ECEA 5347- Project 1

Implementation/Assumption Notes

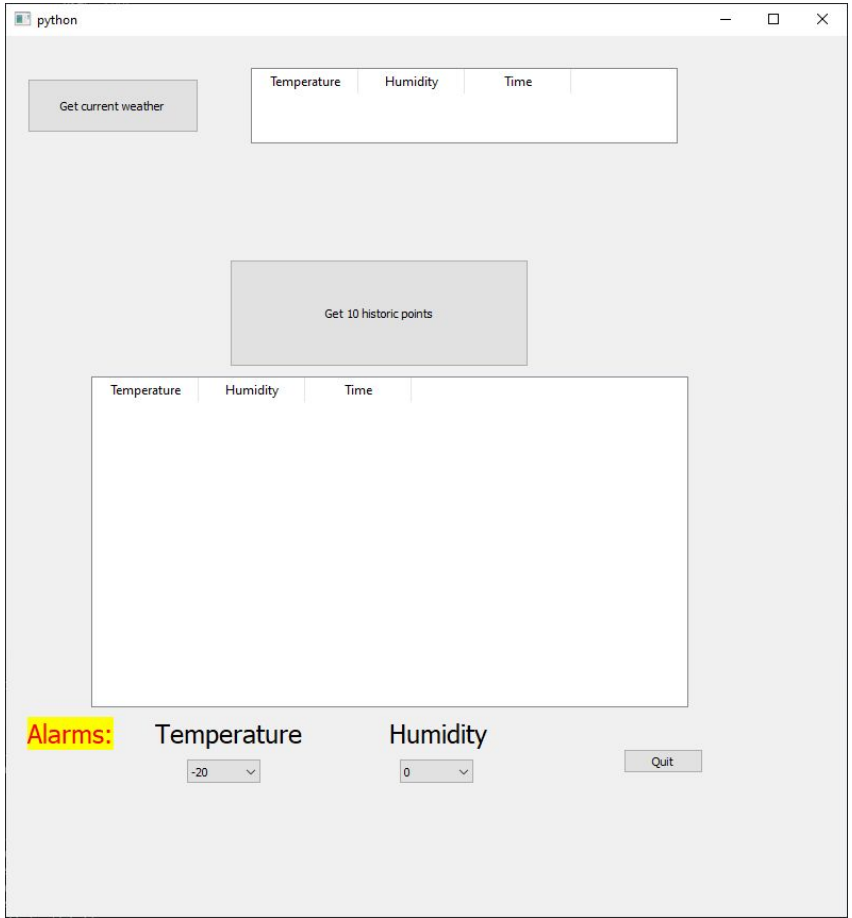
Objective- Create a Qt user interface that will:

1. Display temperature & humidity read in from a pseudo sensor, respond to events (e.g. button presses) and send data to code (e.g. text fields)
2. Contain a Qt button that will have your main Python program read a single humidity/temperature reading from the pseudo sensor and then display the values on the UI
3. Use a simple SQL database like MariaDB or other extendable Python data structure to store incoming humidity/temperature value pairs along with a timestamp
4. Provide a Qt button that will read 10 values from the pseudo sensor with a one second delay between each reading (these values will be stored with their timestamps) – you can decide how this is displayed on the UI – showing data items read, showing completion, etc.
5. Provide a Qt button that will cause the main Python program to calculate and display on the UI from the last 10 (or less) temperature/humidity pairs read in – include minimum, maximum, and average values for each reading type
6. Include two fields to set temperature and humidity alarm values; if the main Python program sees any temperature or humidity read from the pseudo sensor exceeds the alarm value, indicate an alarm on the UI – these alarm fields should have default values at startup
7. Displays a Qt button on the UI that will close the UI and end the Python main program
8. Data from the pseudo sensor is humidity between 0 and 100%, and temperature between -20 and 100 degrees Fahrenheit.

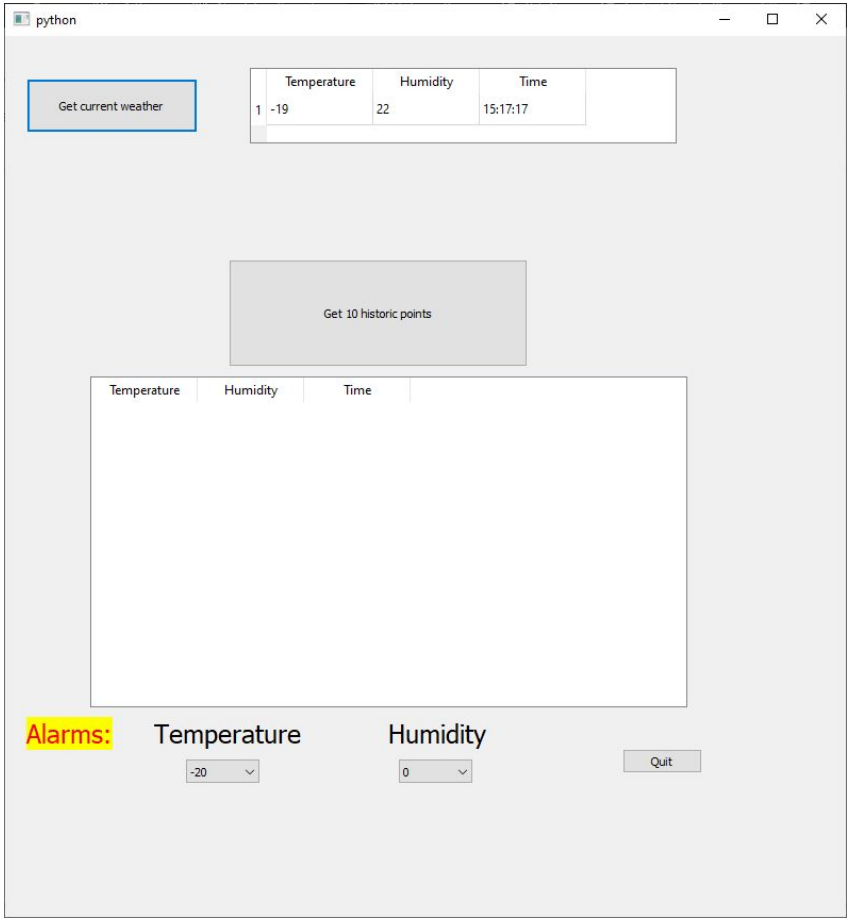
Additional Notes

1. IDE is set up with: VSCode, Win10, PyQt5, Python.

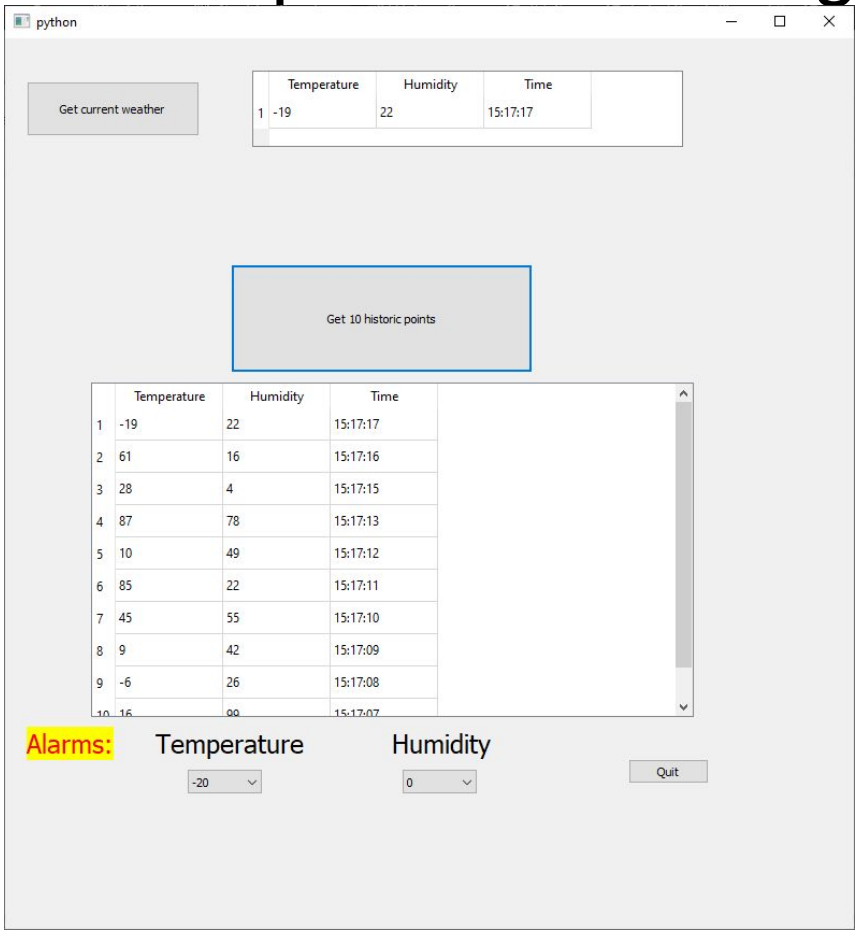
UI startup


python
Get current weather
Temperature
Humidity
Time
Get 10 historic points
Temperature
Humidity
Time
Alarms:
Temperature
-20
Humidity
0
Quit

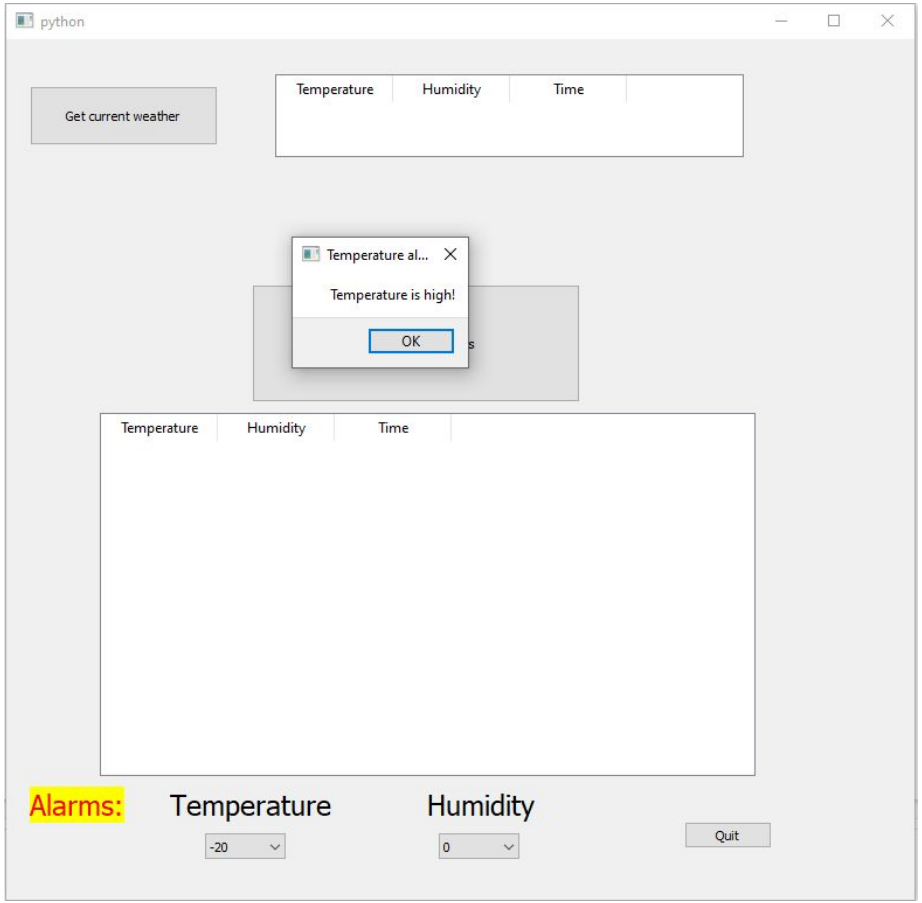
Single temperature reading



Ten temperature readings



Alarm


python
Get current weather
Temperature
Humidity
Time
Temperature al...
Temperature is high!
OK
Temperature
Humidity
Time
Alarms:
Temperature
-20
Humidity
0
Quit