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#!/usr/bin/python

# Open data sensor file and file for formatted data
try:
    sensorData = open('TEST.TXT', 'r+')
except:
    print("Error: Can not open sensor data file")
# Create output file if it doesn't exist
try:
    qgisData = open('output.txt', 'w')
except:
    print("Error: Can not open file for formatted data")

# Seperate latitude, longitude, and depth with commas
# Convert coordinates from 'Degree Minute Decimal' DMM to 'Degree Decimal' (DD) for QGIS
# Add negative coordinates based on hemisphere
for dmm in sensorData:
    # Check length of each line of data and proper positioning of hemisphere data
    if (len(dmm) == 30):
        if (((dmm[9] == 'N') or (dmm[9] == 'S')) and (dmm[21] == 'W') or (dmm[21] == 'E')):
            # Grab hemisphere of each GPS coordinate and append negative signs appropriately
            # (N, W) = (+, -)
            # (S, W) = (-, -)
            # (N, E) = (+, +)
            # (S, E) = (-, +)
            hem = [dmm[9], dmm[21]]
            if ((hem[0] == 'N') and (hem[1] == 'W')):
                qgisData.write(str(round(float(dmm[:2]) + float(dmm[2:9])/60.0, 6)) + ',' +
                    '-' + str(round(float(dmm[11:14]) + float(dmm[14:21])/60.0, 6)) + ',' + str(dmm[23:]))
            if ((hem[0] == 'S') and (hem[1] == 'W')):
                qgisData.write('-' + str(round(float(dmm[:2]) + float(dmm[2:9])/60.0, 6)) +
                    ',' + '-' + str(round(float(dmm[11:14]) + float(dmm[14:21])/60.0, 6)) + ',' + str(dmm[23:]))
            if ((hem[0] == 'N') and (hem[1] == 'E')):
                qgisData.write(str(round(float(dmm[:2]) + float(dmm[2:9])/60.0, 6)) + ',' +
                    str(round(float(dmm[11:14]) + float(dmm[14:21])/60.0, 6)) + ',' + str(dmm[23:]))
            if ((hem[0] == 'S') and (hem[1] == 'E')):
                qgisData.write('-' + str(round(float(dmm[:2]) + float(dmm[2:9])/60.0, 6)) +
                    ',' + str(round(float(dmm[11:14]) + float(dmm[14:21])/60.0, 6)) + ',' + str(dmm[23:]))
        ))

# Close sensor data file and output file
qgisData.close()
sensorData.close()
```