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APPROACH

TASK ONE:

**When was the last case recorded? And When was the last death recorded?**

I have a function that goes through the data and append the dates base on the indicator (cumulative cases or cumulative deaths) to a list. After all the dates have been collected, the latest date is found using the **max ()** function to represent the last date the indicator was recorded.

**Based on the data, on what date could the country be declared Ebola-free?**

Having found the date of the last case recorded, I add 42 days to it to obtain the date the country will be declared Ebola-free.

**Between which dates were the infection rate the highest? And Between which was the death rate the highest**?

Base on the indicator specified, the program picks previous date, current date, previous value and current value. The current date is always the date next to the previous date. Similarly, the current value is always the value next to the previous value. At every point in time, the rate is calculated using the formula *cumulative number of cases at that date minus the cumulative number of cases at the previous date when data was recorded, divided by the number of days between the two dates.* Every rate calculated is compared to its previous to find the highest rate. Having found the highest rate, the date corresponds to the values that gives the highest rate is returned.

**How many peaks were there in the infection rate over time, and on when did these occur? And How many peaks were there in the death rate over time, and when did these occur?**

To find the peaks, I assign 1 to a list when the infection rate or death rate increases and assign -1 to the same list when they are decreasing. A peak is detected when a pair [1, -1] exist in the list. The dates corresponding to the peaks are returned.

TASK TWO:

Two dictionaries are initialized to contain collections of values and dates. The values (cumulative cases or cumulative deaths) that have the same country name, locality and indicator are group into one list. The country name, locality, and indicator are concatenated and used as a dictionary key to uniquely identify the list of values. A pass is made through the dictionary to find the set of values which is a superset of the sample partial times series values. The key to this superset is then split into the country name, the locality, and the indicator. The partial time series values are matched with the superlist to find the index where the matching starts. This index value is used to find the corresponding date in the second dictionary that contains the collection of dates.

References

DateTime — Basic date and time types — Python 2.7.14 documentation. (n.d.). Retrieved March 9, 2018, from https://docs.python.org/2/library/datetime.html

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