Data Analysis Using Spreadsheets Notes - Part 2
(Lecture on Tuesday, 4/14/20)

Sorting

● Select temperature column, sort sheet, note annoyance with header row, undo
● Select entire sheet, Data > sort range, by temperature, then by country + latitude descending

Filtering rows

● Select entire sheet, click Filter icon, under temperature note sort option, filter by condition greater than 10, then country contains "ia"
● No way to operate on filtered data except copy-paste to new sheet: =average(e:e), then copy-paste

Aggregation

● Average temperature =average(e2:e11), then =average(e2:e214), then =average(e:e)
● Maximum latitude, minimum longitude =max(c:c), =min(d:d)
● Number of longitudes less than 0 =countif(d:d ,"<0")

Your Turn (15)

Grouped aggregation

Average temperature by country column F =unique(b:b), column G =averageif(b:b,f2,e:e)

Your Turn (1: 47.5, 2: 51.07, 3: 41.42, 4: 47.2)
2: =averageif(e:e,"<10",c:c) 4: two filters + copy-paste, or =averageifs(c:c,a:a,"=*a",b:b,"=*a")

Joining

Show Countries sheet. Goal: find number of cities in the EU
Copy-paste Countries data into columns G,H,I,J
Add three columns between B and C
=index(k:k,match(b2,j:j), extend to column
=index(l:l,match(b2,j:j), extend to column
=index(m:m,match(b2,j:j), extend to column
Delete referenced data, show need to copy-paste using Paste special > values only
Finally use =countif(d:d,"=yes") for number of cities in EU
Note: match() function assumes sorted column; add third parameter 0 if not sorted

Pivot tables

● Select entire table, then Data > Pivot table
● Average temperature by country: Rows country, Values temperature AVERAGE
● Average temperature for each coastline-EU combination: Rows coastline, Columns EU, Values temperature AVERAGE, then add Values population MAX; show copy-paste special to new sheet; alternative EU as second Rows instead of Columns

- Number of cities in different countries: Rows country, Values city COUNTA
- Note same result when add Values coastline COUNTA, switch to COUNTUNIQUE
- Back to city COUNTA, sort by: COUNTA of city

Your Turn (in the EU, Andorra, Moldova)

1) pivot table, Rows country, columns coastline, values longitude AVERAGE, sort by AVERAGE of longitude in no

2) pivot table, Rows country, filter coastline no, values longitude AVERAGE, sort by AVERAGE of longitude

3) pivot table, Rows coastline, Rows country, values longitude AVERAGE, in Rows country sort by AVERAGE of longitude