Name: Data Quality Check (program-09.py)
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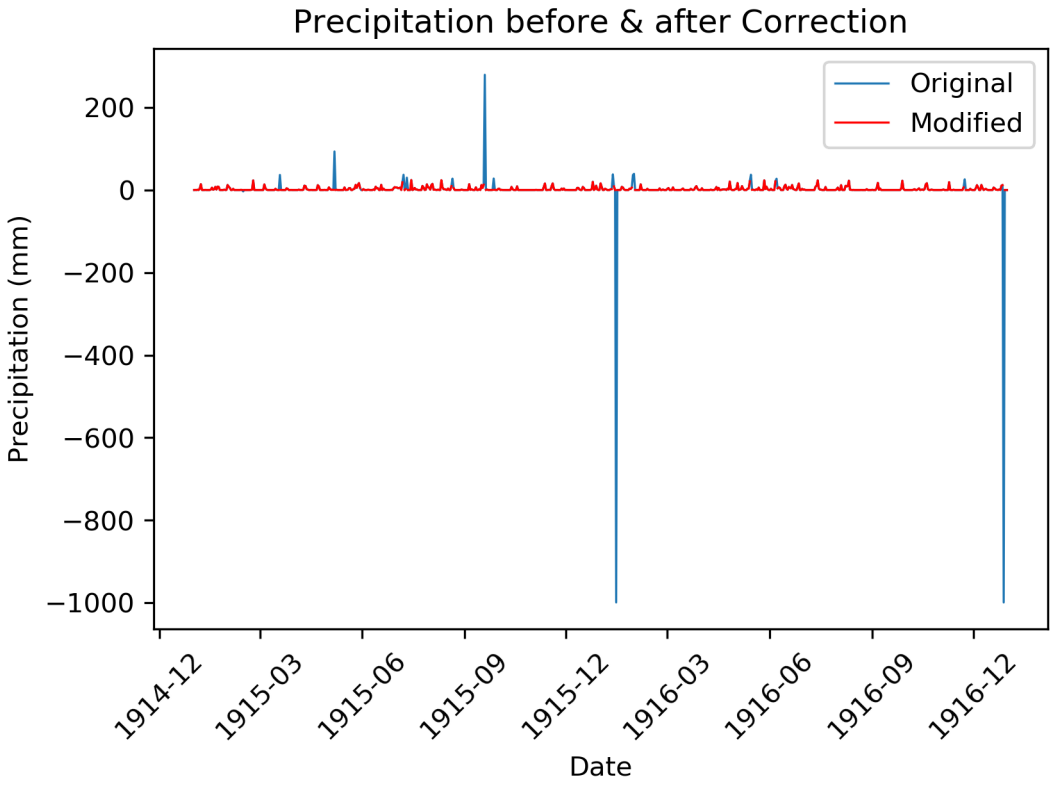
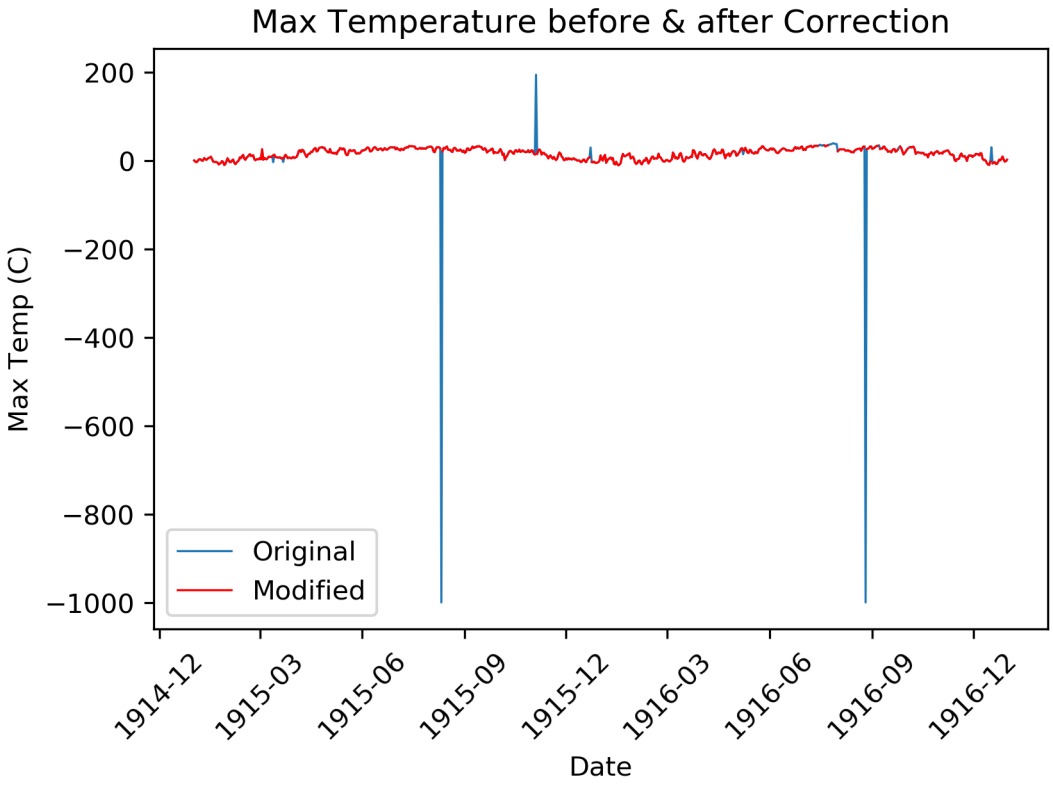
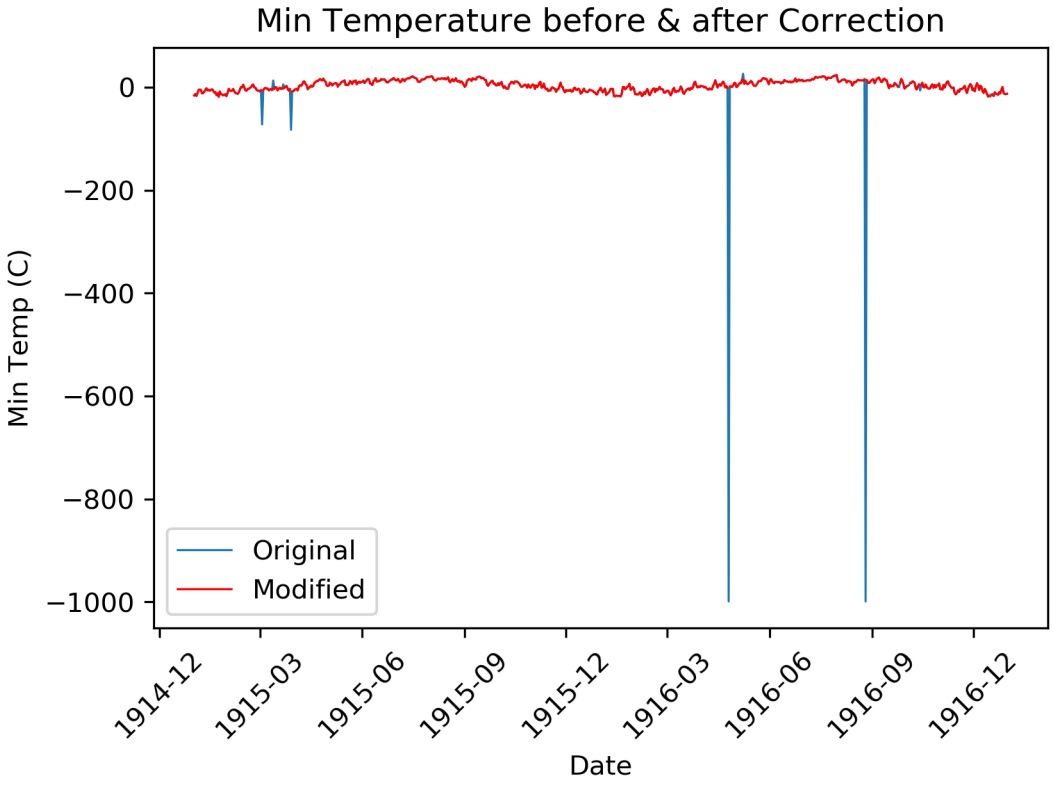
The program takes an provided file which includes dates, precipitation, max and min temperature and wind speed, read its entirety into a data-frame (df) then perform data quality check (count and modify). Then plot and compare original and modified data and finally output modified data and check fail counts to text file.

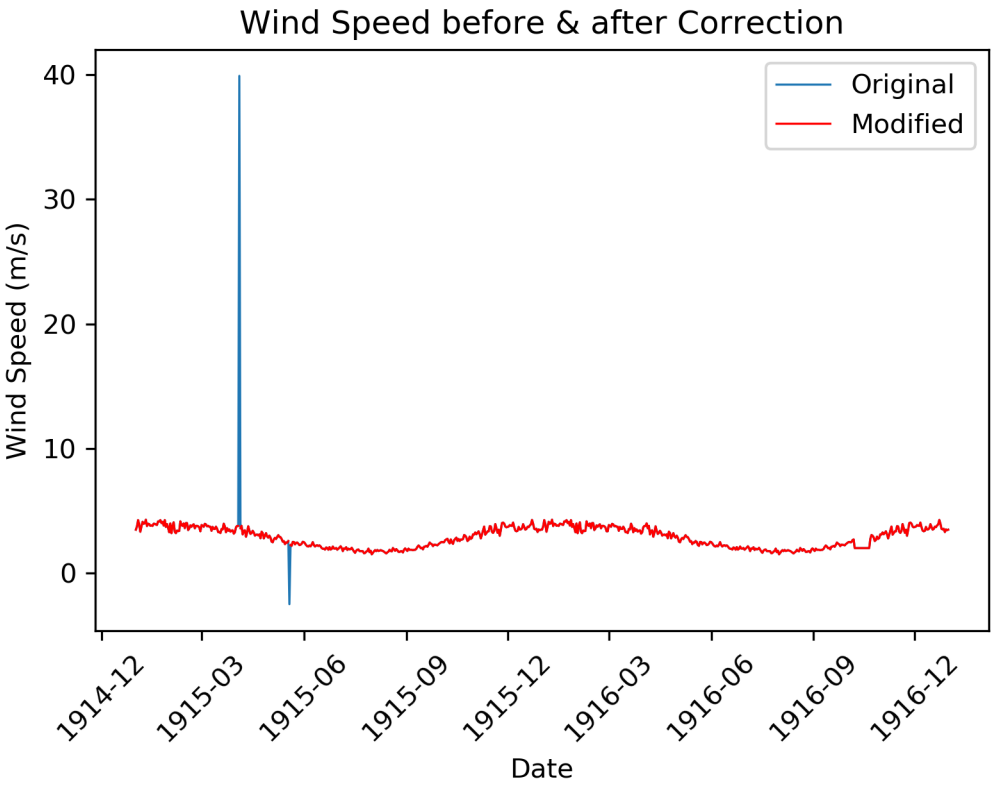
The program checks whether the df contains any 'No Data' entry (-999), 'Gross Error' where values are outside required threshold, swaps value where minimum temperature is higher than maximum and discard any value within a day where max and min temp difference exceeds 25 degree Celsius.
As can be seen below, a total of 6 no data entries (-999) were removed from precipitation, max and min temperature (each have two), and plot for each shows two extreme values were removed from original (blue).
15 out-of-range (gross error) was removed from precip, 14 from max temp, 2 from min temp. The plots show some "less" extreme values for all three categories removed and combining these two steps, data shows much more homogeneity.
4 value-swap was performed where max temp is lower than min, it is somewhat discernible as there are some points where there are relatively small changes with regards to the first two step.
Results from step 3 become slightly difficult to distinguish as the last step resulting in 5 value pairs exceeding range removed.

	Precip	Max Temp	Min Temp	Wind Speed
1. No Data	2	2	2	0
2. Gross Error	15	14	2	2
3. Swapped	0	4	4	0
4. Range	0	5	5	0




Max Temperature before & after Correction
200
0
−200
−400
−600
−800
−1000
Max Temp (C)
Original
Modified
1914-12
1915-03
1915-06
1915-09
1915-12
1916-03
1916-06
1916-09
1916-12
Date


Min Temperature before & after Correction
0
−200
−400
−600
−800
−1000
Min Temp (C)
Original
Modified
1914-12
1915-03
1915-06
1915-09
1915-12
1916-03
1916-06
1916-09
1916-12
Date


Wind Speed before & after Correction
Original
Modified
Wind Speed (m/s)
40
30
20
10
0
1914-12
1915-03
1915-06
1915-09
1915-12
1916-03
1916-06
1916-09
1916-12
Date