March 13, 2017

RE: CANUE Programmer/Developer Position

Hello again! As promised, here is a programming task and a few questions for you to consider in advance of our interview on Monday March 20th. If you have not already done so, please let us know your general availability on that date (pacific time).

Programming Task: The attached csv files contain data collected on three different days, each one contains GPS data from a mobile air quality monitor and associated values for a VOC (volatile organic compound). Please do the following:

1. Use python to process each file:

- Simplify the headers
- Add a data flag column
- Fill the data flag column with 1 (valid data) 2 (negative value) or 3 (missing value, noted as -999 in the raw data)

2. Use python to create a summary table with statistic for each of the above input files:

- Total records
- Number and percent of valid records
- Number and percent of records with negative values
- Number and percent of records with missing values
- Minimum, 10th 50th and 90th percentile, and maximum of valid values

3. Append all the files into a single file and visualize using leaflet.js (or another approach of your choice). Use different colours for each day, and different sized symbols to show changes in VOC levels.

Please email all documented code before March 20th.

Interview Questions:

1. Discuss the programming test.
2. What programming languages do you prefer?
3. Expand on your experience providing support to researchers and peers.
4. What aspects of this position/the CANUE project do you find most interesting?
5. What are your career goals and how will CANUE help you on the path?
6. What do you think makes you a good programmer?