

BDA – LAB 01

Muhammad Noufal (muhno651)

&

Rakhshanda Jabeen (rakja752)

28/May/2020

Question 01: What are the lowest and highest temperatures measured each year for the period 1950-2014. Provide the lists sorted in the descending order with respect to the maximum temperature. In this exercise you will use the temperature-readings.csv file.

Ans:

Part – 00000

Row(year=1975, MaxTemp=36.1, MinTemp=-37.0)

Part. – 00001

(Row(year=1992, MaxTemp=35.4, MinTemp=-36.1)

Part – 00002

Row(year=1994, MaxTemp=34.7, MinTemp=-40.5) (u'1981', (u'140480', 29.7, 28.0))

Part – 00003

Row(year=2010, MaxTemp=34.4, MinTemp=-41.7)

Row(year=2014, MaxTemp=34.4, MinTemp=-42.5)

Question 02-a: Count the number of readings for each month in the period of 1950-2014 which are higher than 10 degrees

Ans:

Part – 00000

Row(year=2014, month=7, CountTemp=147910)

Row(year=2011, month=7, CountTemp=147060)

Row(year=2010, month=7, CountTemp=143860)

Row(year=2012, month=7, CountTemp=138166)

Question 02-b: Repeat the exercise, this time taking only distinct readings from each station. That is, if a station reported a reading above 10 degrees in some month, then it appears only once in the count for that month.

Ans:

Part – 00000

Row(year=1972, month=10, CountTemp=378)

Row(year=1973, month=5, CountTemp=377)

Row(year=1973, month=6, CountTemp=377)

Row(year=1972, month=8, CountTemp=376)

Row(year=1972, month=5, CountTemp=376)

Row(year=1973, month=9, CountTemp=376)

Question 03: Find the average monthly temperature for each available station in Sweden. Your result should include average temperature for each station for each month in the period of 1960- 2014. Bear in mind that not every station has the readings for each month in this timeframe. In this exercise you will use the temperature-readings.csv file.

Ans:

Part – 00000

Row(year=2014, month=7, station=u'96000', Avgmontlytemperature=26.3)

Row(year=1994, month=7, station=u'65450',
Avgmontlytemperature=23.65483870967742)

Row(year=1994, month=7, station=u'95160',
Avgmontlytemperature=23.505376344086027)

Row(year=1994, month=7, station=u'75120',
Avgmontlytemperature=23.26881720430107)

Row(year=1994, month=7, station=u'105260',
Avgmontlytemperature=23.143820224719107)

Row(year=1994, month=7, station=u'85280',
Avgmontlytemperature=23.108602150537635)

Row(year=1983, month=8, station=u'54550', Avgmontlytemperature=23.0)

Row(year=1975, month=8, station=u'54550', Avgmontlytemperature=22.9625)

Row(year=1994, month=7, station=u'96550',
Avgmontlytemperature=22.957894736842114)

Row(year=1994, month=7, station=u'96000',
Avgmontlytemperature=22.931182795698923)
Row(year=1994, month=7, station=u'106070',
Avgmontlytemperature=22.822580645161295)
Row(year=1972, month=7, station=u'173960',
Avgmontlytemperature=22.776666666666667)
Row(year=1994, month=7, station=u'54300',
Avgmontlytemperature=22.76021505376344)
Row(year=1994, month=7, station=u'85210',
Avgmontlytemperature=22.755913978494615)
Row(year=2006, month=7, station=u'65450',
Avgmontlytemperature=22.74086021505376)
Row(year=2006, month=7, station=u'75120',
Avgmontlytemperature=22.73010752688173)
Row(year=1994, month=7, station=u'103080',
Avgmontlytemperature=22.708602150537626)
Row(year=1994, month=7, station=u'92100',
Avgmontlytemperature=22.698924731182792)
Row(year=1994, month=7, station=u'94180',
Avgmontlytemperature=22.68172043010753)
Row(year=1994, month=7, station=u'83230',
Avgmontlytemperature=22.577419354838707)
Row(year=1994, month=7, station=u'97490',
Avgmontlytemperature=22.57419354838709)
Row(year=1994, month=7, station=u'82110',
Avgmontlytemperature=22.546236559139782)
Row(year=2006, month=7, station=u'76530',
Avgmontlytemperature=22.534408602150542)
Row(year=1994, month=7, station=u'83270',
Avgmontlytemperature=22.49354838709678)
Row(year=1994, month=7, station=u'86470',
Avgmontlytemperature=22.46559139784947)
Row(year=1994, month=7, station=u'76530',
Avgmontlytemperature=22.46021505376344)
Row(year=1994, month=7, station=u'74080',
Avgmontlytemperature=22.45806451612903)
Row(year=1994, month=7, station=u'76000',
Avgmontlytemperature=22.451612903225808)
Row(year=1997, month=8, station=u'54300',
Avgmontlytemperature=22.446236559139784)

Question 04: Provide a list of stations with their associated maximum measured temperatures and maximum measured daily precipitation. Show only those stations where the maximum temperature is between 25 and 30 degrees and maximum daily precipitation is between 100 mm and 200mm

Ans:

Part – 00004

```
Row(station=u'161710', MaxTemp=30.6, station=u'161710',  
maxPrecipitation=49.89999999999999)
```

```
Row(station=u'95130', MaxTemp=33.2, station=u'95130',  
maxPrecipitation=64.99999999999999)
```

```
Row(station=u'97100', MaxTemp=30.8, station=u'97100',  
maxPrecipitation=64.69999999999999)
```

Part – 00008

```
Row(station=u'115220', MaxTemp=30.6, station=u'115220',  
maxPrecipitation=60.7)
```

```
Row(station=u'63160', MaxTemp=32.8, station=u'63160',  
maxPrecipitation=85.80000000000001)
```

Question 05: Calculate the average monthly precipitation for the Östergötland region (list of stations is provided in the separate file) for the period 1993-2016. In order to do this, you will first need to calculate the total monthly precipitation for each station before calculating the monthly average (by averaging over stations).

Ans:

Part – 00000

Row(year=2006, month=8, Avgmontlytemperature=148.08333333333333)
Row(year=2008, month=8, Avgmontlytemperature=138.51666666666657)

Part. – 00002

Row(year=1995, month=9, Avgmontlytemperature=134.55)
Row(year=2012, month=6, Avgmontlytemperature=132.19999999999996)