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CSE321
Project 3 Planning
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Part A: Project Statement
The project is to design a weather predictor. The purpose of this is to help the user dress appropriately for the current weather conditions and weather events that may happen during the day. The area of application is safety. This weather predictor and dressing feedback help keep the user safe y making sure the user does not get stuck in the rain without an umbrella or proper shoes, doesn't end up in the snow without gloves and risk getting frostbite, doesn't end up in the heat without water, etc.

Part B: Initial Constraints and Specifications
- The user must put the sensor of the system outside or near an open window
- The user will have a key code to determine what the output number from the seven-segment display means
- The sensor will always be reading input and updating the LCD and seven-segment display information in real-time
- The LCD will display what type of clothing should be worn based on the weather
- The seven-segment will display a number to communicate the weather conditions for the day
- Conditions will be read every 2 seconds
- The LCD and the seven-segment display will only update if expected conditions change since the last display
- Runs forever

Part C: Asks
Purpose:
The purpose of this system is to warn the user on how to dress and what accessories (umbrella, hat, gloves, water bottle, etc.) based on the current and potential weather conditions.

Inputs:
Outside humidity and temperature via the DHT11.

Outputs:
Visual information via the LCD to display weather conditions and how to dress accordingly and visual information via a number code on the seven-segment display.

Constraints:
The sensor must be placed outside or near an open window so that it can read accurately based on outside conditions.

Part D: Preliminary BOM

- DHT11
    - Humidity and temperature sensor input as % humidity readings and ℃ temperature readings
    - https://learn.adafruit.com/dht
- LCD
    - Visual output for how to dress based on the weather
- Seven Segment Display
    - Visual output of a number to communicate weather conditions
- Nucleo-L4R5ZI
    - Programmable development board
- Breadboard
    - Used to form solderless connections
- Jumpers
    - Male/male wires used to connect peripherals and Nucleo-L4R5ZI
- Resistors
    - 1k Ohm resistors to complete circuits