README for program_09.py

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USE: perform quality data checking for given file within the directory.

       This program checks a csv file in the same directory. It removes -999 values first. This greatly affects the min values and makes them readable. Second it checks for gross errors within these ranges. $0 <= P <= 25$; $-25 <= T <= 35$, $0 <= WS <= 10$. Third, it checks for max min errors and swaps values where min is greater than max or vice versa. Lastly the file checks to see if the daily temp range is less than or equal to 25 C. It replaces failed days with NaN. Table 1 shows that the most errors are within the gross error check while the range failure has the second most failed data points. As seen in figure 1, precipitation had the most errors in it. As seen by the y axis in figure 4, wind speed was the only category that had no null values and thus had no -999 in the uncorrected values.

Table 1: Corrections made for each check

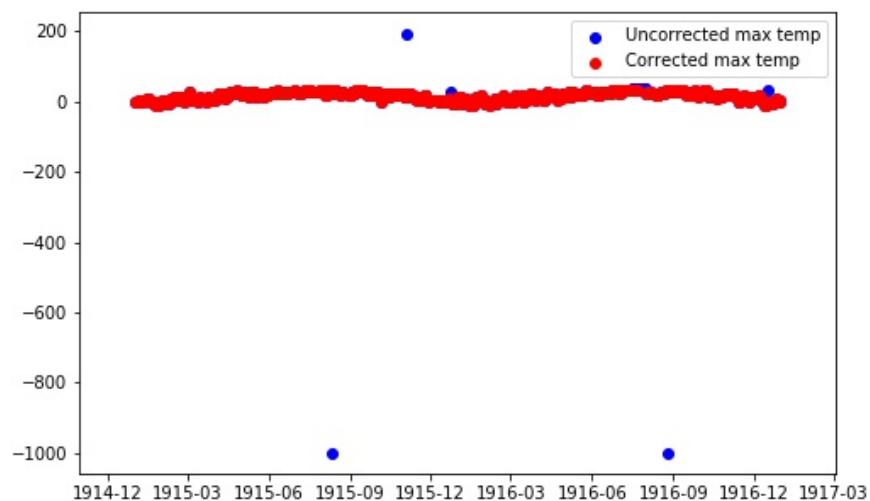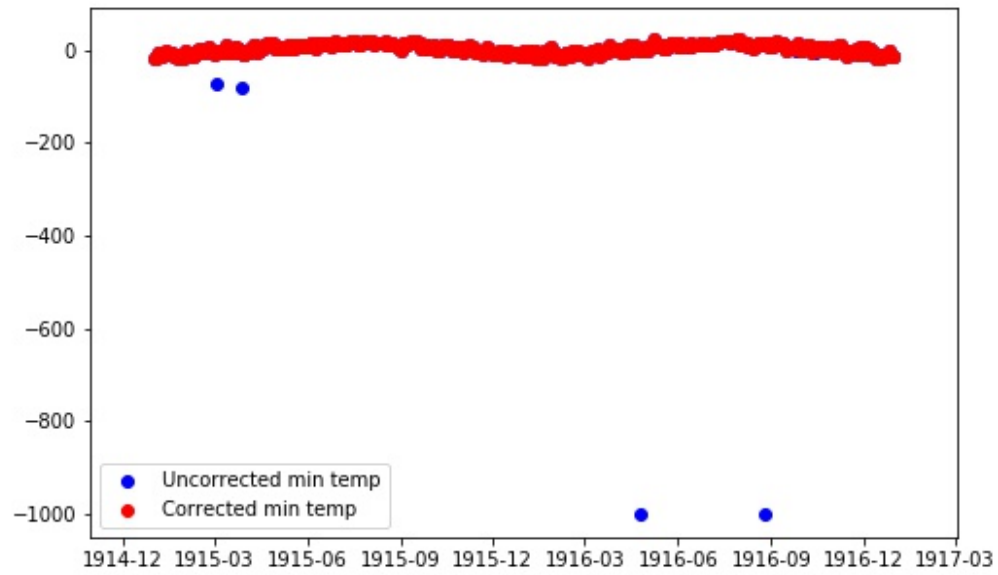|	Precip	Max Temp	Min Temp	Wind Speed
1. No Data	2.0	2.0	2.0	0.0
2. Gross Error	15.0	14.0	2.0	2.0
3. Swapped	0.0	4.0	4.0	0.0
4. Range Fail	0.0	5.0	5.0	0.0

Figure 1: max temp pre and post correction

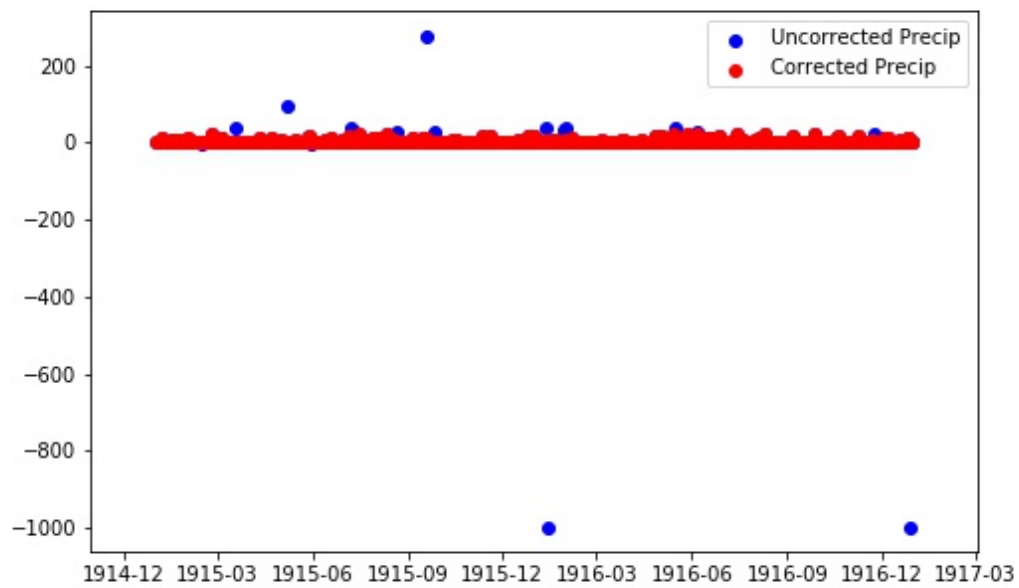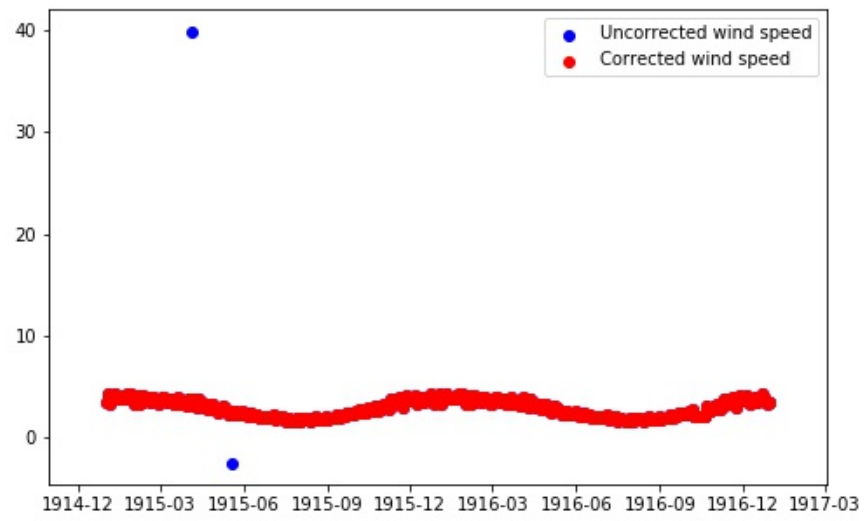Figure 2: min temperature pre and post correction

Figure 3: Precipitation pre and post correction

Figure 4 Wind speed pre and post correction