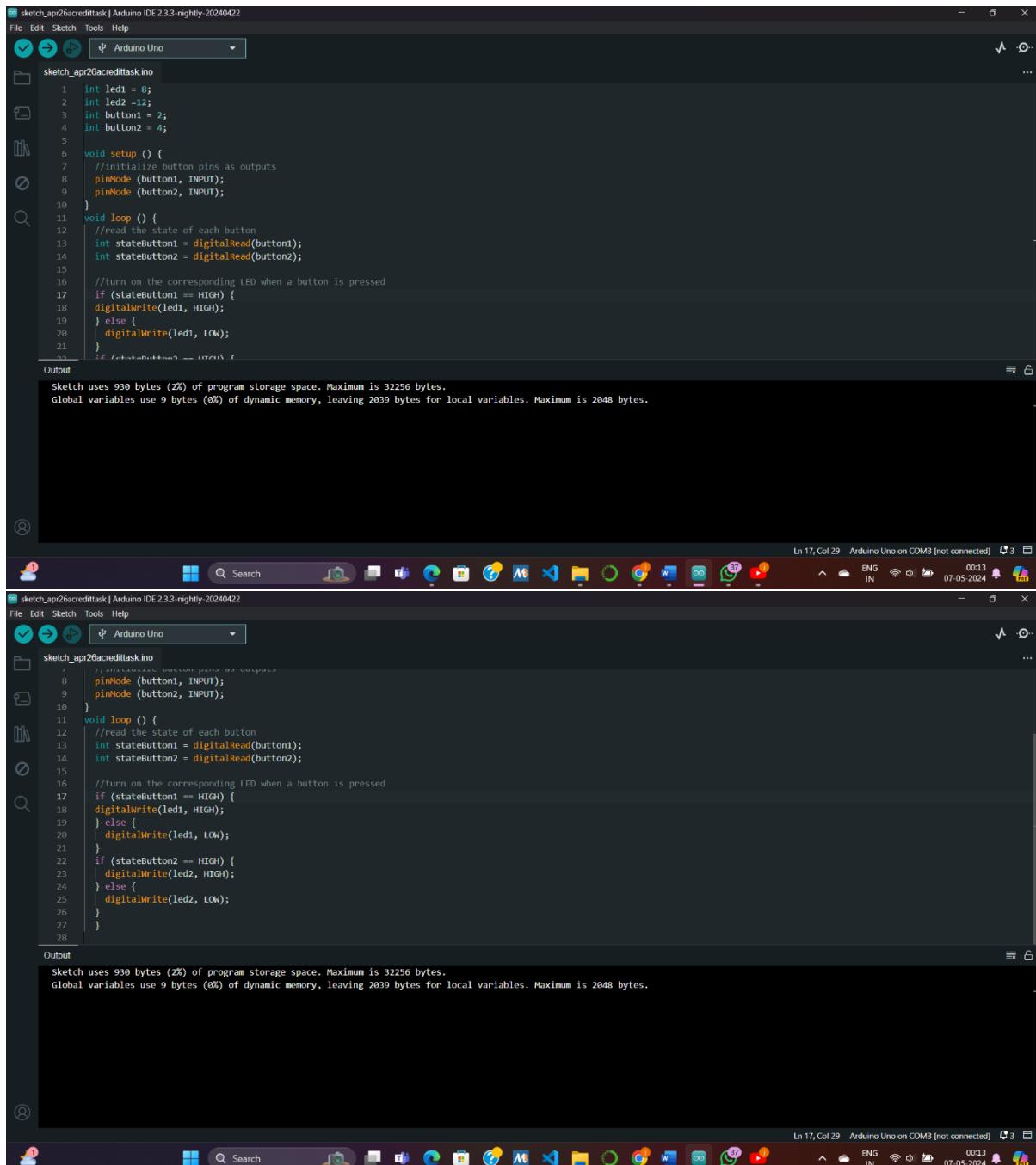
if statement: The **if** statement is a cornerstone of conditional execution. It enables our Arduino program to assess a given condition and, if that condition is true, execute a predefined set of instructions.

else statement: Complementing the **if** statement, the **else** statement provides an alternative course of action when the condition evaluated by if is found to be false.

loops (e.g., for, while): Loops are indispensable for automating repetitive tasks and executing code iteratively. Arduino offers versatile loop structures, including

the **for** and **while** loops. A for loop, for instance, allows us to execute a block of code a specified number of times, making it invaluable for tasks like data acquisition at regular intervals.

Learning journey :

Reflections :

How do you know you have achieved the learning goals?

I learned about the basic commands and some new ways to use Arduino in this task and also got familiar with the usage of Arduino uno. Got my hands on compiling the circuit and knowing about the components. Another component the buttons were added in the task.

 • What is the most important thing you learned from this and why?

For me, the most important thing was formation of the circuit, getting to know about the different components in the kit because it was a practical and a new experience for me.

Another interesting and important thing I learned was linking each of the buttons with the LED's

• How does the content or skills learned here relate to things you already know?

I already knew about the coding for this task I.e the commands and inputs. It only deepens my understanding.

• Where or when do you think it will be useful?

Since it is quite practical and I could see the output working, it not only boosted my confidence but also helped me develop interest in hardware.

Youtube video link: https://youtu.be/VPbEnF0Sq1c