

```
21 /*ATTEMPT 1*/  
22 data Res_addrs;  
23     set Res_addrs;  
24     addr1 = catx(' ',y,x);  
25 run;
```

NOTE: There were 185623 observations read from the data set WORK.RES_ADDRS.

NOTE: The data set WORK.RES_ADDRS has 185623 observations and 87 variables.

NOTE: DATA statement used (Total process time):

```
real time          0.37 seconds  
cpu time           0.37 seconds
```

```
26 data clinic_addr;  
27     set clinic_addr;  
28     addr2 = catx(' ',y,x);  
29     rename USER_lastname = ClinicID;  
30 run;
```

NOTE: There were 192 observations read from the data set WORK.CLINIC_ADDR.

NOTE: The data set WORK.CLINIC_ADDR has 192 observations and 29 variables.

NOTE: DATA statement used (Total process time):

```
real time          0.03 seconds  
cpu time           0.03 seconds
```

```
31  
32 data AddressFile;  
33     set Res_addrs clinic_addr;  
34 run;
```

NOTE: There were 185623 observations read from the data set WORK.RES_ADDRS.

NOTE: There were 192 observations read from the data set WORK.CLINIC_ADDR.

NOTE: The data set WORK.ADDRESSFILE has 185815 observations and 114 variables.

NOTE: DATA statement used (Total process time):

```
real time          0.38 seconds  
cpu time           0.37 seconds
```

```
35  
36  
37 *Keep ID and coordinates only;  
38 data Addresses;  
39     set AddressFile;  
40     keep patientid ClinicID addr1 addr2;  
41 run;
```

NOTE: There were 185815 observations read from the data set WORK.ADDRESSFILE.

NOTE: The data set WORK.ADDRESSES has 185815 observations and 4 variables.

NOTE: DATA statement used (Total process time):

```
real time          0.22 seconds  
cpu time           0.23 seconds
```

```
42  
43 *Check;
```

```
44 proc contents data=Addresses;  
NOTE: Writing HTML Body file: sashtml.htm
```

```
45 run;
```

```
NOTE: PROCEDURE CONTENTS used (Total process time):
```

```
real time          0.34 seconds  
cpu time           0.11 seconds
```

```
46
```

```
47
```

```
48 *Macro to connect Google Maps;  
49 data _null_;  
50 call symputx('Observations',obs);  
51 stop;  
52 set Addresses nobs=obs;  
53 run;
```

```
NOTE: DATA statement used (Total process time):
```

```
real time          0.00 seconds  
cpu time           0.00 seconds
```

```
54
```

```
55
```

```
56 %macro distance_time;  
57  
58 %do j=1 %to 5 /*&Observations*/;  
59 data _null_;  
60 nrec = &j;  
61 set Addresses point=nrec;  
62 %let ll1=addr1;  
63 %let ll2=addr2;  
64 stop;  
65 run;  
66  
67 filename x url "https://www.google.com/maps/dir/&ll1/&ll2/?force=lite";  
68 filename z temp;  
69  
70 data _null_;  
71 infile x recfm=f lrecl=1 end=eof;  
72 file z recfm=f lrecl=1;  
73 input @1 x $char1.;  
74 put @1 x $char1.;  
75 if eof;  
76 call symputx('filesize',_n_);  
77 run;  
78  
79 *Drive distance & time;  
80 data temp;  
81 infile z recfm=f lrecl=&filesize. eof=done;  
82 input @ 'miles' +(-15) @ ''' distance :comma12. text $30.;  
83 units = scan(text,1,'');  
84 text = scan(text,3,'');  
85 * convert times to seconds;  
86 select;
```

```

87 * combine days and hours;
88     when (find(text,'d') ne 0) time = sum(86400*input(scan(text,1,' '),best.),
89                                           3600*input(scan(text,3,' '),best.));
90 * combine hours and minutes;
91     when (find(text,'h') ne 0) time = sum(3600*input(scan(text,1,' '),best.),
92                                           60*input(scan(text,3,' '),best.));
93 * just minutes;
94     otherwise             time = 60*input(scan(text,1,' '),best.);
95 end;
96 output;
97 keep distance time;
98 stop;
99 done:
100 output;
101 run;
102
103 filename x clear;
104 filename z clear;
105
106 *Add an obs to the data set;
107 proc append base=distance_time data=temp;
108 run;
109 %end;
110 %mend;
111
112 *Run the macro;
113 %distance_time;

```

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
cpu time	0.00 seconds

NOTE: The infile X is:

Filename=https://www.google.com/maps/dir/addr1/addr2/?force=lite,
Local Host Name=MDH-SAS,Local Host IP addr=::1,
Service Hostname Name=ord37s35-in-f4.1e100.net,
Service IP addr=142.250.190.100,
Service Name=N/A,Service Portno=443,Lrecl=1,
Recfm=Fixed

NOTE: The file Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00106,
RECFM=F,LRECL=1,File Size (bytes)=0,
Last Modified=16Feb2024:16:58:27,
Create Time=16Feb2024:16:58:27

NOTE: 134658 records were read from the infile X.

NOTE: 134658 records were written to the file Z.

NOTE: DATA statement used (Total process time):

real time	0.40 seconds
cpu time	0.12 seconds

NOTE: The infile Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00106,
RECFM=F,LRECL=134658,File Size (bytes)=134658,
Last Modified=16Feb2024:16:58:27,
Create Time=16Feb2024:16:58:27

NOTE: 1 record was read from the infile Z.

NOTE: SAS went to a new line when INPUT @'CHARACTER_STRING' scanned past the end of a line.

NOTE: The data set WORK.TEMP has 1 observations and 2 variables.

NOTE: DATA statement used (Total process time):

real time	0.01 seconds
cpu time	0.01 seconds

NOTE: Fileref X has been deassigned.

NOTE: Fileref Z has been deassigned.

NOTE: Appending WORK.TEMP to WORK.DISTANCE_TIME.

NOTE: BASE data set does not exist. DATA file is being copied to BASE file.

NOTE: There were 1 observations read from the data set WORK.TEMP.

NOTE: The data set WORK.DISTANCE_TIME has 1 observations and 2 variables.

NOTE: PROCEDURE APPEND used (Total process time):

real time	0.01 seconds
cpu time	0.01 seconds

NOTE: DATA statement used (Total process time):

real time	0.01 seconds
cpu time	0.01 seconds

NOTE: The infile X is:

Filename=https://www.google.com/maps/dir/addr1/addr2/?force=lite,
Local Host Name=MDH-SAS,Local Host IP addr=::1,
Service Hostname Name=ord37s35-in-f4.1e100.net,
Service IP addr=142.250.190.100,
Service Name=N/A,Service Portno=443,Lrecl=1,
Recfm=Fixed

NOTE: The file Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00107,
RECFM=F,LRECL=1,File Size (bytes)=0,
Last Modified=16Feb2024:16:58:28,
Create Time=16Feb2024:16:58:28

NOTE: 134606 records were read from the infile X.

NOTE: 134606 records were written to the file Z.

NOTE: DATA statement used (Total process time):

real time	0.34 seconds
cpu time	0.03 seconds

NOTE: The infile Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00107,
RECFM=F,LRECL=134606,File Size (bytes)=134606,
Last Modified=16Feb2024:16:58:28,
Create Time=16Feb2024:16:58:28

NOTE: 1 record was read from the infile Z.

NOTE: SAS went to a new line when INPUT @'CHARACTER_STRING' scanned past the end of a line.

NOTE: The data set WORK.TEMP has 1 observations and 2 variables.

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
cpu time	0.00 seconds

NOTE: Fileref X has been deassigned.

NOTE: Fileref Z has been deassigned.

NOTE: Appending WORK.TEMP to WORK.DISTANCE_TIME.

NOTE: There were 1 observations read from the data set WORK.TEMP.

NOTE: 1 observations added.

NOTE: The data set WORK.DISTANCE_TIME has 2 observations and 2 variables.

NOTE: PROCEDURE APPEND used (Total process time):

real time	0.01 seconds
cpu time	0.01 seconds

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
cpu time	0.00 seconds

NOTE: The infile X is:

Filename=https://www.google.com/maps/dir/addr1/addr2/?force=lite,
Local Host Name=MDH-SAS,Local Host IP addr=::1,
Service Hostname Name=ord37s35-in-f4.1e100.net,
Service IP addr=142.250.190.100,
Service Name=N/A,Service Portno=443,Lrecl=1,
Recfm=Fixed

NOTE: The file Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00108,
RECFM=F,LRECL=1,File Size (bytes)=0,
Last Modified=16Feb2024:16:58:28,
Create Time=16Feb2024:16:58:28

NOTE: 134631 records were read from the infile X.

NOTE: 134631 records were written to the file Z.

NOTE: DATA statement used (Total process time):

real time	0.35 seconds
cpu time	0.04 seconds

NOTE: The infile Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00108,
RECFM=F,LRECL=134631,File Size (bytes)=134631,
Last Modified=16Feb2024:16:58:28,
Create Time=16Feb2024:16:58:28

NOTE: 1 record was read from the infile Z.

NOTE: SAS went to a new line when INPUT @'CHARACTER_STRING' scanned past the end of a line.

NOTE: The data set WORK.TEMP has 1 observations and 2 variables.

NOTE: DATA statement used (Total process time):

real time	0.01 seconds
cpu time	0.01 seconds

NOTE: Fileref X has been deassigned.

NOTE: Fileref Z has been deassigned.

NOTE: Appending WORK.TEMP to WORK.DISTANCE_TIME.

NOTE: There were 1 observations read from the data set WORK.TEMP.

NOTE: 1 observations added.

NOTE: The data set WORK.DISTANCE_TIME has 3 observations and 2 variables.

NOTE: PROCEDURE APPEND used (Total process time):

real time	0.01 seconds
cpu time	0.00 seconds

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
cpu time	0.00 seconds

NOTE: The infile X is:

Filename=https://www.google.com/maps/dir/addr1/addr2/?force=lite,
Local Host Name=MDH-SAS,Local Host IP addr=::1,
Service Hostname Name=ord37s35-in-f4.1e100.net,
Service IP addr=142.250.190.100,
Service Name=N/A,Service Portno=443,Lrecl=1,
Recfm=Fixed

NOTE: The file Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00109,
RECFM=F,LRECL=1,File Size (bytes)=0,
Last Modified=16Feb2024:16:58:29,
Create Time=16Feb2024:16:58:29

NOTE: 134705 records were read from the infile X.

NOTE: 134705 records were written to the file Z.

NOTE: DATA statement used (Total process time):

real time	0.34 seconds
cpu time	0.04 seconds

NOTE: The infile Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00109,
RECFM=F,LRECL=134705,File Size (bytes)=134705,
Last Modified=16Feb2024:16:58:29,
Create Time=16Feb2024:16:58:29

NOTE: 1 record was read from the infile Z.

NOTE: SAS went to a new line when INPUT @'CHARACTER_STRING' scanned past the end of a line.

NOTE: The data set WORK.TEMP has 1 observations and 2 variables.

NOTE: DATA statement used (Total process time):

real time	0.01 seconds
cpu time	0.00 seconds

NOTE: Fileref X has been deassigned.

NOTE: Fileref Z has been deassigned.

NOTE: Appending WORK.TEMP to WORK.DISTANCE_TIME.

NOTE: There were 1 observations read from the data set WORK.TEMP.

NOTE: 1 observations added.

NOTE: The data set WORK.DISTANCE_TIME has 4 observations and 2 variables.

NOTE: PROCEDURE APPEND used (Total process time):

real time	0.01 seconds
cpu time	0.01 seconds

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
cpu time	0.00 seconds

NOTE: The infile X is:

Filename=https://www.google.com/maps/dir/addr1/addr2/?force=lite,
Local Host Name=MDH-SAS,Local Host IP addr=::1,
Service Hostname Name=ord37s35-in-f4.1e100.net,
Service IP addr=142.250.190.100,
Service Name=N/A,Service Portno=443,Lrecl=1,
Recfm=Fixed

NOTE: The file Z is:

Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00110,
RECFM=F,LRECL=1,File Size (bytes)=0,
Last Modified=16Feb2024:16:58:29,
Create Time=16Feb2024:16:58:29

NOTE: 134679 records were read from the infile X.

NOTE: 134679 records were written to the file Z.

NOTE: DATA statement used (Total process time):

real time	0.34 seconds
cpu time	0.03 seconds

NOTE: The infile Z is:
Filename=Y:\SASWORK\pavana1_TD21576_MDH-SAS_\#LN00110,
RECFM=F,LRECL=134679,File Size (bytes)=134679,
Last Modified=16Feb2024:16:58:29,
Create Time=16Feb2024:16:58:29

NOTE: 1 record was read from the infile Z.
NOTE: SAS went to a new line when INPUT @'CHARACTER_STRING' scanned past the end of a line.
NOTE: The data set WORK.TEMP has 1 observations and 2 variables.
NOTE: DATA statement used (Total process time):
real time 0.01 seconds
cpu time 0.01 seconds

NOTE: Fileref X has been deassigned.
NOTE: Fileref Z has been deassigned.

NOTE: Appending WORK.TEMP to WORK.DISTANCE_TIME.
NOTE: There were 1 observations read from the data set WORK.TEMP.
NOTE: 1 observations added.
NOTE: The data set WORK.DISTANCE_TIME has 5 observations and 2 variables.
NOTE: PROCEDURE APPEND used (Total process time):
real time 0.00 seconds
cpu time 0.00 seconds

```
114  
115 *Add vars from original dataset to distance_time;  
116 data distance_time;  
117 set distance_time;  
118 set Addresses point=_n_;  
119 straight_line = round(geodist(&ll1/&ll2,'DM'), 0.01);
```

-
22

WARNING: Apparent symbolic reference LL1 not resolved.
WARNING: Apparent symbolic reference LL2 not resolved.
119 straight_line = round(geodist(&ll1/&ll2,'DM'), 0.01);

-
22

ERROR 22-322: Syntax error, expecting one of the following: a name, a quoted string, a numeric constant, a datetime constant, a missing value,), INPUT, PUT.

ERROR 22-322: Syntax error, expecting one of the following: a name, a quoted string, a numeric constant, a datetime constant, a missing value, INPUT, PUT.

WARNING: Apparent symbolic reference LL2 not resolved.
119 straight_line = round(geodist(&ll1/&ll2,'DM'), 0.01);

71

ERROR 71-185: The GEODIST function call does not have enough arguments.

120 run;

NOTE: Character values have been converted to numeric values at the places given by:

(Line):(Column).

119:41

NOTE: The SAS System stopped processing this step because of errors.

WARNING: The data set WORK.DISTANCE_TIME may be incomplete. When this step was stopped there were 0 observations and 9 variables.

WARNING: Data set WORK.DISTANCE_TIME was not replaced because this step was stopped.

NOTE: DATA statement used (Total process time):

real time	0.02 seconds
cpu time	0.03 seconds

121

122 proc print data=distance_time noobs label;

123 var x y time distance straight_line zip city statecode;

ERROR: Variable X not found.

ERROR: Variable Y not found.

ERROR: Variable STRAIGHT_LINE not found.

ERROR: Variable ZIP not found.

ERROR: Variable CITY not found.

ERROR: Variable STATECODE not found.

124 format zip z5. time time6. ;

125 run;

NOTE: The SAS System stopped processing this step because of errors.

NOTE: PROCEDURE PRINT used (Total process time):

real time	0.01 seconds
cpu time	0.01 seconds

126

127 *Rename;

128 data Res_addrs;

129 set Res_addrs;

130 rename y = PatientLatitude

131 x = PatientLongitude ;

132 run;

NOTE: There were 185623 observations read from the data set WORK.RES_ADDRS.

NOTE: The data set WORK.RES_ADDRS has 185623 observations and 87 variables.

NOTE: DATA statement used (Total process time):

real time	0.34 seconds
cpu time	0.34 seconds

133 data clinic_addr;

134 set clinic_addr;

135 rename y = ClinicLatitude

136 x = ClinicLongitude

137 USER_lastname = ClinicID ;

138 run;

WARNING: The variable USER_lastname in the DROP, KEEP, or RENAME list has never been referenced.

NOTE: There were 192 observations read from the data set WORK.CLINIC_ADDR.

NOTE: The data set WORK.CLINIC_ADDR has 192 observations and 29 variables.

NOTE: DATA statement used (Total process time):

real time 0.01 seconds
cpu time 0.01 seconds

```
139
140
141 *Step 1 - Macro;
142 %macro distance
143     (patientID=
144     ,patientLatitude=
145     ,patientLongitude=
146     ,clinicID=
147     ,clinicLatitude=
148     ,clinicLongitude=
149     ,out= mapmacro ) ;
150
151 filename x url
151! "https://www.google.com/maps/dir/?api=1&origin=&patientLatitude. ,&patientLongitude
151! .&destination=&clinicLatitude. ,&clinicLongitude.&travelmode=driving";
152 filename z temp;
153
154 %local filesize ;
155
156 data _null_;
157     infile x recfm=f lrecl=1 end=eof;
158     file z recfm=f lrecl=1;
159     input @1 x $char1.;
160     put @1 x $char1.;
161     if eof;
162     call symputx('filesize',_n_);
163 run;
164
165
166 *Step 2 - Driving distance ;
167 data __distance(keep=PatientID ClinicID Distance PatientLatitude PatientLongitude
167! ClinicLatitude ClinicLongitude) ;
168     length PatientID $8 ClinicID $8 PatientLatitude PatientLongitude ClinicLatitude
168! ClinicLongitude $20;
169     PatientID="&PatientID" ;
170     ClinicID="&ClinicID" ;
171     PatientLatitude="&PatientLatitude" ;
172     PatientLongitude="&PatientLongitude" ;
173     ClinicLatitude="&ClinicLatitude" ;
174     ClinicLongitude="&ClinicLongitude" ;
175
176     infile z recfm=f lrecl=&filesize. eof=done;
177     input @ 'miles' +(-15) @ ' ' Distance :comma12. text $30.;
178     units      = scan(text,1,' ');
179     text       = scan(text,3,' ');
180     output;
181
182     put PatientID= ClinicID= Distance=;
183     stop;
184     done:
185     output;
186 run;
```

```

187 proc append base=&out data=__distance ;
188 run ;
189
190
191 proc delete data=__distance ;
192 run ;
193
194 filename x clear ;
195 filename z clear ;
196
197 %mend distance ;
198
199
200 *Step 3 - all driving routes;
201 proc sql ;
202     create table routes as
203     select
204         ehdi_rucc3.ID as PatientID
205         ,ehdi_rucc3.Latitude as PatientLatitude
206         ,ehdi_rucc3.Longitude as PatientLongitude
207         ,Aud_Clinic1.ID as ClinicID
208         ,Aud_Clinic1.Latitude as ClinicLatitude
209         ,Aud_Clinic1.Longitude as ClinicLongitude
210     from ehdi_rucc3,Aud_Clinic1
211     ;
ERROR: File WORK.EHDI_RUCC3.DATA does not exist.
ERROR: File WORK.AUD_CLINIC1.DATA does not exist.
212 quit ;
NOTE: The SAS System stopped processing this step because of errors.
NOTE: PROCEDURE SQL used (Total process time):
      real time          0.01 seconds
      cpu time           0.00 seconds

213
214
215 *Step 4 - run macro;

216 data _null_;
217     set routes;
ERROR: File WORK.ROUTES.DATA does not exist.
218     call execute
219     (
220     '%nrstr('
221         || '%distance'
222         || '('
223         || ' patientID='          || trim(patientID)
224         || ',patientLatitude='   || trim(patientLatitude)
225         || ',patientLongitude='  || trim(patientLongitude)
226         || ',ClinicID='          || trim(ClinicID)
227         || ',ClinicLatitude='    || trim(ClinicLatitude)
228         || ',ClinicLongitude='   || trim(ClinicLongitude)
229         || ',out=mydistances'
230         || ')'
231         || ')'
232     );

```

233 run;

NOTE: Numeric values have been converted to character values at the places given by:
(Line):(Column).

223:45 224:45 225:45 226:43 227:43 228:43

NOTE: The SAS System stopped processing this step because of errors.

NOTE: DATA statement used (Total process time):

real time 0.01 seconds

cpu time 0.01 seconds