**Exercise 14**

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Comments & notes

#!/usr/bin/python

#latlon\_5.py

import re #do this to downoad the function regular expression

def decimalat(DegString): #functions must be defined before you can use it (def=define)

SearchStr='(\d+) ([\d\.]+) (\w)' #this requires that you open the InFile later, because they belong together

# Result=re.search(SearchStr,ElementList[2]) #the result should search for ElementList[2] which the program has to find

Result=re.search(SearchStr,DegString)

# DegreeString=Result.group(1) #(1) means the same like $1 in jEdit

# MinuteString=Result.group(2)

# Compass=Result.group(3)

print Result.group(2)

Degrees=float(Result.group(1))

Minutes=float(Result.group(2))

Compass=Result.group(3).upper()

DecimalDegree = Degrees + Minutes/60 #/60 because of sec. & hours

if Compass=='S' or Compass=='W': #south and west

DecimalDegree=-DecimalDegree

return DecimalDegree #return means, which function it has to send back, has to stand before the for loop & before the program is readed

InFileName='Marrus\_claudanielis.txt' #now open the file

OutFileName='dec\_'+InFileName

WriteOutFile= True

InFile=open(InFileName,'r')

HeaderLine='dive\tdepth\tlatitude\tlongitude\tdate\tcomment'

print HeaderLine #write the Headliner for the list you are building #all in all you this script copys choosen parts out of the different ElementLists and paste them into a new list/table

if WriteOutFile:

OutFile=open(OutFileName,'w')

OutFile.write(HeaderLine+'\n')

LineNumber=0

for Line in InFile: #read files (ElementLists) in a for loop with if statements... if it like... than...and than add the placemarkers &after that LineNumber+=1 to start again at the beginning.

if LineNumber>0:

Line=Line.strip('\n')

ElementList=Line.split('\t')

Dive=ElementList[0] #here you define what you copy and paste (s.a.)

Date=ElementList[1]

Depth=ElementList[4]

Comment=ElementList[5]

print "Look here", ElementList[2], ElementList[3]

LatDegrees=decimalat(ElementList[2]) #define Latitude and Longitude, so that the program can recognize them

LonDegrees=decimalat(ElementList[3])

print "Look here after decimalar", LatDegrees, LonDegrees

print 'Lat: %f, Lon:%f' %(LatDegrees,LonDegrees) #print for check

PlacemarkString='''

<Placemark>

<name>Marrus - %s</name>

<description>%s</description>

<Point>

<altitudeMode>absolute</altitudeMode>

<coordinates>%f, %f, -%s</coordiantes>

<Point>

</Placemark>''' % (Dive,Line,LonDegrees,LatDegrees,Depth)

if WriteOutFile:

OutFile.write(PlacemarkString)

else:

print PlacemarkString

LineNumber+=1

InFile.close()

if WriteOutFile:

print'Saved',LineNumber,'records form',InFileName,'as',\

OutFileName

OutFile.write('\n</Documents>\n</kml>\n')

OutFile.close()

else:

print '\n</Document>\n</kml>\n'

#here you modify the latlon\_4.py script, so that it can be used for Google Earth

#you want translate in KML = Keyhole Markup Language

#because not all data are KML yet, you should change them all & put all data from the inputfile into the outputfile

#but the placemarker is used to generate a header

#so that you now generate headeer & fooder within a loop

#the resulting string also has to include the line-endings \n

#as you see in the following you can insert all 5 values at once, what is faster & shorter than do it one by one

#you parse strings of other files into your list