**I.V calculation for Categorical variables**

**%Macro** FClasscat (Data, Y,var );

data \_classifier\_ (keep = &y &var weight);

set &data;

weight = **1**;

run;

proc sql;

create table \_totals\_ as

select sum(weight) as obs, sum(weight\*&Y) as total\_y

from \_classifier\_ ;

quit;

proc sql;

create table \_classifier\_ as

select T1.\*, T2.\*

from \_classifier\_ as T1, \_totals\_ as T2 ;

quit;

proc sql;

create table \_inference\_ as

select &var ,sum(weight\*&y) as good,

**100**\*(sum(weight\*&y))/(sum(total\_y\* weight)/sum(weight))

as p\_good format **8.1**,

sum(weight)-sum(weight\*&y) as bad,

**100**\*(sum(weight)-sum(weight\*&y))/(sum((obs\*weight)-(total\_y\*weight))/sum(weight))

as p\_bad format **8.1**,

**100**\*(((sum(weight\*&y))+(sum(weight)-sum(weight\*&y)))/((sum(total\_y\*weight)/sum(weight))+(sum((obs\*weight)-(total\_y\*weight))/sum(weight)))) as

p\_total format **8.1**,

**100**\*(sum(weight)-sum(weight\*&y))/(sum(weight)) as

bad\_rate format **8.1**

from \_classifier\_

group by &var;

quit;

proc sql;

create table \_inference\_ as

select &var ,good,p\_good,bad,p\_bad,p\_total,bad\_rate,

**100**\*(p\_good/(p\_bad+**0.00005**)) as g\_index format **8.1**,

**100**\*(p\_bad/(p\_good+**0.00005**)) as b\_index format **8.1**,

round(abs((p\_good-p\_bad)/**2**),**.01**) as efficiency format **8.2**,

round(log((p\_good+**0.05**)/(p\_bad+**0.05**))\*(p\_good-p\_bad),**.01**) as i\_value format **8.2**

from \_inference\_;

quit;

proc sql;

create table \_accum\_ as

select sum(efficiency) as efficiency,

sum(i\_value) as i\_value

from \_inference\_;

quit;

data \_inference\_;

set \_inference\_ \_accum\_;

run;

**%mend**;

%***FClasscat*** (heart4,statind,BP\_Status);

%***FClasscat*** (heart4,statind,Sex);

%***FClasscat*** (heart4,statind,Smoking\_Status);

**I.V calculation for Numerical variables**

**%Macro** FClassnum(Data, Y,var );

data \_classifier\_ (keep = &y &var weight);

set &data;

weight = **1**;

run;

proc sql;

create table \_totals\_ as

select sum(weight) as obs, sum(weight\*&Y) as total\_y

from \_classifier\_ ;

quit;

proc sql;

create table \_classifier\_ as

select T1.\*, T2.\*

from \_classifier\_ as T1, \_totals\_ as T2 ;

quit;

proc rank data = \_classifier\_ out = \_rank\_ groups = **10** ties = mean;

var &var;

ranks r\_&var;

run;

proc sql;

create table \_inference\_ as

select r\_&var ,min(&var) as min,max(&var) as max,sum(weight\*&y) as good,

**100**\*(sum(weight\*&y))/(sum(total\_y\* weight)/sum(weight))

as p\_good format **8.1**,

sum(weight)-sum(weight\*&y) as bad,

**100**\*(sum(weight)-sum(weight\*&y))/(sum((obs\*weight)-(total\_y\*weight))/sum(weight))

as p\_bad format **8.1**,

**100**\*(((sum(weight\*&y))+(sum(weight)-sum(weight\*&y)))/((sum(total\_y\*weight)/sum(weight))+(sum((obs\*weight)-(total\_y\*weight))/sum(weight)))) as

p\_total format **8.1**,

**100**\*(sum(weight)-sum(weight\*&y))/(sum(weight)) as

bad\_rate format **8.1**

from \_rank\_

group by r\_&var;

quit;

proc sql;

create table \_inference\_ as

select r\_&var,min,max ,good,p\_good,bad,p\_bad,p\_total,bad\_rate,

**100**\*(p\_good/(p\_bad+**0.00005**)) as g\_index format **8.1**,

**100**\*(p\_bad/(p\_good+**0.00005**)) as b\_index format **8.1**,

round(abs((p\_good-p\_bad)/**2**),**.01**) as efficiency format **8.2**,

round(log((p\_good+**0.05**)/(p\_bad+**0.05**))\*(p\_good-p\_bad),**.01**) as i\_value format **8.2**

from \_inference\_;

quit;

proc sql;

create table \_accum\_ as

select sum(efficiency) as efficiency,

sum(i\_value) as i\_value

from \_inference\_;

quit;

data \_inference\_;

set \_inference\_ \_accum\_;

run;

**%mend**;

%***Fclassnum***(heart4,statind,height);