

**Execution Environment**

Author: di00222@surrey.ac.uk  
 File: File: /export/viya/homes/di00222@surrey.ac.uk/casuser/Road\_Accident\_Data\_Preprocessing.flw  
 SAS Context: SAS Studio compute context  
 SAS Version: V.04,00M0P091624  
 SAS Client: SAS® Studio 6.0  
 SAS Locale:  
 Submission Time: May 7, 2025, 1:35:49 PM  
 Time Zone: GMT+01:00  
 User Agent: Chrome 135.0.0.0

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**Code:Road\_Accident\_Data\_Preprocessing.flw**

```

/*=====
* Flow:      Road_Accident_Data_Preprocessing.flw
* ID:
* Created:   2025-05-07T12:35:47.647898327Z
* Created by: di00222@surrey.ac.uk
* Modified:   2025-05-07T12:35:47.647898327Z
* Modified by: di00222@surrey.ac.uk
*
* Output Tables:
*   WORK.road_acci_table
*   WORK.OUTPUT_TABLE
*
* Version:   DataFlows lts 2024.09 (20250113.1736793992259)
*
* Generated On: 2025-05-07T12:35:47.647898327Z
* Generated by: di00222@surrey.ac.uk
=====*/
/* region: Generated preamble */

/* Make sure the current directory is writable */
data _null_;
  length rc 4;
  %let tworkloc="%sysfunc(getoption(work))";
  rc=dlgmdir(&tworkloc);
run;

/* Setup options */
title;
footnote;
options validvarname=any;
options validmemname=extend;
options dtreset date number;
options device=png;

/* Setup macro variables */
%let syscc=0;
%let _clientapp = %nrquote(%nrstr(SAS Studio));
%let _clientappabbrev = %nrquote(%nrstr(Studio));
%let _clientappversion=2024.09;
%let _clientversion=6.1054.31;
%let _sasservername=&SYSHOSTNAME;
%let _sashostname=&SYSHOSTNAME;
%let _sasprogramfilehost=&SYSHOSTNAME;
%let _clientuserid = %nrquote(%nrstr(di00222@surrey.ac.uk));
%let _clientusername = %nrquote(%nrstr(di00222@surrey.ac.uk));
%let clientmachine = %nrquote(%nrstr());
%let _clientmachine = %nrquote(%nrstr());
%let _clientmode = %nrquote(%nrstr(viya));
%let sasworklocation="%sysfunc(getoption(work))/";
filename _cwd &sasworklocation;
data _null_;
  call symput('_sasworkingdir',pathname('_cwd'));
run;
filename _cwd;
%let _sasprogramfile = %nrquote(%nrstr());
%let _baseurl = %nrquote(%nrstr(https://vfl-040.engage.sas.com/SASStudio/));
%let _execenv = %nrquote(%nrstr(SASStudio));
%syndel _dataout_mime_type _dataout_name _dataout_url _dataout_table / nowarn;
%let _sasws_ = %bquote(%sysfunc(getoption(work)));
%let _saswtemp_ = %bquote(%sysfunc(getoption(work)));

/* Detect SAS/Graph and setup graph options */
data _null_;
  length rc $255;
  call symput("graphinit","");
  call symput("graphterm","");
  rc=tslvl('sasxgopt','n');
  _error_=0;
  if (rc=' ') then do;
    call symput("graphinit","goptions reset=all gsfname=_gsfname;");
    call symput("graphterm","goptions noaccessible;");
  end;
run;
data _null_;

```

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length rc 4;
rc=sysprod("PRODNUM002");
if (rc=1) then do;
  call symput("graphinit","");
  call symput("graphterm","");
end;
run;

/* Setup ODS destinations */
ods _all_ close;
filename _htmlout temp;
filename _listout temp;
filename _gsfname temp;
filename _dataout temp;
ods autonavigate off;
ods graphics on;
ods html5 (id=web) METATEXT='http-equiv="Content-Security-Policy" content="default-src ''none''; style-src ''unsafe-inline''; img-src data:';
ods listing file=_listout;
&graphinit;

/* endregion */

/* region: Generated flow setup */
%let flow_id = ;
%let flow_name = Road_Accident_Data_Preprocessing.flw;
%let flow_place = ;
%let flow_location = ;
%macro _flw_action_start(nodes);
  data _null_;
    dtEndStr = put(datetime(), E8601DZ.);
    put "_FLW_ACTION_START_|" dtEndStr +(-1) "|&nodes";
  run;
%mend _flw_action_start;
%macro _flw_action_end(nodes, table_libs, libs, table_names);
  data _null_;
    attrib next_table_name length = $32 informat = $32. format = $32.
      dtStartStr length = $26 informat = $26. format = $26.;

    %local i next_table;
    %do i=1 %to %sysfunc(countc(&table_libs, |)) + 1;
      %let next_table = %qscan(&table_libs, &i, |);
      %let next_lib = %qscan(&libs, &i, |);
      %let next_table_name = %qscan(&table_names, &i, |);
      next_table_name = kreverse(kreverse(ksubstr(kstrip("&next_table_name."),2)),2));
      %let table_exists = %eval(%sysfunc(exist(&next_table, data)) or %sysfunc(exist(&next_table, view)));
      put "_FLW_ACTION_TABLE_|&next_lib|" next_table_name +(-1) "|&table_exists";
    %end;
    dtStartStr = put(datetime(), E8601DZ.);
    put "_FLW_ACTION_END_|" dtStartStr +(-1) "|&nodes";
  run;
%mend _flw_action_end;
/* endregion */

/*=====
* Node name: Import File
* Node ID: id-1745416941197-1337
*
* Input Files:
*   /export/viya/homes/di00222@surrey.ac.uk/casuser/Road_Accident_Cleaned_Final_Dataset.csv
*
* Output Tables:
*   WORK.road_acci_table
*
* Step name: Import
* Step path: /dataFlows/steps/d38ccdec-66bc-43d0-84f0-faf8d-legacy
* Step description: Import step; used to import Delimited, Fixed-Width and Microsoft Excel files into SAS
-----*/
/* region: Generated step setup */
%flw_action_start(id=1745416941197-1337);
/* endregion */

%LET global_validvarname = %sysfunc(getoption(validvarname));
OPTIONS VALIDVARNAME=ANY;
FILENAME _flw_fr "/export/viya/homes/di00222@surrey.ac.uk/casuser/Road_Accident_Cleaned_Final_Dataset.csv" encoding="UTF-8";

/* Delete table WORK.road_acci_table */
proc datasets library = WORK memtype = (data view) nolist nowarn;
  delete road_acci_table;
quit;

data WORK.road_acci_table;

  attrib
    _dmIndex_ length = 8 format = BEST12. informat = BEST32. label = "_dmIndex_"
    acci_ref length = 8 format = BEST12. informat = BEST32. label = "acci_ref"
    loc_east_osgr length = 8 format = BEST12. informat = BEST32. label = "loc_east_osgr"
    loc_nor_osgr length = 8 format = BEST12. informat = BEST32. label = "loc_nor_osgr"
    longitude length = 8 format = BEST12. informat = BEST32. label = "longitude"
    latitude length = 8 format = BEST12. informat = BEST32. label = "latitude"
    acci_severity length = 8 format = BEST12. informat = BEST32. label = "acci_severity"

```

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date length = 8 format = MMDDYY10. informat = MMDDYY10. label = "date"
time length = 8 format = TIME20.3 informat = TIME20.3 label = "time"
local_auth_distr length = 8 format = BEST12. informat = BEST32. label = "local_auth_distr"
loc_auth_ons_distr length = $9 format = $.9. informat = $.9. label = "loc_auth_ons_distr"
loc_auth_highw length = $9 format = $.9. informat = $.9. label = "loc_auth_highw"
first_road_class length = 8 format = BEST12. informat = BEST32. label = "first_road_class"
first_road_num length = 8 format = BEST12. informat = BEST32. label = "first_road_num"
road_type length = 8 format = BEST12. informat = BEST32. label = "road_type"
speed_limit length = 8 format = BEST12. informat = BEST32. label = "speed_limit"
junc_detail length = 8 format = BEST12. informat = BEST32. label = "junc_detail"
junc_con length = 8 format = BEST12. informat = BEST32. label = "junc_con"
sec_road_class length = 8 format = BEST12. informat = BEST32. label = "sec_road_class"
sec_road_num length = 8 format = BEST12. informat = BEST32. label = "sec_road_num"
ped_cross_hum_con length = 8 format = BEST12. informat = BEST32. label = "ped_cross_hum_con"
ped_cross_phy_facil length = 8 format = BEST12. informat = BEST32. label = "ped_cross_phy_facil"
light_con length = 8 format = BEST12. informat = BEST32. label = "light_con"
weath_con length = 8 format = BEST12. informat = BEST32. label = "weath_con"
road_surf_con length = 8 format = BEST12. informat = BEST32. label = "road_surf_con"
spec_con_site length = 8 format = BEST12. informat = BEST32. label = "spec_con_site"
carri_haz length = 8 format = BEST12. informat = BEST32. label = "carri_haz"
urb_or_rur_area length = 8 format = BEST12. informat = BEST32. label = "urb_or_rur_area"
did_poli_offi_att length = 8 format = BEST12. informat = BEST32. label = "did_poli_offi_att"
tru_road_flag length = 8 format = BEST12. informat = BEST32. label = "tru_road_flag"
lsoa_of_acc_loc length = $9 format = $.9. informat = $.9. label = "lsoa_of_acc_loc"
IMP_num_of_casu length = 8 format = BEST12. informat = BEST32. label = "IMP_num_of_casu"
IMP_num_of_vehi length = 8 format = BEST12. informat = BEST32. label = "IMP_num_of_vehi"
IMP_police_force length = 8 format = BEST12. informat = BEST32. label = "IMP_police_force"
day_of_week_Amended length = 8 format = BEST12. informat = BEST32. label = "day_of_week_Amended";

infile _flw_fr
lrecl = 32767
encoding ="UTF-8"
delimiter = ','
firstobs = 2
dsd
missover;

input
_dmIndex_
acci_ref
loc_east_osgr
loc_nor_osgr
longitude
latitude
acci_severity
date
time
local_auth_distr
loc_auth_ons_distr
loc_auth_highw
first_road_class
first_road_num
road_type
speed_limit
junc_detail
junc_con
sec_road_class
sec_road_num
ped_cross_hum_con
ped_cross_phy_facil
light_con
weath_con
road_surf_con
spec_con_site
carri_haz
urb_or_rur_area
did_poli_offi_att
tru_road_flag
lsoa_of_acc_loc
IMP_num_of_casu
IMP_num_of_vehi
IMP_police_force
day_of_week_Amended;
RUN;

FILENAME _flw_fr CLEAR;
OPTIONS VALIDVARNAME=&global_validvarname;

/* region: Generated step cleanup for Import File */
%_flw_action_end(id=1745416941197-1337, WORK.road_acci_table, WORK, "road_acci_table");
/* endregion */

/*=====
* Node name:      SAS Program
* Node ID:       id-1745422036157-298285
*
* Input Tables:
*   WORK.road_acci_table
*
* Output Tables:
*   WORK.OUTPUT_TABLE
*/

```

```

* Step name:          SAS Program
* Step path:         /dataFlows/steps/a7190700-f59c-4a94-afe2-214ce639fcde
* Step description: Run user written SAS code.
*-----*/
/* region: Generated step setup */
%_flw_action_start(id=1745422036157-298285);
/* endregion */

/* region: Generated macro initialization */
%let _inputCount = 1;
%let _outputCount = 1;
%let _input1 = WORK.road_acci_table;
%let _output1 = WORK.OUTPUT_TABLE;

/* endregion */

data work.output_table;
set road_acci_table;
length _months_ $3;

length time 8;
format time time8.;

/* Convert the date variable to SAS date value */
sas_date = mdy(month(date), day(date), year(date));
/* Check month ranges and assign labels accordingly */
if ('01JAN2021'd <= sas_date <= '31JAN2021'd) then _months_= 'jan';
else if ('01FEB2021'd <= sas_date <= '28FEB2021'd) then _months_= 'feb';
else if ('01MAR2021'd <= sas_date <= '31MAR2021'd) then _months_= 'mar';
else if ('01APR2021'd <= sas_date <= '30APR2021'd) then _months_= 'apr';
else if ('01MAY2021'd <= sas_date <= '31MAY2021'd) then _months_= 'may';
else if ('01JUN2021'd <= sas_date <= '30JUN2021'd) then _months_= 'jun';
else if ('01JUL2021'd <= sas_date <= '31JUL2021'd) then _months_= 'jul';
else if ('01AUG2021'd <= sas_date <= '31AUG2021'd) then _months_= 'aug';
else if ('01SEP2021'd <= sas_date <= '30SEP2021'd) then _months_= 'sep';
else if ('01OCT2021'd <= sas_date <= '31OCT2021'd) then _months_= 'oct';
else if ('01NOV2021'd <= sas_date <= '30NOV2021'd) then _months_= 'nov';
else if ('01DEC2021'd <= sas_date <= '31DEC2021'd) then _months_= 'dec';
else _months_= 'other';
format sas_date date9.; /* Optional: Set the format for display purposes */

/* Extract the hour from the time variable */
hour_of_day = hour(time);
/* Categorize time into different periods */
if 0 <= hour_of_day < 6 then time_category = 'night';
else if 6 <= hour_of_day < 12 then time_category = 'morning';
else if 12 <= hour_of_day < 18 then time_category = 'afternoon';
else if 18 <= hour_of_day <= 23 then time_category = 'evening';
else time_category = 'other';

run;

/* region: Generated macro cleanup */
%sydel _inputCount / nowarn;
%sydel _outputCount / nowarn;
%sydel _input1 / nowarn;
%sydel _output1 / nowarn;

/* endregion */

/* region: Generated step cleanup for SAS Program */
%_flw_action_end(id=1745422036157-298285, WORK.OUTPUT_TABLE, WORK, "OUTPUT_TABLE");
/* endregion */

/*=====*/
* Node name:          Manage Columns
* Node ID:           id-1745423116515-306590
*
* Input Tables:
*   WORK.OUTPUT_TABLE
*
* Output Tables:
*   WORK._flw0011745423116515306590_0_0_1
*
* Step name:          Manage Columns
* Step path:         /dataFlows/steps/c1b50be2-5bb9-4216-ab9c-1105e16632ef
* Step description: Manage columns in a table.
*-----*/
/* region: Generated step setup */
%_flw_action_start(id=1745423116515-306590);
/* endregion */

/* Delete table WORK._flw0011745423116515306590_0_0_1 */
proc datasets library = WORK memtype = (data view) nolist nowarn;
  delete _flw0011745423116515306590_0_0_1;

```

```

quit;

/* _flw_: set DBIDIRECTEXEC */
%global _flw_dbidirectexec;
%let _flw_dbidirectexec = %sysfunc(getoption(dbidirectexec));
options dbidirectexec;

/* Create table: WORK._flw0011745423116515306590_0_0_1 */
data _null_;
  put 'NOTE: Data Flows: Creating table WORK._flw0011745423116515306590_0_0_1...';
run;

proc sql;
  create table WORK._flw0011745423116515306590_0_0_1 as
    select
      acci_ref,
      loc_east_osgr,
      loc_nor_osgr,
      longitude,
      latitude,
      date,
      _months_,
      day_of_week_Amended as day_of_week,
      time,
      hour_of_day,
      time_category,
      loc_auth_ons_distr,
      first_road_class,
      first_road_num,
      road_type,
      speed_limit,
      junc_detail,
      sec_road_class,
      ped_cross_hum_con,
      ped_cross_phy_facil,
      light_con,
      weath_con,
      road_surf_con,
      spec_con_site,
      carri_haz,
      urb_or_rur_area,
      did_poli_offi_att,
      tru_road_flag,
      lsoa_of_acc_loc,
      IMP_num_of_casu as num_of_casu,
      IMP_num_of_vehi as num_of_vehi,
      acci_severity
    from WORK.OUTPUT_TABLE;
quit;
run;

/* _flw_: reset DBIDIRECTEXEC */
options &_flw_dbidirectexec.;
%symdel _flw_dbidirectexec / nowarn;

/* region: Generated step cleanup for Manage Columns */
%flw_action_end(id=1745423116515-306590, WORK._flw0011745423116515306590_0_0_1, WORK, "_flw0011745423116515306590_0_0_1");
/* endregion */

/* region: Generated flow cleanup */
%sysmacdelete _flw_action_start;
%sysmacdelete _flw_action_end;
/* endregion */
/* region: Generated postamble */

/* Close ODS destinations */
&graphterm; ;*';*";*/;run;quit;
quit;run;
ods html5 (id=web) close;
ods listing close;
%if %sysfunc(fileref(_gsfname)) lt 0 %then %do;
  filename _gsfname clear;
%end;
/* endregion */

```

**Log:Road\_Accident\_Data\_Preprocessing.flw**

```

1  /*=====
2  * Flow:          Road_Accident_Data_Preprocessing.flw
3  * ID:
4  * Created:      2025-05-07T12:35:47.647898327Z
5  * Created by:   di00222@surrey.ac.uk
6  * Modified:     2025-05-07T12:35:47.647898327Z
7  * Modified by:  di00222@surrey.ac.uk
8  *
9  * Output Tables:
10 *   WORK.road_acci_table

```

```

11   * WORK.OUTPUT_TABLE
12   *
13   * Version:      DataFlows lts 2024.09 (20250113.1736793992259)
14   *
15   * Generated On: 2025-05-07T12:35:47.647898327Z
16   * Generated by: di00222@surrey.ac.uk
17   *=====
18 /* region: Generated preamble */
19
20 /* Make sure the current directory is writable */
21 data _null_;
22   length rc 4;
23   %let tworkloc="%sysfunc(getoption(work))";
24   rc=dlgmdir(&tworkloc);
25 run;
NOTE: The current working directory is now
"/opt/sas/viya/config/var/tmp/compsrv/default/ecb624bb-f372-4646-96e2-dbeb4bc26985/SAS_work48EE00000207_sas-compute-server-6cd
f4fbe-36e3-4fe8-8b8b-4394a4dab230-20014".
NOTE: DATA statement used (Total process time):
      real time      0.00 seconds
      cpu time      0.00 seconds

26
27 /* Setup options */
28 title;
29 footnote;
30 options validvarname=any;
31 options validmemname=extend;
32 options dtreset date number;
33 options device=png;
34
35 /* Setup macro variables */
36 %let syscc=0;
37 %let _clientapp = %nrquote(%nrstr(SAS Studio));
38 %let _clientappabbrev = %nrquote(%nrstr(Studio));
39 %let _clientappversion=2024.09;
40 %let _clientversion=6.1054.31;
41 %let _sasservername=&SYSHOSTNAME;
42 %let _sashostname=&SYSHOSTNAME;
43 %let _sasprogramfilehost=&SYSHOSTNAME;
44 %let _clientuserid = %nrquote(%nrstr(di00222@surrey.ac.uk));
45 %let _clientusername = %nrquote(%nrstr(di00222@surrey.ac.uk));
46 %let clientmachine = %nrquote(%nrstr());
47 %let _clientmachine = %nrquote(%nrstr());
48 %let _clientmode = %nrquote(%nrstr(viya));
49 %let sasworklocation="%sysfunc(getoption(work))";
50 filename _cwd &sasworklocation;
51 data _null_;
52   call symput('_sasworkingdir', pathname('_cwd'));
53 run;
NOTE: DATA statement used (Total process time):
      real time      0.00 seconds
      cpu time      0.01 seconds

54 filename _cwd;
NOTE: Fileref _CWD has been deassigned.
55 %let _sasprogramfile = %nrquote(%nrstr());
56 %let _baseurl = %nrquote(%nrstr(https://vfl-040.engage.sas.com/SASStudio/));
57 %let _execenv = %nrquote(%nrstr(SASStudio));
58 %syndel _dataout_mime_type _dataout_name _dataout_url _dataout_table / nowarn;
59 %let _sasws_ = %bquote(%sysfunc(getoption(work)));
60 %let _saswstamp_ = %bquote(%sysfunc(getoption(work)));
61
62 /* Detect SAS/Graph and setup graph options */
63 data _null_;
64   length rc $255;
65   call symput("graphinit","");
66   call symput("graphterm","");
67   rc=tslvl('sasxgopt','n');
68   _error_=0;
69   if (rc^=' ') then do;
70     call symput("graphinit","goptions reset=all gsfname=_gsfname;");
71     call symput("graphterm","goptions noaccessible;");
72   end;
73 run;
NOTE: DATA statement used (Total process time):
      real time      0.00 seconds
      cpu time      0.00 seconds

74 data _null_;
75   length rc 4;
76   rc=sysprod("PRODNUM002");
77   if (rc^=1) then do;
78     call symput("graphinit","");
79     call symput("graphterm","");
80   end;
81 run;
NOTE: DATA statement used (Total process time):
      real time      0.00 seconds
      cpu time      0.00 seconds

```

```

83 /* Setup ODS destinations */
84 ods _all_ close;
85 filename _htmfout temp;
86 filename _listout temp;
87 filename _gsfname temp;
88 filename _dataout temp;
89 ods autonavigate off;
90 ods graphics on;
91 ods html5 (id=web) METATEXT='http-equiv="Content-Security-Policy" content="default-src ''none''; style-src ''unsafe-inline''';
91 ! img-src data: ;" device=png gpath="&sawstemp_" path="&sawstemp_" encoding=utf8 file=_htmfout
91 ! (title='Results:Road_Accident_Data_Preprocessing.flw') style=Ignite options(bitmap_mode='inline' outline='on' svg_mode='inline'
91 ! css_prefix=' .ods_3cd3cff1-9fce-4a20-ba00-4847b6ce10ac' body_id='div_3cd3cff1-9fce-4a20-ba00-4847b6ce10ac' );
NOTE: Writing HTML5(WEB) Body file: _HTMLOUT
92 ods listing file=_listout;
93 &graphinit;
94
95 /* endregion */
96
97 /* region: Generated flow setup */
98 %let flow_id = ;
99 %let flow_name = Road_Accident_Data_Preprocessing.flw;
100 %let flow_place = ;
101 %let flow_location = ;
102 %macro _flw_action_start(nodes);
103   data _null_;
104     dtEndStr = put(datetime(), E8601DZ.);
105     put "_FLW_ACTION_START_|" dtEndStr +(-1) "|&nodes";
106   run;
107 %mend _flw_action_start;
108 %macro _flw_action_end(nodes, table_libs, libs, table_names);
109   data _null_;
110
111   attrib next_table_name length = $32 informat = $32. format = $32.
112     dtStartStr length = $26 informat = $26. format = $26.;
113
114   %local i next_table;
115   %do i=1 %to %sysfunc(countc(&table_libs, |)) + 1;
116     %let next_table = %qscan(&table_libs, &i, |);
117     %let next_lib = %qscan(&libs, &i, |);
118     %let next_table_name = %qscan(&table_names, &i, |);
119     next_table_name = kreverse(ksubstr(kreverse(ksubstr(kstrip("&next_table_name."),2)),2));
120     %let table_exists = %eval(%sysfunc(exist(&next_table, data)) or %sysfunc(exist(&next_table, view)));
121     put "_FLW_ACTION_TABLE_|&next_lib|" next_table_name +(-1) "|&table_exists";
122   %end;
123   dtStartStr = put(datetime(), E8601DZ.);
124   put "_FLW_ACTION_END_|" dtStartStr +(-1) "|&nodes";
125   run;
126 %mend _flw_action_end;
127 /* endregion */
128
129 /*=====
130 * Node name:      Import File
131 * Node ID:        id-1745416941197-1337
132 *
133 * Input Files:
134 *   /export/viya/homes/di00222@surrey.ac.uk/casuser/Road_Accident_Cleaned_Final_Dataset.csv
135 *
136 * Output Tables:
137 *   WORK.road_acci_table
138 *
139 * Step name:      Import
140 * Step path:       /dataFlows/steps/d38ccdec-66bc-43d0-84f0-faf8d-legacy
141 * Step description: Import step; used to import Delimited, Fixed-Width and Microsoft Excel files into SAS
142 * -----
143
144 /* region: Generated step setup */
145 %_flw_action_start(id-1745416941197-1337);
146 _FLW_ACTION_START_|2025-05-07T13:35:48+00:00|id-1745416941197-1337
NOTE: DATA statement used (Total process time):
  real time      0.00 seconds
  cpu time      0.00 seconds
147
148 /*LET global_validvarname = %sysfunc(getoption(validvarname));
149 OPTIONS VALIDVARNAME=ANY;
150 FILENAME _flw_fr "/export/viya/homes/di00222@surrey.ac.uk/casuser/Road_Accident_Cleaned_Final_Dataset.csv" encoding="UTF-8";
151
152 /* Delete table WORK.road_acci_table */
153 proc datasets library = WORK memtype = (data view) nolist nowarn;
154   delete road_acci_table;
155 quit;
NOTE: PROCEDURE DATASETS used (Total process time):
  real time      0.00 seconds
  cpu time      0.00 seconds
156
157 data WORK.road_acci_table;
158
159   attrib
160     _dmIndex_ length = 8 format = BEST12. informat = BEST32. label = "_dmIndex_"
161     acci_ref length = 8 format = BEST12. informat = BEST32. label = "acci_ref"

```

```

162 loc_east_osgr length = 8 format = BEST12. informat = BEST32. label = "loc_east_osgr"
163 loc_nor_osgr length = 8 format = BEST12. informat = BEST32. label = "loc_nor_osgr"
164 longitude length = 8 format = BEST12. informat = BEST32. label = "longitude"
165 latitude length = 8 format = BEST12. informat = BEST32. label = "latitude"
166 acci_severity length = 8 format = BEST12. informat = BEST32. label = "acci_severity"
167 date length = 8 format = MMDDYY10. informat = MMDDYY10. label = "date"
168 time length = 8 format = TIME20.3 informat = TIME20.3 label = "time"
169 local_auth_distr length = 8 format = BEST12. informat = BEST32. label = "local_auth_distr"
170 loc_auth_ons_distr length = $9 format = $9. informat = $9. label = "loc_auth_ons_distr"
171 loc_auth_highw length = $9 format = $9. informat = $9. label = "loc_auth_highw"
172 first_road_class length = 8 format = BEST12. informat = BEST32. label = "first_road_class"
173 first_road_num length = 8 format = BEST12. informat = BEST32. label = "first_road_num"
174 road_type length = 8 format = BEST12. informat = BEST32. label = "road_type"
175 speed_limit length = 8 format = BEST12. informat = BEST32. label = "speed_limit"
176 junc_detail length = 8 format = BEST12. informat = BEST32. label = "junc_detail"
177 junc_con length = 8 format = BEST12. informat = BEST32. label = "junc_con"
178 sec_road_class length = 8 format = BEST12. informat = BEST32. label = "sec_road_class"
179 sec_road_num length = 8 format = BEST12. informat = BEST32. label = "sec_road_num"
180 ped_cross_hum_con length = 8 format = BEST12. informat = BEST32. label = "ped_cross_hum_con"
181 ped_cross_phy_facil length = 8 format = BEST12. informat = BEST32. label = "ped_cross_phy_facil"
182 light_con length = 8 format = BEST12. informat = BEST32. label = "light_con"
183 weath_con length = 8 format = BEST12. informat = BEST32. label = "weath_con"
184 road_surf_con length = 8 format = BEST12. informat = BEST32. label = "road_surf_con"
185 spec_con_site length = 8 format = BEST12. informat = BEST32. label = "spec_con_site"
186 carri_haz length = 8 format = BEST12. informat = BEST32. label = "carri_haz"
187 urb_or_rur_area length = 8 format = BEST12. informat = BEST32. label = "urb_or_rur_area"
188 did_poli_offi_att length = 8 format = BEST12. informat = BEST32. label = "did_poli_offi_att"
189 tru_road_flag length = 8 format = BEST12. informat = BEST32. label = "tru_road_flag"
190 lsoa_of_acc_loc length = $9 format = $9. informat = $9. label = "lsoa_of_acc_loc"
191 IMP_num_of_casu length = 8 format = BEST12. informat = BEST32. label = "IMP_num_of_casu"
192 IMP_num_of_vehi length = 8 format = BEST12. informat = BEST32. label = "IMP_num_of_vehi"
193 IMP_police_force length = 8 format = BEST12. informat = BEST32. label = "IMP_police_force"
194 day_of_week_Amended length = 8 format = BEST12. informat = BEST32. label = "day_of_week_Amended";
195
196 infile _flw_fr
197 lrecl = 32767
198 encoding ="UTF-8"
199 delimiter = ','
200 firstobs = 2
201 dsd
202 missover;
203
204 input
205 _dmIndex_
206 acci_ref
207 loc_east_osgr
208 loc_nor_osgr
209 longitude
210 latitude
211 acci_severity
212 date
213 time
214 local_auth_distr
215 loc_auth_ons_distr
216 loc_auth_highw
217 first_road_class
218 first_road_num
219 road_type
220 speed_limit
221 junc_detail
222 junc_con
223 sec_road_class
224 sec_road_num
225 ped_cross_hum_con
226 ped_cross_phy_facil
227 light_con
228 weath_con
229 road_surf_con
230 spec_con_site
231 carri_haz
232 urb_or_rur_area
233 did_poli_offi_att
234 tru_road_flag
235 lsoa_of_acc_loc
236 IMP_num_of_casu
237 IMP_num_of_vehi
238 IMP_police_force
239 day_of_week_Amended;
240 RUN;

```

NOTE: The infile \_FLW\_FR is:

Filename=/export/viya/homes/di00222@surrey.ac.uk/casuser/Road\_Accident\_Cleaned\_Final\_Dataset.csv,  
 Owner Name=UNKNOWN,Group Name=UNKNOWN,  
 Access Permission=rw-r--r--,  
 Last Modified=23Apr2025:13:45:21,  
 File Size (bytes)=376722

NOTE: 2476 records were read from the infile \_FLW\_FR.

The minimum record length was 145.  
 The maximum record length was 156.

NOTE: The data set WORK.ROAD\_ACCTI\_TABLE has 2476 observations and 35 variables.

NOTE: DATA statement used (Total process time):

real time 0.01 seconds  
 cpu time 0.01 seconds

```

241
242 FILENAME _flw_fr CLEAR;
NOTE: Fileref _FLW_FR has been deassigned.
243 OPTIONS VALIDVARNAME=&global_validvarname;
244
245 /* region: Generated step cleanup for Import File */
246 %_flw_action_end(id=1745416941197-1337, WORK.road_acci_table, WORK, "road_acci_table");
_FLW_ACTION_TABLE_|WORK|road_acci_table|1
_FLW_ACTION_END_|2025-05-07T13:35:48+00:00|id=1745416941197-1337
NOTE: DATA statement used (Total process time):
  real time      0.00 seconds
  cpu time       0.00 seconds

247 /* endregion */

248
249 /*=====
250 * Node name:      SAS Program
251 * Node ID:        id-1745422036157-298285
252 *
253 * Input Tables:
254 *   WORK.road_acci_table
255 *
256 * Output Tables:
257 *   WORK.OUTPUT_TABLE
258 *
259 * Step name:      SAS Program
260 * Step path:      /dataFlows/steps/a7190700-f59c-4a94-afe2-214ce639fcde
261 * Step description: Run user written SAS code.
262 *-----*/
263
264 /* region: Generated step setup */
265 %_flw_action_start(id=1745422036157-298285);
_FLW_ACTION_START_|2025-05-07T13:35:48+00:00|id=1745422036157-298285
NOTE: DATA statement used (Total process time):
  real time      0.00 seconds
  cpu time       0.00 seconds

266 /* endregion */

267
268
269 /* region: Generated macro initialization */
270 %let _inputCount = 1;
271 %let _outputCount = 1;
272 %let _input1 = WORK.road_acci_table;
273 %let _output1 = WORK.OUTPUT_TABLE;
274
275 /* endregion */

276
277 data work.output_table;
278 set road_acci_table;
279 length _months_ $3;
280
281 length time 8;
282 format time time8.;
283
284 /* Convert the date variable to SAS date value */
285 sas_date = mdy(month(date), day(date), year(date));
286 /* Check month ranges and assign labels accordingly */
287 if ('01JAN2021'd <= sas_date <= '31JAN2021'd) then _months_= 'jan';
288 else if ('01FEB2021'd <= sas_date <= '28FEB2021'd) then _months_= 'feb';
289 else if ('01MAR2021'd <= sas_date <= '31MAR2021'd) then _months_= 'mar';
290 else if ('01APR2021'd <= sas_date <= '30APR2021'd) then _months_= 'apr';
291 else if ('01MAY2021'd <= sas_date <= '31MAY2021'd) then _months_= 'may';
292 else if ('01JUN2021'd <= sas_date <= '30JUN2021'd) then _months_= 'jun';
293 else if ('01JUL2021'd <= sas_date <= '31JUL2021'd) then _months_= 'jul';
294 else if ('01AUG2021'd <= sas_date <= '31AUG2021'd) then _months_= 'aug';
295 else if ('01SEP2021'd <= sas_date <= '30SEP2021'd) then _months_= 'sep';
296 else if ('01OCT2021'd <= sas_date <= '31OCT2021'd) then _months_= 'oct';
297 else if ('01NOV2021'd <= sas_date <= '30NOV2021'd) then _months_= 'nov';
298 else if ('01DEC2021'd <= sas_date <= '31DEC2021'd) then _months_= 'dec';
299 else _months_= 'other';
300
301 format sas_date date9.; /* Optional: Set the format for display purposes */
302
303
304 /* Extract the hour from the time variable */
305 hour_of_day = hour(time);
306 /* Categorize time into different periods */
307 if 0 <= hour_of_day < 6 then time_category = 'night';
308 else if 6 <= hour_of_day < 12 then time_category = 'morning';
309 else if 12 <= hour_of_day < 18 then time_category = 'afternoon';
310 else if 18 <= hour_of_day <= 23 then time_category = 'evening';
311 else time_category = 'other';
312
313 run;
NOTE: There were 2476 observations read from the data set WORK.ROAD_ACCI_TABLE.
NOTE: The data set WORK.OUTPUT_TABLE has 2476 observations and 39 variables.
NOTE: DATA statement used (Total process time):
  real time      0.00 seconds
  cpu time       0.01 seconds

```

```

314
315
316 /* region: Generated macro cleanup */
317 %sydel _inputCount / nowarn;
318 %sydel _outputCount / nowarn;
319 %sydel _input1 / nowarn;
320 %sydel _output1 / nowarn;
321
322 /* endregion */
323
324
325 /* region: Generated step cleanup for SAS Program */
326 %_flw_action_end(id-1745422036157-298285, WORK.OUTPUT_TABLE, WORK, "OUTPUT_TABLE");
_FLW_ACTION_TABLE_|WORK|OUTPUT_TABLE|1
_FLW_ACTION_END_|2025-05-07T13:35:48+00:00|id-1745422036157-298285
NOTE: DATA statement used (Total process time):
  real time      0.00 seconds
  cpu time      0.00 seconds

327 /* endregion */
328
329 /*=====
330 * Node name:      Manage Columns
331 * Node ID:       id-1745423116515-306590
332 *
333 * Input Tables:
334 *   WORK.OUTPUT_TABLE
335 *
336 * Output Tables:
337 *   WORK._flw0011745423116515306590_0_0_1
338 *
339 * Step name:      Manage Columns
340 * Step path:     /dataFlows/steps/c1b50be2-5bb9-4216-ab9c-1105e16632ef
341 * Step description: Manage columns in a table.
342 *-----*/
343
344 /* region: Generated step setup */
345 %_flw_action_start(id-1745423116515-306590);
_FLW_ACTION_START_|2025-05-07T13:35:48+00:00|id-1745423116515-306590
NOTE: DATA statement used (Total process time):
  real time      0.00 seconds
  cpu time      0.00 seconds

346 /* endregion */
347
348 /* Delete table WORK._flw0011745423116515306590_0_0_1 */
349 proc datasets library = WORK memtype = (data view) nolist nowarn;
350   delete _flw0011745423116515306590_0_0_1;
351 quit;
NOTE: PROCEDURE DATASETS used (Total process time):
  real time      0.00 seconds
  cpu time      0.00 seconds

352
353 /* _flw_: set DBIRECTEXEC */
354 %global _flw_dbirectexec;
355 %let _flw_dbirectexec = %sysfunc(getoption(dbirectexec));
356 options dbirectexec;
357
358 /* Create table: WORK._flw0011745423116515306590_0_0_1 */
359 data _null_;
360   put 'NOTE: Data Flows: Creating table WORK._flw0011745423116515306590_0_0_1...';
361 run;
NOTE: Data Flows: Creating table WORK._flw0011745423116515306590_0_0_1...
NOTE: DATA statement used (Total process time):
  real time      0.00 seconds
  cpu time      0.00 seconds

362
363 proc sql;
364   create table WORK._flw0011745423116515306590_0_0_1 as
365     select
366       acci_ref,
367       loc_east_osgr,
368       loc_nor_osgr,
369       longitude,
370       latitude,
371       date,
372       _months_,
373       day_of_week_Amended as day_of_week,
374       time,
375       hour_of_day,
376       time_category,
377       loc_auth_ons_distr,
378       first_road_class,
379       first_road_num,
380       road_type,
381       speed_limit,
382       junc_detail,
383       sec_road_class,
384       ped_cross_hum_con,
385       ped_cross_phy_facil,
```

```

386      light_con,
387      weath_con,
388      road_surf_con,
389      spec_con_site,
390      carri_haz,
391      urb_or_rur_area,
392      did_poli_offi_att,
393      tru_road_flag,
394      lsoa_of_acc_loc,
395      IMP_num_of_casu as num_of_casu,
396      IMP_num_of_vehi as num_of_vehi,
397      acci_severity
398      from WORK.OUTPUT_TABLE;
NOTE: Table WORK._FLW0011745423116515306590_0_0_1 created, with 2476 rows and 32 columns.
399 quit;
NOTE: PROCEDURE SQL used (Total process time):
   real time      0.00 seconds
   cpu time      0.01 seconds

400 run;
401
402 /* _flw_: reset DBIDIRECTEXEC */
403 options &_flw_dbidirectexec.;
404 %symdel _flw_dbidirectexec / nowarn;
405
406
407 /* region: Generated step cleanup for Manage Columns */
408 %_flw_action_end(id=1745423116515-306590, WORK._flw0011745423116515306590_0_0_1, WORK, "_flw0011745423116515306590_0_0_1");
_Flw_ACTION_TABLE_|WORK|_flw0011745423116515306590_0_0_1|1
_Flw_ACTION_END_|2025-05-07T13:35:48+00:00|id=1745423116515-306590
NOTE: DATA statement used (Total process time):
   real time      0.00 seconds
   cpu time      0.01 seconds

409 /* endregion */
410
411 /* region: Generated flow cleanup */
412 %sysmacdelete _flw_action_start;
413 %sysmacdelete _flw_action_end;
414 /* endregion */
415 /* region: Generated postamble */
416
417 /* Close ODS destinations */
418 &graphterm; ;*';*';*/run;quit;
419 quit;run;
420 ods html5 (id=web) close;
421 ods listing close;
422 %if %sysfunc(fileref(_gsfname)) lt 0 %then %do;
423   filename _gsfname clear;
NOTE: Fileref _GSFNAME has been deassigned.
424 %end;
425
426 /* endregion */
427
428
429

```

**Results:Road\_Accident\_Data\_Preprocessing.flw**