```
*------------------------------------------------------------*;
* EM Version: 13.2;
* SAS Release: 9.04.01M2P072314;
* Host: SVKM-SAS;
* Project Path: D:\0002\K;
* Project Name: M31333929;
* Diagram Id: EMWS1;
* Diagram Name: M2;
* Generated by: sasdemo;
* Date: 28MAR2019:10:32:05;
*------------------------------------------------------------*;
*------------------------------------------------------------*;
* Macro Variables;
*------------------------------------------------------------*;
%let EM_PROJECT =;
%let EM_PROJECTNAME =;
%let EM_WSNAME =;
%let EM_WSDESCRIPTION =M2;
%let EM_SUMMARY =WORK.SUMMARY;
%let EM_NUMTASKS =SINGLE;
%let EM_EDITMODE =R;
%let EM_DEBUGVAL =;
%let EM_ACTION =run;
*------------------------------------------------------------*;
%macro em_usedatatable;
%if ^%symexist(EM_USEDATATABLE) %then %do;
%let EM_USEDATATABLE = Y;
%end;
%if "&EM_USEDATATABLE" ne "N" %then %do;
%global Ids2_data Ids2_newdata;
%global Ids_data Ids_newdata;
```

```
*------------------------------------------------------------*;
* Data Tables;
*------------------------------------------------------------*;
%let Ids2_data = SASUSER.LOANTEST2;
%let Ids2_newdata =;
%let Ids_data = SASUSER.LOANS2;
%let Ids_newdata =;
*------------------------------------------------------------*;
%end;
%global Ids2_source;
%if "&Ids2_newdata" ne "" %then %do;
%let Ids2_source = USERTABLE;
%end;
%else %do;
%let Ids2_source = DATASOURCE;
%end;
%global Ids_source;
%if "&Ids_newdata" ne "" %then %do;
%let Ids_source = USERTABLE;
%end;
%else %do;
%let Ids_source = DATASOURCE;
%end;
%mend em_usedatatable;
%em_usedatatable;
*------------------------------------------------------------*;
* Create workspace data set;
*------------------------------------------------------------*;
data workspace;
length property $64 value $200;
property= 'PROJECTLOCATION';
```

```
value= "&EM_PROJECT";
output;
property= 'PROJECTNAME';
value= "&EM_PROJECTNAME";
output;
property= 'WORKSPACENAME';
value= "&EM_WSNAME";
output;
property= 'WORKSPACEDESCRIPTION';
value= "&EM_WSDESCRIPTION";
output;
property= 'SUMMARYDATASET';
value= "&EM_SUMMARY";
output;
property= 'NUMTASKS';
value= "&EM_NUMTASKS";
output;
property= 'EDITMODE';
value= "&EM_EDITMODE";
output;
property= 'DEBUG';
value= "&EM_DEBUGVAL";
output;
run;
*------------------------------------------------------------*;
* Create nodes data set;
*------------------------------------------------------------*;
data nodes;
length id $12 component $32 description $64 X 8 Y 8 diagramID $32 parentID $32;
id= "Trans";
component="Transform";
```

description= "Transform Variables";

diagramID="_ROOT_";

parentID="";

X=727;

Y=292;

output;

id= "Stat";

component="StatExplore";

description= "StatExplore";

diagramID="_ROOT_";

parentID="";

X=248;

Y=132;

output;

id= "Reg";

component="Regression";

description= "Regression";

diagramID="_ROOT_";

parentID="";

X=896;

Y=292;

output;

id= "Part";

component="Partition";

description= "Data Partition";

diagramID="_ROOT_";

parentID="";

X=407;

Y=129;

output;

id= "Impt";

component="Impute";

description= "Impute";

diagramID="_ROOT_";

parentID="";

X=565;

Y=287;

output;

id= "Ids2";

component="DataSource";

description= "LOANTEST2";

diagramID="_ROOT_";

parentID="";

X=104;

Y=207;

output;

id= "Ids";

component="DataSource";

description= "LOANS2";

diagramID="_ROOT_";

parentID="";

X=102;

Y=133;

output;

id= "EMCODE";

component="SASCode";

description= "SAS Code";

diagramID="_ROOT_";

parentID="";

X=1016;

Y=601;

output;

```
id= "AutoNeural";
component="AutoNeural";
description= "AutoNeural";
diagramID="_ROOT_";
parentID="";
X=1072;
Y=424;
output;
run;
*------------------------------------------------------------*;
* DataSource Properties;
*------------------------------------------------------------*;
data WORK.loans_P;
  length   Property                  $ 32
           Value                     $ 200
           ;

Property="Name";
Value="LOANS2";
output;
Property="CreateDate";
Value="1869380563.1";
output;
Property="ModifyDate";
Value="1869380563.1";
output;
Property="CreatedBy";
Value="sasserver";
output;
Property="ModifiedBy";
Value="sasserver";
```

```
output;
Property="SampleSizeType";
Value="";
output;
Property="SampleSize";
Value="";
output;
;
run;
*-------------------------------------------------------------*;
* DataSource Properties;
*-------------------------------------------------------------*;
data WORK.loantest_P;
  length   Property                  $ 32
           Value                     $ 200
           ;

Property="Name";
Value="LOANTEST2";
output;
Property="CreateDate";
Value="1869387041.6";
output;
Property="ModifyDate";
Value="1869387041.6";
output;
Property="CreatedBy";
Value="sasserver";
output;
Property="ModifiedBy";
Value="sasserver";
```

```
output;
Property="SampleSizeType";
Value="";
output;
Property="SampleSize";
Value="";
output;
;
run;
*-------------------------------------------------------------*;
* INTERACTION Data Set for Trans;
*-------------------------------------------------------------*;
*-------------------------------------------------------------*;
* FORMULA Data Set for Trans;
*-------------------------------------------------------------*;
*-------------------------------------------------------------*;
* EMNOTES File for Trans;
*-------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"Trans_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*-------------------------------------------------------------*;
* CROSSTAB Data Set for Stat;
```

```
*-------------------------------------------------------------*;
*-------------------------------------------------------------*;
* EMNOTES File for Stat;
*-------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"Stat_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*-------------------------------------------------------------*;
* EMNOTES File for Reg;
*-------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"Reg_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*-------------------------------------------------------------*;
* EMNOTES File for Part;
```

```
*-------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"Part_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*-------------------------------------------------------------*;
* EMNOTES File for Impt;
*-------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"Impt_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*-------------------------------------------------------------*;
* Variable Attributes for Ids2;
*-------------------------------------------------------------*;
data WORK.Ids2_VariableAttribute;
length Variable $64 AttributeName $32 AttributeValue $64;
```

```
Variable='credit_policy';
AttributeName="LEVEL";
AttributeValue='BINARY';
Output;
Variable='not_fully_paid';
AttributeName="ROLE";
AttributeValue='TARGET';
Output;
Variable='not_fully_paid';
AttributeName="LEVEL";
AttributeValue='BINARY';
Output;
run;
*-------------------------------------------------------------*;
* EMNOTES File for Ids2;
*-------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"Ids2_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*-------------------------------------------------------------*;
* Variable Attributes for Ids;
*-------------------------------------------------------------*;
data WORK.Ids_VariableAttribute;
```

```
length Variable $64 AttributeName $32 AttributeValue $64;
Variable='credit_policy';
AttributeName="LEVEL";
AttributeValue='BINARY';
Output;
Variable='not_fully_paid';
AttributeName="ROLE";
AttributeValue='TARGET';
Output;
Variable='not_fully_paid';
AttributeName="LEVEL";
AttributeValue='BINARY';
Output;
run;
*------------------------------------------------------------*;
* Decmeta Data Set for Ids;
*------------------------------------------------------------*;
data WORK.Ids_not_fully_paid_DM;
 length   _TYPE_                   $ 32
        VARIABLE                  $ 32
        LABEL                    $ 256
        LEVEL                    $ 32
        EVENT                     $ 32
        ORDER                     $ 10
        FORMAT                    $ 32
        TYPE                     $ 1
        COST                      $ 32
        USE                      $ 1
        ;

 label    _TYPE_="Type"
```

```
        VARIABLE="Variable"
        LABEL="Label"
        LEVEL="Measurement Level"
        EVENT="Target Event"
        ORDER="Order"
        FORMAT="Format"
        TYPE="Type"
        COST="Cost"
        USE="Use"
        ;
_TYPE_="MATRIX";
VARIABLE="";
LABEL="";
LEVEL="PROFIT";
EVENT="";
ORDER="";
FORMAT="";
TYPE="";
COST="";
USE="Y";
output;
_TYPE_="TARGET";
VARIABLE="not_fully_paid";
LABEL="not.fully.paid";
LEVEL="BINARY";
EVENT="1";
ORDER="";
FORMAT="BEST12.0";
TYPE="N";
COST="";
USE="";
```

output;

TYPE="DATAPRIOR";

VARIABLE="DATAPRIOR";

LABEL="Data Prior";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="Y";

output;

TYPE="TRAINPRIOR";

VARIABLE="TRAINPRIOR";

LABEL="Training Prior";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="N";

output;

TYPE="DECPRIOR";

VARIABLE="DECPRIOR";

LABEL="Decision Prior";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="N";

output;

TYPE="PREDICTED";

VARIABLE="P_not_fully_paid1";

LABEL="Predicted: not_fully_paid=1";

LEVEL="1";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="";

output;

TYPE="RESIDUAL";

VARIABLE="R_not_fully_paid1";

LABEL="Residual: not_fully_paid=1";

LEVEL="1";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="";

output;

TYPE="PREDICTED";

VARIABLE="P_not_fully_paid0";

LABEL="Predicted: not_fully_paid=0";

LEVEL="0";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="";

output;

TYPE="RESIDUAL";

VARIABLE="R_not_fully_paid0";

LABEL="Residual: not_fully_paid=0";

LEVEL="0";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="";

output;

TYPE="FROM";

VARIABLE="F_not_fully_paid";

LABEL="From: not_fully_paid";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="C";

COST="";

USE="";

output;

TYPE="INTO";

VARIABLE="I_not_fully_paid";

LABEL="Into: not_fully_paid";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="C";

COST="";

USE="";

output;

TYPE="DECISION";

VARIABLE="DECISION1";

LABEL="1";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="Y";

output;

TYPE="DECISION";

VARIABLE="DECISION2";

LABEL="0";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="Y";

output;

TYPE="MODELDECISION";

VARIABLE="D_not_fully_paid";

LABEL="Decision: not_fully_paid";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="Y";

output;

TYPE="EXPECTEDPROFIT";

VARIABLE="EP_NOT_FULLY_PAID";

LABEL="Expected Profit: not_fully_paid";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="Y";

output;

TYPE="COMPUTEDPROFIT";

VARIABLE="CP_NOT_FULLY_PAID";

LABEL="Computed Profit: not_fully_paid";

LEVEL="";

EVENT="";

ORDER="";

FORMAT="";

TYPE="N";

COST="";

USE="Y";

output;

```
_TYPE_="BESTPROFIT";
VARIABLE="BP_NOT_FULLY_PAID";
LABEL="Best Profit: not_fully_paid";
LEVEL="";
EVENT="";
ORDER="";
FORMAT="";
TYPE="N";
COST="";
USE="Y";
output;
;
run;
*-------------------------------------------------------------*;
* Decdata Data Set for Ids;
*-------------------------------------------------------------*;
data WORK.Ids_not_fully_paid_DD;
 length   not_fully_paid              $ 32
        COUNT                      8
        DATAPRIOR                  8
        TRAINPRIOR                 8
        DECPRIOR                   8
        DECISION1                  8
        DECISION2                  8
        ;

 label    COUNT="Level Counts"
        DATAPRIOR="Data Proportions"
        TRAINPRIOR="Training Proportions"
        DECPRIOR="Decision Priors"
        DECISION1="1"
```

```
        DECISION2="0"
        ;
 format   COUNT 10.
        ;
not_fully_paid="1";
COUNT=905;
DATAPRIOR=0.1579131041703;
TRAINPRIOR=0.1579131041703;
DECPRIOR=0.1579;
DECISION1=1;
DECISION2=0;
output;
not_fully_paid="0";
COUNT=4826;
DATAPRIOR=0.84208689582969;
TRAINPRIOR=0.84208689582969;
DECPRIOR=0.8421;
DECISION1=0;
DECISION2=1;
output;
;
run;
*-------------------------------------------------------------*;
* EMNOTES File for Ids;
*-------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"Ids_EMNOTES.txt";
call symput('DSPATH', filepath);
```

```
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*------------------------------------------------------------*;
* USERTRAINCODE File for EMCODE;
*------------------------------------------------------------*;
data _null_;
if symget('sysscp')='WIN' then dsep='\';
else if symget('sysscp')='DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"EMCODE_USERTRAINCODE.sas";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath";
file dspath;
run;
*------------------------------------------------------------*;
* EMNOTES File for EMCODE;
*------------------------------------------------------------*;
data _null_;
if symget('sysscp')='WIN' then dsep='\';
else if symget('sysscp')='DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"EMCODE_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
```

```
file dspath;
run;
*------------------------------------------------------------*;
* EMNOTES File for AutoNeural;
*------------------------------------------------------------*;
data _null_;
if symget('sysscp')=:'WIN' then dsep='\';
else if symget('sysscp')=:'DNT' then dsep='\';
else dsep = '/';
filepath = pathname('work')!!dsep!!"AutoNeural_EMNOTES.txt";
call symput('DSPATH', filepath);
run;
data _null_;
filename dspath "&dspath" encoding="utf-8" NOBOM;
file dspath;
run;
*------------------------------------------------------------*;
* Create node properties data set;
*------------------------------------------------------------*;
data nodeprops;
length id $12 property $64 value $400;
id= "Trans";
property="DefaultMethod";
value= "MAX_NORM";
output;
id= "Trans";
property="DefaultTargetMethod";
value= "NONE";
output;
id= "Trans";
property="DefaultClassMethod";
```

value= "NONE";

output;

id= "Trans";

property="DefaultClassTargetMethod";

value= "NONE";

output;

id= "Trans";

property="Offset";

value= "1";

output;

id= "Trans";

property="MinOffset";

value= "Y";

output;

id= "Trans";

property="HideVariable";

value= "Y";

output;

id= "Trans";

property="RejectVariable";

value= "Y";

output;

id= "Trans";

property="GroupCutoff";

value= "0.1";

output;

id= "Trans";

property="GroupMissing";

value= "N";

output;

id= "Trans";

property="EmRandomSeed";

value= "12345";

output;

id= "Trans";

property="EmSampleSize";

value= "DEFAULT";

output;

id= "Trans";

property="EmSampleMethod";

value= "FIRSTN";

output;

id= "Trans";

property="MissingValue";

value= "USEINSEARCH";

output;

id= "Trans";

property="SummaryVariables";

value= "TRANSFORMED";

output;

id= "Trans";

property="SummaryStatistics";

value= "Y";

output;

id= "Trans";

property="UseMetaTransform";

value= "Y";

output;

id= "Trans";

property="MissingAsLevel";

value= "N";

output;

```
id= "Trans";
property="NumberofBins";
value= "VARIABLES";
output;
id= "Trans";
property="MaxOptimalBins";
value= "4";
output;
id= "Trans";
property="ForceRun";
value= "N";
output;
id= "Trans";
property="RunAction";
value= "Train";
output;
id= "Trans";
property="Component";
value= "Transform";
output;
id= "Trans";
property="EM_FILE_EMNOTES";
value= "Trans_EMNOTES.txt";
output;
id= "Stat";
property="BySegment";
value= "N";
output;
id= "Stat";
property="Correlation";
value= "Y";
```

```
output;
id= "Stat";
property="Spearman";
value= "N";
output;
id= "Stat";
property="Pearson";
value= "Y";
output;
id= "Stat";
property="ChiSquare";
value= "Y";
output;
id= "Stat";
property="ChiSquareInterval";
value= "N";
output;
id= "Stat";
property="ChiSquareIntervalNBins";
value= "5";
output;
id= "Stat";
property="MaximumVars";
value= "1000";
output;
id= "Stat";
property="HideVariable";
value= "Y";
output;
id= "Stat";
property="DropRejected";
```

value= "Y";

output;

id= "Stat";

property="UseValidate";

value= "N";

output;

id= "Stat";

property="UseTest";

value= "N";

output;

id= "Stat";

property="UseScore";

value= "N";

output;

id= "Stat";

property="NObs";

value= "100000";

output;

id= "Stat";

property="IntervalDistribution";

value= "Y";

output;

id= "Stat";

property="ClassDistribution";

value= "Y";

output;

id= "Stat";

property="LevelSummary";

value= "Y";

output;

id= "Stat";

```
property="ForceRun";
value= "N";
output;
id= "Stat";
property="RunAction";
value= "Train";
output;
id= "Stat";
property="Component";
value= "StatExplore";
output;
id= "Stat";
property="EM_FILE_EMNOTES";
value= "Stat_EMNOTES.txt";
output;
id= "Reg";
property="MainEffect";
value= "Y";
output;
id= "Reg";
property="TwoFactor";
value= "N";
output;
id= "Reg";
property="Polynomial";
value= "N";
output;
id= "Reg";
property="PolynomialDegree";
value= "2";
output;
```

```
id= "Reg";
property="Terms";
value= "N";
output;
id= "Reg";
property="Error";
value= "LOGISTIC";
output;
id= "Reg";
property="LinkFunction";
value= "LOGIT";
output;
id= "Reg";
property="SuppressIntercept";
value= "N";
output;
id= "Reg";
property="InputCoding";
value= "DEVIATION";
output;
id= "Reg";
property="MinResourceUse";
value= "N";
output;
id= "Reg";
property="ModelSelection";
value= "STEPWISE";
output;
id= "Reg";
property="SelectionCriterion";
value= "VMISC";
```

output;

id= "Reg";

property="SelectionDefault";

value= "Y";

output;

id= "Reg";

property="Sequential";

value= "N";

output;

id= "Reg";

property="SlEntry";

value= "0.05";

output;

id= "Reg";

property="SlStay";

value= "0.05";

output;

id= "Reg";

property="Start";

value= "0";

output;

id= "Reg";

property="Stop";

value= "0";

output;

id= "Reg";

property="Force";

value= "0";

output;

id= "Reg";

property="Hierarchy";

value= "CLASS";

output;

id= "Reg";

property="Rule";

value= "NONE";

output;

id= "Reg";

property="MaxStep";

value= ".";

output;

id= "Reg";

property="StepOutput";

value= "N";

output;

id= "Reg";

property="OptimizationTechnique";

value= "DEFAULT";

output;

id= "Reg";

property="ModelDefaults";

value= "Y";

output;

id= "Reg";

property="MaxIterations";

value= ".";

output;

id= "Reg";

property="MaxFunctionCalls";

value= ".";

output;

id= "Reg";

property="MaxCPUTime";

value= "1 HOUR";

output;

id= "Reg";

property="ConvDefaults";

value= "Y";

output;

id= "Reg";

property="AbsConvValue";

value= "-1.34078E154";

output;

id= "Reg";

property="AbsFValue";

value= "0";

output;

id= "Reg";

property="AbsFTime";

value= "1";

output;

id= "Reg";

property="AbsGValue";

value= "0.00001";

output;

id= "Reg";

property="AbsGTime";

value= "1";

output;

id= "Reg";

property="AbsXValue";

value= "1E-8";

output;

id= "Reg";

property="AbsXTime";

value= "1";

output;

id= "Reg";

property="FConvValue";

value= "0";

output;

id= "Reg";

property="FConvTimes";

value= "1";

output;

id= "Reg";

property="GConvValue";

value= "1E-6";

output;

id= "Reg";

property="GConvTimes";

value= "1";

output;

id= "Reg";

property="ClParm";

value= "N";

output;

id= "Reg";

property="Covout";

value= "N";

output;

id= "Reg";

property="CovB";

value= "N";

```
output;
id= "Reg";
property="CorB";
value= "N";
output;
id= "Reg";
property="Simple";
value= "N";
output;
id= "Reg";
property="SuppressOutput";
value= "N";
output;
id= "Reg";
property="Details";
value= "N";
output;
id= "Reg";
property="PrintDesignMatrix";
value= "N";
output;
id= "Reg";
property="SASSPDS";
value= "N";
output;
id= "Reg";
property="Performance";
value= "N";
output;
id= "Reg";
property="ExcludedVariable";
```

value= "REJECT";

output;

id= "Reg";

property="ForceRun";

value= "N";

output;

id= "Reg";

property="RunAction";

value= "Train";

output;

id= "Reg";

property="Component";

value= "Regression";

output;

id= "Reg";

property="Interactions";

value= "";

output;

id= "Reg";

property="EM_FILE_EMNOTES";

value= "Reg_EMNOTES.txt";

output;

id= "Part";

property="Method";

value= "DEFAULT";

output;

id= "Part";

property="TrainPct";

value= "70";

output;

id= "Part";

property="ValidatePct";

value= "30";

output;

id= "Part";

property="TestPct";

value= "30";

output;

id= "Part";

property="RandomSeed";

value= "12345";

output;

id= "Part";

property="OutputType";

value= "DATA";

output;

id= "Part";

property="IntervalDistribution";

value= "Y";

output;

id= "Part";

property="ClassDistribution";

value= "Y";

output;

id= "Part";

property="ForceRun";

value= "N";

output;

id= "Part";

property="RunAction";

value= "Train";

output;

```
id= "Part";
property="Component";
value= "Partition";
output;
id= "Part";
property="EM_FILE_EMNOTES";
value= "Part_EMNOTES.txt";
output;
id= "Impt";
property="MethodInterval";
value= "MEAN";
output;
id= "Impt";
property="MethodClass";
value= "COUNT";
output;
id= "Impt";
property="MethodTargetInterval";
value= "NONE";
output;
id= "Impt";
property="MethodTargetClass";
value= "NONE";
output;
id= "Impt";
property="ABWTuning";
value= "9";
output;
id= "Impt";
property="AHUBERTuning";
value= "1.5";
```

output;

id= "Impt";

property="AWAVETuning";

value= "6.2831853072";

output;

id= "Impt";

property="SpacingProportion";

value= "90";

output;

id= "Impt";

property="DefaultChar";

value= "";

output;

id= "Impt";

property="DefaultNum";

value= ".";

output;

id= "Impt";

property="RandomSeed";

value= "12345";

output;

id= "Impt";

property="Normalize";

value= "Y";

output;

id= "Impt";

property="ImputeNoMissing";

value= "N";

output;

id= "Impt";

property="MaxPctMissing";

value= "50";

output;

id= "Impt";

property="ValidateTestMissing";

value= "N";

output;

id= "Impt";

property="DistributionMissing";

value= "N";

output;

id= "Impt";

property="LeafSize";

value= "5";

output;

id= "Impt";

property="Maxbranch";

value= "2";

output;

id= "Impt";

property="Maxdepth";

value= "6";

output;

id= "Impt";

property="MinCatSize";

value= "5";

output;

id= "Impt";

property="Nrules";

value= "5";

output;

id= "Impt";

property="Nsurrs";

value= "2";

output;

id= "Impt";

property="Splitsize";

value= ".";

output;

id= "Impt";

property="Indicator";

value= "NONE";

output;

id= "Impt";

property="IndicatorRole";

value= "REJECTED";

output;

id= "Impt";

property="ReplaceVariable";

value= "N";

output;

id= "Impt";

property="HideVariable";

value= "Y";

output;

id= "Impt";

property="IndicatorSource";

value= "IMPUTED";

output;

id= "Impt";

property="ForceRun";

value= "N";

output;

```
id= "Impt";
property="RunAction";
value= "Train";
output;
id= "Impt";
property="Component";
value= "Impute";
output;
id= "Impt";
property="EM_FILE_EMNOTES";
value= "Impt_EMNOTES.txt";
output;
id= "Ids2";
property="DataSource";
value= "loantest";
output;
id= "Ids2";
property="Scope";
value= "LOCAL";
output;
id= "Ids2";
property="Role";
value= "SCORE";
output;
%let Ids2_lib = %scan(&Ids2_data, 1, .);
id= "Ids2";
property="Library";
value= "&Ids2_lib";
output;
%let Ids2_member = %scan(&Ids2_data, 2, .);
id= "Ids2";
```

```
property="Table";
value= "&Ids2_member";
output;
id= "Ids2";
property="NCols";
value= "14";
output;
id= "Ids2";
property="NObs";
value= "3797";
output;
id= "Ids2";
property="NBytes";
value= "525312";
output;
id= "Ids2";
property="Segment";
value= "";
output;
id= "Ids2";
property="DataSourceRole";
value= "SCORE";
output;
id= "Ids2";
property="OutputType";
value= "VIEW";
output;
id= "Ids2";
property="ForceRun";
value= "N";
output;
```

```
id= "Ids2";
property="ComputeStatistics";
value= "N";
output;
id= "Ids2";
property="DataSelection";
value= "&Ids2_source";
output;
id= "Ids2";
property="NewTable";
value= "&Ids2_newdata";
output;
id= "Ids2";
property="MetaAdvisor";
value= "BASIC";
output;
id= "Ids2";
property="ApplyIntervalLevelLowerLimit";
value= "Y";
output;
id= "Ids2";
property="IntervalLowerLimit";
value= "20";
output;
id= "Ids2";
property="ApplyMaxPercentMissing";
value= "Y";
output;
id= "Ids2";
property="MaxPercentMissing";
value= "50";
```

output;

id= "Ids2";

property="ApplyMaxClassLevels";

value= "Y";

output;

id= "Ids2";

property="MaxClassLevels";

value= "20";

output;

id= "Ids2";

property="IdentifyEmptyColumns";

value= "Y";

output;

id= "Ids2";

property="VariableValidation";

value= "STRICT";

output;

id= "Ids2";

property="NewVariableRole";

value= "REJECT";

output;

id= "Ids2";

property="DropMapVariables";

value= "Y";

output;

id= "Ids2";

property="DsId";

value= "loantest";

output;

id= "Ids2";

property="DsSampleName";

value= "";

output;

id= "Ids2";

property="DsSampleSizeType";

value= "";

output;

id= "Ids2";

property="DsSampleSize";

value= "";

output;

id= "Ids2";

property="DsCreatedBy";

value= "sasserver";

output;

id= "Ids2";

property="DsCreateDate";

value= "1869387041.6";

output;

id= "Ids2";

property="DsModifiedBy";

value= "sasserver";

output;

id= "Ids2";

property="DsModifyDate";

value= "1869387041.6";

output;

id= "Ids2";

property="DsScope";

value= "LOCAL";

output;

id= "Ids2";

```
property="Sample";
value= "D";
output;
id= "Ids2";
property="SampleSizeType";
value= "PERCENT";
output;
id= "Ids2";
property="SampleSizePercent";
value= "20";
output;
id= "Ids2";
property="SampleSizeObs";
value= "10000";
output;
id= "Ids2";
property="DBPassThrough";
value= "Y";
output;
id= "Ids2";
property="RunAction";
value= "Train";
output;
id= "Ids2";
property="Component";
value= "DataSource";
output;
id= "Ids2";
property="Description";
value= "";
output;
```

```
id= "Ids2";
property="EM_VARIABLEATTRIBUTES";
value= "WORK.Ids2_VariableAttribute";
output;
id= "Ids2";
property="EM_FILE_EMNOTES";
value= "Ids2_EMNOTES.txt";
output;
id= "Ids";
property="DataSource";
value= "loans";
output;
id= "Ids";
property="Scope";
value= "LOCAL";
output;
id= "Ids";
property="Role";
value= "RAW";
output;
%let Ids_lib = %scan(&Ids_data, 1, .);
id= "Ids";
property="Library";
value= "&Ids_lib";
output;
%let Ids_member = %scan(&Ids_data, 2, .);
id= "Ids";
property="Table";
value= "&Ids_member";
output;
id= "Ids";
```

property="NCols";

value= "14";

output;

id= "Ids";

property="NObs";

value= "5731";

output;

id= "Ids";

property="NBytes";

value= "787456";

output;

id= "Ids";

property="Segment";

value= "";

output;

id= "Ids";

property="DataSourceRole";

value= "RAW";

output;

id= "Ids";

property="OutputType";

value= "VIEW";

output;

id= "Ids";

property="ForceRun";

value= "N";

output;

id= "Ids";

property="ComputeStatistics";

value= "N";

output;

```
id= "Ids";
property="DataSelection";
value= "&Ids_source";
output;
id= "Ids";
property="NewTable";
value= "&Ids_newdata";
output;
id= "Ids";
property="MetaAdvisor";
value= "BASIC";
output;
id= "Ids";
property="ApplyIntervalLevelLowerLimit";
value= "Y";
output;
id= "Ids";
property="IntervalLowerLimit";
value= "20";
output;
id= "Ids";
property="ApplyMaxPercentMissing";
value= "Y";
output;
id= "Ids";
property="MaxPercentMissing";
value= "50";
output;
id= "Ids";
property="ApplyMaxClassLevels";
value= "Y";
```

output;

id= "Ids";

property="MaxClassLevels";

value= "20";

output;

id= "Ids";

property="IdentifyEmptyColumns";

value= "Y";

output;

id= "Ids";

property="VariableValidation";

value= "STRICT";

output;

id= "Ids";

property="NewVariableRole";

value= "REJECT";

output;

id= "Ids";

property="DropMapVariables";

value= "Y";

output;

id= "Ids";

property="DsId";

value= "loans";

output;

id= "Ids";

property="DsSampleName";

value= "";

output;

id= "Ids";

property="DsSampleSizeType";

value= "";

output;

id= "Ids";

property="DsSampleSize";

value= "";

output;

id= "Ids";

property="DsCreatedBy";

value= "sasserver";

output;

id= "Ids";

property="DsCreateDate";

value= "1869380563.1";

output;

id= "Ids";

property="DsModifiedBy";

value= "sasserver";

output;

id= "Ids";

property="DsModifyDate";

value= "1869380563.1";

output;

id= "Ids";

property="DsScope";

value= "LOCAL";

output;

id= "Ids";

property="Sample";

value= "D";

output;

id= "Ids";

```
property="SampleSizeType";
value= "PERCENT";
output;
id= "Ids";
property="SampleSizePercent";
value= "20";
output;
id= "Ids";
property="SampleSizeObs";
value= "10000";
output;
id= "Ids";
property="DBPassThrough";
value= "Y";
output;
id= "Ids";
property="RunAction";
value= "Train";
output;
id= "Ids";
property="Component";
value= "DataSource";
output;
id= "Ids";
property="Description";
value= "";
output;
id= "Ids";
property="EM_VARIABLEATTRIBUTES";
value= "WORK.Ids_VariableAttribute";
output;
```

```
id= "Ids";
property="EM_DECMETA_not_fully_paid";
value= "WORK.Ids_not_fully_paid_DM";
output;
id= "Ids";
property="EM_DECDATA_not_fully_paid";
value= "WORK.Ids_not_fully_paid_DD";
output;
id= "Ids";
property="EM_FILE_EMNOTES";
value= "Ids_EMNOTES.txt";
output;
id= "EMCODE";
property="UsePriors";
value= "Y";
output;
id= "EMCODE";
property="ToolType";
value= "UTILITY";
output;
id= "EMCODE";
property="DataNeeded";
value= "N";
output;
id= "EMCODE";
property="PublishCode";
value= "PUBLISH";
output;
id= "EMCODE";
property="ScoreCodeFormat";
value= "DATASTEP";
```

```
output;
id= "EMCODE";
property="MetaAdvisor";
value= "BASIC";
output;
id= "EMCODE";
property="ForceRun";
value= "N";
output;
id= "EMCODE";
property="RunAction";
value= "Train";
output;
id= "EMCODE";
property="Component";
value= "SASCode";
output;
id= "EMCODE";
property="ToolPrefix";
value= "EMCODE";
output;
id= "EMCODE";
property="EM_FILE_USERTRAINCODE";
value= "EMCODE_USERTRAINCODE.sas";
output;
id= "EMCODE";
property="EM_FILE_EMNOTES";
value= "EMCODE_EMNOTES.txt";
output;
id= "AutoNeural";
property="Architecture";
```

value= "SINGLE LAYER";

output;

id= "AutoNeural";

property="TrainAction";

value= "SEARCH";

output;

id= "AutoNeural";

property="Termination";

value= "OVERFITTING";

output;

id= "AutoNeural";

property="TargetError";

value= "DEFAULT";

output;

id= "AutoNeural";

property="Hidden";

value= "1";

output;

id= "AutoNeural";

property="TotalHidden";

value= "30";

output;

id= "AutoNeural";

property="MaxIter";

value= "8";

output;

id= "AutoNeural";

property="AdjustIterations";

value= "Y";

output;

id= "AutoNeural";

property="FinalTrain";

value= "Y";

output;

id= "AutoNeural";

property="FinalIter";

value= "5";

output;

id= "AutoNeural";

property="TotalTime";

value= "1 HOUR";

output;

id= "AutoNeural";

property="Freeze";

value= "N";

output;

id= "AutoNeural";

property="Direct";

value= "N";

output;

id= "AutoNeural";

property="Tanh";

value= "Y";

output;

id= "AutoNeural";

property="Normal";

value= "N";

output;

id= "AutoNeural";

property="Sine";

value= "N";

output;

id= "AutoNeural";

property="Exponential";

value= "N";

output;

id= "AutoNeural";

property="Identity";

value= "N";

output;

id= "AutoNeural";

property="Logistic";

value= "N";

output;

id= "AutoNeural";

property="Reciprocal";

value= "N";

output;

id= "AutoNeural";

property="Softmax";

value= "N";

output;

id= "AutoNeural";

property="Square";

value= "N";

output;

id= "AutoNeural";

property="Tolerance";

value= "LOW";

output;

id= "AutoNeural";

property="Residuals";

value= "Y";

output;

id= "AutoNeural";

property="Standardizations";

value= "N";

output;

id= "AutoNeural";

property="HiddenUnits";

value= "N";

output;

id= "AutoNeural";

property="outfit";

value= "";

output;

id= "AutoNeural";

property="weights";

value= "";

output;

id= "AutoNeural";

property="estds";

value= "";

output;

id= "AutoNeural";

property="Bestds";

value= "";

output;

id= "AutoNeural";

property="HistoryDs";

value= "";

output;

id= "AutoNeural";

property="ForceRun";

```
value= "N";
output;
id= "AutoNeural";
property="RunAction";
value= "Train";
output;
id= "AutoNeural";
property="Component";
value= "AutoNeural";
output;
id= "AutoNeural";
property="EM_FILE_EMNOTES";
value= "AutoNeural_EMNOTES.txt";
output;
run;
*------------------------------------------------------------*;
* Create connections data set;
*------------------------------------------------------------*;
data connect;
length from to $12;
from="AutoNeural";
to="EMCODE";
output;
from="Ids2";
to="Part";
output;
from="Reg";
to="AutoNeural";
output;
from="Trans";
to="Reg";
```

```
output;
from="Impt";
to="Trans";
output;
from="Part";
to="Impt";
output;
from="Stat";
to="Part";
output;
from="Ids";
to="Stat";
output;
run;
*------------------------------------------------------------*;
* Create actions to run data set;
*------------------------------------------------------------*;
%macro emaction;
%let actionstring = %upcase(&EM_ACTION);
%if %index(&actionstring, RUN) or %index(&actionstring, REPORT) %then %do;
data actions;
length id $12 action $40;
id="EMCODE";
%if %index(&actionstring, RUN) %then %do;
action='run';
output;
%end;
%if %index(&actionstring, REPORT) %then %do;
action='report';
output;
%end;
```

```
run;

%end;

%mend;

%emaction;

*------------------------------------------------------------*;

* Execute the actions;

*------------------------------------------------------------*;

%em5batch(execute, workspace=workspace, nodes=nodes, connect=connect,
datasources=datasources, nodeprops=nodeprops, action=actions);
```