```
 1          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
 NOTE: les instructions ODS dans l'environnement SAS Studio risquent
de désactiver certaines fonctionnalités de sortie.
 69
 70         /* Prise en main de la base de données Diabète */
 71
 72         libname malib "/home/u63585891/Diabete_project/BD";
 NOTE: Libref MALIB was successfully assigned as follows:
       Engine:        V9
       Physical Name: /home/u63585891/Diabete_project/BD
 73         options fmtsearch=(malib);
 74
 75         PROC IMPORT out=malib.Diabete(drop= S)
 76         datafile = "/home/u63585891/Diabete_project/4.
Diabète.xlsx"
 77         dbms=XLSX
 78         replace;
 79         sheet="Données brutes" ;
 80         RUN;

 NOTE: One or more variables were converted because the data type is
not supported by the V9 engine. For more details, run with
       options MSGLEVEL=I.
 NOTE: The import data set has 403 observations and 19 variables.
 NOTE: MALIB.DIABETE data set was successfully created.
 NOTE: PROCEDURE IMPORT a utilisé (Durée totale du traitement) :
       real time           0.09 seconds
       user cpu time       0.08 seconds
       system cpu time     0.00 seconds
       memory              3424.81k
       OS Memory           22264.00k
       Timestamp           21/04/2024 05:36:08 PM
       Step Count                        24  Switch Count  2
       Page Faults                       0
       Page Reclaims                     1072
       Page Swaps                        0
       Voluntary Context Switches        53
       Involuntary Context Switches      0
       Block Input Operations            32
       Block Output Operations           264


 81
 82         ods pdf file="/home/u63585891/Diabete_project/
Rapport.pdf" ;
 NOTE: Writing ODS PDF output to DISK destination "/home/u63585891/
Diabete_project/Rapport.pdf", printer "PDF".
 83         /* 403 individus et 19 (18 normalement, ya une variable
"S" en trop) variables actuellement */
 84
 85         /* On convertit les pounds et inches en kg et m : */
 86
 87         data malib.Diabete;
```

```
 88         set malib.DIABETE;
 89         weight = round(weight*0.4536,0.01);
 90         height = round(height*0.0254, 0.01);
 91         waist = round(waist*0.0254, 0.01);
 92         hip = round(hip*0.0254, 0.01);
 93         run;

 NOTE: Missing values were generated as a result of performing an
operation on missing values.
       Each place is given by: (Number of times) at (Line):(Column).
       1 à 89:10   1 à 89:22   5 à 90:10   5 à 90:22   2 à 91:9    2
à 91:20   2 à 92:7    2 à 92:16
 NOTE: There were 403 observations read from the data set
MALIB.DIABETE.
 NOTE: The data set MALIB.DIABETE has 403 observations and 18
variables.
 NOTE: DATA statement a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.00 seconds
       system cpu time     0.00 seconds
       memory              970.09k
       OS Memory           23724.00k
       Timestamp           21/04/2024 05:36:08 PM
       Step Count                        25  Switch Count  1
       Page Faults                       0
       Page Reclaims                     189
       Page Swaps                        0
       Voluntary Context Switches        45
       Involuntary Context Switches      0
       Block Input Operations            288
       Block Output Operations           272


 94
 95         /* Traitement des données manquantes */
 96         title "Nombre de valeurs manquantes pour chaque
variable";
 97         proc means data=malib.diabete NMISS;
 98         title;
 99
 100        run;

 NOTE: There were 403 observations read from the data set
MALIB.DIABETE.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.03 seconds
       user cpu time       0.03 seconds
       system cpu time     0.00 seconds
       memory              7993.40k
       OS Memory           30652.00k
       Timestamp           21/04/2024 05:36:08 PM
       Step Count                        26  Switch Count  2
       Page Faults                       0
       Page Reclaims                     2233
```

```
       Page Swaps                         0
       Voluntary Context Switches         39
       Involuntary Context Switches       0
       Block Input Operations             288
       Block Output Operations            0


 101       /*enormement de données manquantes pour les variables
bp_2S et bp_2D
 102
 103       On compare les valeurs pour voir si il y a un changement
dans les 2e prises de pression*/
 104
 105       data malib.pression;
 106       set malib.Diabete(keep= bp_1s bp_2s bp_1d bp_2d);
 107       if cmiss(of _all_) then delete;
 108       run;

 NOTE: There were 403 observations read from the data set
MALIB.DIABETE.
 NOTE: The data set MALIB.PRESSION has 141 observations and 4
variables.
 NOTE: DATA statement a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.00 seconds
       system cpu time     0.00 seconds
       memory              948.59k
       OS Memory           26028.00k
       Timestamp           21/04/2024 05:36:08 PM
       Step Count                         27  Switch Count  1
       Page Faults                        0
       Page Reclaims                      150
       Page Swaps                         0
       Voluntary Context Switches         45
       Involuntary Context Switches       0
       Block Input Operations             32
       Block Output Operations            264


 109       title "Valeurs maximums et minimums pour les variables
de pression sanguine";
 110       proc means data=malib.pression min max maxdec=2 ;
 111       var  bp_1S bp_2S bp_1D bp_2D;
 112       run;

 NOTE: There were 141 observations read from the data set
MALIB.PRESSION.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.02 seconds
       user cpu time       0.02 seconds
       system cpu time     0.01 seconds
       memory              6695.62k
       OS Memory           31420.00k
       Timestamp           21/04/2024 05:36:08 PM
```

```
       Step Count                        28  Switch Count  1
       Page Faults                       0
       Page Reclaims                     1503
       Page Swaps                        0
       Voluntary Context Switches        28
       Involuntary Context Switches      0
       Block Input Operations            288
       Block Output Operations           0


 113        title;
 114
 115        proc sgplot data=malib.pression;
 116        title "Comparaison de la distribution des pressions
systoliques pour les données non manquantes";
 117        density bp_1s / type= kernel legendlabel= "systolique 1
";
 118        density bp_2s / type= kernel legendlabel= "systolique
2";
 119        run;

 119      !      title;
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           2.14 seconds
       user cpu time       0.06 seconds
       system cpu time     0.02 seconds
       memory              15032.31k
       OS Memory           40360.00k
       Timestamp           21/04/2024 05:36:10 PM
       Step Count                        29  Switch Count  2
       Page Faults                       0
       Page Reclaims                     5031
       Page Swaps                        0
       Voluntary Context Switches        390
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           760

 NOTE: There were 141 observations read from the data set
MALIB.PRESSION.

 120
 121        proc sgplot data=malib.pression;
 122        title "Comparaison de la distribution des pressions
systoliques pour les données non manquantes";
 123        density bp_1d / type= kernel legendlabel= "diastolique 1
";
 124        density bp_2d / type= kernel legendlabel= "diastolique
2";
 125        run;

 125      !      title;
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.19 seconds
```

```
      user cpu time       0.05 seconds
      system cpu time     0.00 seconds
      memory              2397.12k
      OS Memory           41776.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        30  Switch Count  2
      Page Faults                       0
      Page Reclaims                     576
      Page Swaps                        0
      Voluntary Context Switches        221
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           560

 NOTE: There were 141 observations read from the data set
MALIB.PRESSION.

 126
 127        /* Les valeurs sont quasi-similaires (plus de disparité
pour les pressions diastoliques)
 128        donc la suppression des 2e pressions n'impliquera pas
une grande perte
 129        d'informations */
 130
 131        data malib.missing(keep= miss_n);
 132          set malib.Diabete(drop=bp_2s bp_2d) ;
 133          miss_n = cmiss(of chol -- time_ppn);
 134        run;

 NOTE: There were 403 observations read from the data set
MALIB.DIABETE.
 NOTE: The data set MALIB.MISSING has 403 observations and 1
variables.
 NOTE: DATA statement a utilisé (Durée totale du traitement) :
      real time           0.01 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              961.56k
      OS Memory           41388.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        31  Switch Count  1
      Page Faults                       0
      Page Reclaims                     154
      Page Swaps                        0
      Voluntary Context Switches        46
      Involuntary Context Switches      0
      Block Input Operations            32
      Block Output Operations           264


 135
 136        title "Décompte des nombre de valeurs manquantes chez
chaque individus";
 137        proc freq data=malib.missing; /* voir proc mi qui donne
```

```
un meilleur résumé peut-être*/
 138        run;

 NOTE: There were 403 observations read from the data set
MALIB.MISSING.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              1042.59k
       OS Memory           41388.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        32  Switch Count  2
       Page Faults                       0
       Page Reclaims                     222
       Page Swaps                        0
       Voluntary Context Switches        19
       Involuntary Context Switches      1
       Block Input Operations            288
       Block Output Operations           280


 139        title;
 140
 141        /* On supprimeles variables indiquant la seconde mesure
de pression arterielle.
 142        Les individus comportant des données manquantes après
suppression des 2 variables sont aussi supprimés car
 143        ça ne concerne que 28 individus en tout*/
 144
 145
 146        data malib.Diabete_clear(drop= id);
 147        set malib.DIABETE(drop = bp_2s bp_2d );
 148        if cmiss(of _all_) then delete;
 149        id_char = put(id, 8.); /*conversion de la variable id en
character */
 150        run;

 NOTE: There were 403 observations read from the data set
MALIB.DIABETE.
 NOTE: The data set MALIB.DIABETE_CLEAR has 375 observations and 16
variables.
 NOTE: DATA statement a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              974.75k
       OS Memory           41644.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        33  Switch Count  1
       Page Faults                       0
       Page Reclaims                     131
       Page Swaps                        0
       Voluntary Context Switches        48
```

```
      Involuntary Context Switches      0
      Block Input Operations            32
      Block Output Operations           264


 151        title "Info base de données";
 152        proc contents data=malib.Diabete_clear;
 153        title;
 154
 155        /* Nous avons maintenant un jeu de données de 375
individus 16 variables */
 156        title "Resumé statistique des variables quantitatives de
la table de données 375*16";

 NOTE: PROCEDURE CONTENTS a utilisé (Durée totale du traitement) :
       real time           0.04 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              1540.43k
       OS Memory           41644.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        34  Switch Count  2
       Page Faults                       0
       Page Reclaims                     429
       Page Swaps                        0
       Voluntary Context Switches        22
       Involuntary Context Switches      0
       Block Input Operations            288
       Block Output Operations           32


 157        proc means data=malib.Diabete_clear(keep= _numeric_)
maxdec= 2 min q1 median mean q3 max std;
 158        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_CLEAR.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.05 seconds
       user cpu time       0.05 seconds
       system cpu time     0.00 seconds
       memory              6508.28k
       OS Memory           46524.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        35  Switch Count  1
       Page Faults                       0
       Page Reclaims                     1448
       Page Swaps                        0
       Voluntary Context Switches        25
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           0
```

```
 159        title;
 160        /
*================================================================
==========*/
 161        /* ================== DECISION POUR LA VARIABLE TEMPS A
JEUN ============== */
 162        /*Ayant que des patients atteints de diabète typer II,
on ne s'interessera pas au temps de jeune de chacun */
 163
 164        PROC SGPLOT DATA = malib.Diabete_clear; SCATTER Y =
glyhb X = time_ppn;
 165        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.15 seconds
       user cpu time       0.03 seconds
       system cpu time     0.00 seconds
       memory              1821.06k
       OS Memory           42544.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        36  Switch Count  1
       Page Faults                       0
       Page Reclaims                     321
       Page Swaps                        0
       Voluntary Context Switches        184
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           456

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_CLEAR.

 166
 167        /
*================================================================
==========*/
 168
 169        /* Création des variables IMC, Ratio Tour de Taille/
Hanche,   */
 170
 171        data malib.Diabete_Fin;
 172        set malib.diabete_clear;
 173        IMC = round(weight/(height**2),0.01);
 174        Ratio_WH = round(waist/hip,0.01);
 175        ratio = round(ratio,0.01);
 176        glyhb = round(glyhb,0.01);
 177        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_CLEAR.
 NOTE: The data set MALIB.DIABETE_FIN has 375 observations and 18
variables.
 NOTE: DATA statement a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
```

```
      user cpu time       0.01 seconds
      system cpu time     0.00 seconds
      memory              971.46k
      OS Memory           41900.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        37  Switch Count  1
      Page Faults                       0
      Page Reclaims                     116
      Page Swaps                        0
      Voluntary Context Switches        43
      Involuntary Context Switches      0
      Block Input Operations            32
      Block Output Operations           264


 178
 179        /* Création des variables _Code pour l'IMC, la tension
arterielle, et Age ainsi que leur format */
 180
 181        PROC FORMAT LIB = malib;
 182
 182      !  Value Decode_IMC
 183        1 = "Anorexie"
 184        2 = "Maigreur"
 185        3 = "Corpulence normale"
 186        4 = "Surpoids"
 187        5 = "Obésité modérée"
 188        6 = "Obésité sévère"
 189        7 = "Obésité morbide";
 NOTE: Format DECODE_IMC is already on the library MALIB.FORMATS.
 NOTE: Format DECODE_IMC has been written to MALIB.FORMATS.
 190        run;

 NOTE: PROCEDURE FORMAT a utilisé (Durée totale du traitement) :
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.01 seconds
      memory              302.78k
      OS Memory           41380.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        38  Switch Count  0
      Page Faults                       0
      Page Reclaims                     61
      Page Swaps                        0
      Voluntary Context Switches        14
      Involuntary Context Switches      0
      Block Input Operations            48
      Block Output Operations           56


 191
 192        PROC FORMAT LIB = malib;
 193
 193      !  Value Decode_BP
```

```
194        1 = "Tension artérielle normale"
195        2 = "Tension artérielle élevée"
196        3 = "Hypertension artérielle de stade 1"
197        4 = "Hypertension artérielle de stade 2";
NOTE: Format DECODE_BP is already on the library MALIB.FORMATS.
NOTE: Format DECODE_BP has been written to MALIB.FORMATS.
198        run;

NOTE: PROCEDURE FORMAT a utilisé (Durée totale du traitement) :
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              242.81k
      OS Memory           41380.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        39  Switch Count  0
      Page Faults                       0
      Page Reclaims                     14
      Page Swaps                        0
      Voluntary Context Switches        9
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           64


199
200        PROC FORMAT LIB = malib;
201
201      !  Value Decode_time
202        1 = "moins 1 heure"
203        2 = "entre 1h 2h "
204        3 = "entre 2h et 4h"
205        4 = "entre 4h et 8h"
206        5 = "entre 8h et 16h"
207        6 = "plus de 16 heures";
NOTE: Format DECODE_TIME is already on the library MALIB.FORMATS.
NOTE: Format DECODE_TIME has been written to MALIB.FORMATS.
208        run;

NOTE: PROCEDURE FORMAT a utilisé (Durée totale du traitement) :
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              241.65k
      OS Memory           41380.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        40  Switch Count  0
      Page Faults                       0
      Page Reclaims                     14
      Page Swaps                        0
      Voluntary Context Switches        10
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           56
```

```
 209        /
*=============================================================
==========*/
 210
 211        /* ANALYSE DESCRIPTIVES DE VARIABLES QUANTITATIVES */
 212
 213        data malib.Diabete_Fin;
 214        set malib.Diabete_Fin;
 215
 216        if IMC <= 16.5 then IMC_Code = 1;
 217        if 16.5 < IMC <= 18.5 then IMC_Code = 2;
 218        if 18.5 < IMC <= 25 then IMC_Code = 3;
 219        if 25 < IMC <= 30 then IMC_Code = 4;
 220        if 30 < IMC <= 35 then IMC_Code = 5;
 221        if 35 < IMC <= 40 then IMC_Code = 6;
 222        if 40 < IMC  then IMC_Code = 7;
 223
 224        if (bp_1s < 120) and (bp_1d < 80) then Bp_Code = 1;
 225        if (120 <= bp_1s <= 129) and (bp_1d < 80) then Bp_Code =
2;
 226        if (130 <= bp_1s <= 139) or (80 <= bp_1d <= 89) then
Bp_Code = 3;
 227        if (bp_1s >= 140) or (bp_1d >= 90) then Bp_Code = 4;
 228
 229        if age <= 30 then age_Code = 1;
 230        if 30 < age <= 40 then age_Code = 2;
 231        if 40 < age <= 50 then age_Code = 3;
 232        if 50 < age <= 60 then age_Code = 4;
 233        if 60 < age <= 70 then age_Code = 5;
 234        if 70 < age then age_Code = 6;
 235
 236        if time_ppn <= 60 then time_Code = 1;
 237        if 60 < time_ppn <= 120 then time_Code = 2;
 238        if 120 < time_ppn <= 240 then time_Code = 3;
 239        if 240 < time_ppn <= 480 then time_Code = 4;
 240        if 480 < time_ppn <= 960 then time_Code = 5;
 241        if 960 < time_ppn then time_Code = 6;
 242
 243        format IMC_Code Decode_IMC. Bp_Code Decode_BP.  age_code
Decode_age. time_code Decode_time.;
 244
 245        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: The data set MALIB.DIABETE_FIN has 375 observations and 22
variables.
 NOTE: DATA statement a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              999.71k
```

```
       OS Memory           41900.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        41  Switch Count  1
       Page Faults                       0
       Page Reclaims                     116
       Page Swaps                        0
       Voluntary Context Switches        53
       Involuntary Context Switches      0
       Block Input Operations            288
       Block Output Operations           272


 246
 247
 248        /* --------- Base de données 375 individus et 21
variables ------------------*/
 249        title "Info base de données";
 250        proc contents data=malib.Diabete_Fin;
 251        run;

 NOTE: PROCEDURE CONTENTS a utilisé (Durée totale du traitement) :
       real time           0.05 seconds
       user cpu time       0.05 seconds
       system cpu time     0.00 seconds
       memory              1489.50k
       OS Memory           41900.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        42  Switch Count  0
       Page Faults                       0
       Page Reclaims                     96
       Page Swaps                        0
       Voluntary Context Switches        12
       Involuntary Context Switches      0
       Block Input Operations            288
       Block Output Operations           72


 252        title;
 253
 254
 255        /*---------------------- Analyse descriptive des
variables qualitatives ------------- */
 256        /*Ordinales*/
 257
 258
 259
 260        title "Diagramme en baton pour la variable IMC codée";
 261        proc freq data=malib.diabete_fin;
 262        tables IMC_code;
 263        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
```

```
      real time           0.01 seconds
      user cpu time       0.01 seconds
      system cpu time     0.01 seconds
      memory              838.37k
      OS Memory           41900.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        43  Switch Count  2
      Page Faults                       0
      Page Reclaims                     128
      Page Swaps                        0
      Voluntary Context Switches        18
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           272


 264
 265        proc sgplot data=malib.diabete_fin;
 266        vbar imc_code ;
 267        run;

 267      !      /*plus de personne en situation de surpoid voire
obesité */
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
      real time           0.17 seconds
      user cpu time       0.04 seconds
      system cpu time     0.00 seconds
      memory              2288.06k
      OS Memory           43184.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        44  Switch Count  2
      Page Faults                       0
      Page Reclaims                     642
      Page Swaps                        0
      Voluntary Context Switches        192
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           432

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 268        title;
 269        /*---------*/
 270        title "Diagramme en baton pour la variable Age codée";
 271        proc freq data=malib.diabete_fin;
 272        tables age_code;
 273        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
      real time           0.01 seconds
      user cpu time       0.01 seconds
```

```
      system cpu time     0.00 seconds
      memory              847.50k
      OS Memory           42156.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        45  Switch Count  2
      Page Faults                       0
      Page Reclaims                     123
      Page Swaps                        0
      Voluntary Context Switches        14
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           272


 274
 275        proc sgplot data=malib.diabete_fin;
 276        vbar age_code ;
 277        run;

 277      !      /* une repartition équilibrée : quasi même effectif
dans chaque tranche d'age */
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.11 seconds
       user cpu time       0.04 seconds
       system cpu time     0.01 seconds
       memory              2352.90k
       OS Memory           43184.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        46  Switch Count  2
       Page Faults                       0
       Page Reclaims                     520
       Page Swaps                        0
       Voluntary Context Switches        190
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           408

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 278        title;
 279        /*---------*/
 280        title "Diagramme en baton pour la variable Hypertension
codée";
 281        proc freq data=malib.diabete_fin;
 282        tables bp_code;
 283        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
```

```
      memory              851.00k
      OS Memory           42412.00k
      Timestamp           21/04/2024 05:36:11 PM
      Step Count                        47  Switch Count  2
      Page Faults                       0
      Page Reclaims                     123
      Page Swaps                        0
      Voluntary Context Switches        20
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


 284
 285        proc sgplot data=malib.diabete_fin;
 286        vbar bp_code ; /*Enormement d'hypertension arterielle de
stade 2 */
 287        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.10 seconds
       user cpu time       0.03 seconds
       system cpu time     0.00 seconds
       memory              2387.12k
       OS Memory           43440.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        48  Switch Count  2
       Page Faults                       0
       Page Reclaims                     511
       Page Swaps                        0
       Voluntary Context Switches        188
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           416

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 288        title;
 289        /* nominale */
 290        proc freq data=malib.Diabete_Fin;
 291        tables gender;
 292        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              834.00k
       OS Memory           42412.00k
       Timestamp           21/04/2024 05:36:11 PM
       Step Count                        49  Switch Count  2
```

```
       Page Faults                       0
       Page Reclaims                     123
       Page Swaps                        0
       Voluntary Context Switches        12
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           264


 293
 294        proc sgplot data=malib.diabete_fin;
 295        title "Diagramme en baton pour la variable ";
 296        vbar gender ; /*Enormement d'hypertension arterielle de
stade 2 */
 297        run;

 297      !      /* plus de femmes que d'hommes */
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.09 seconds
       user cpu time       0.04 seconds
       system cpu time     0.01 seconds
       memory              2532.75k
       OS Memory           43440.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        50  Switch Count  3
       Page Faults                       0
       Page Reclaims                     488
       Page Swaps                        0
       Voluntary Context Switches        203
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           408

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 298
 299        proc freq data=malib.Diabete_Fin;
 300        tables location;
 301        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              830.12k
       OS Memory           42412.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        51  Switch Count  2
       Page Faults                       0
       Page Reclaims                     125
       Page Swaps                        0
```

```
       Voluntary Context Switches        19
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           272


 302
 303        proc sgplot data=malib.diabete_fin;
 304        title "Diagramme en baton pour la variable ";
 305        vbar location ; /*Enormement d'hypertension arterielle
de stade 2 */
 306        run;

 306      !      /* même proportion*/
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.09 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              2398.67k
       OS Memory           43180.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        52  Switch Count  3
       Page Faults                       0
       Page Reclaims                     454
       Page Swaps                        0
       Voluntary Context Switches        200
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           400

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 307
 308
 309
 310        /
*================================================================
==========*/
 311
 312        /* ANALYSE DESCRIPTIVES DE VARIABLES QUANTITATIVES */
 313
 314        /*tentative d'un boxplot pour toutes les variables (même
methode que dans R) */
 315        proc sort data=malib.Diabete_Fin(keep= stab_glu hdl
bp_1s bp_1d id_char) out=malib.diabete_sorted;
 316        by id_char;
 317        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: The data set MALIB.DIABETE_SORTED has 375 observations and 5
variables.
 NOTE: PROCEDURE SORT a utilisé (Durée totale du traitement) :
```

```
      real time           0.01 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1239.65k
      OS Memory           42672.00k
      Timestamp           21/04/2024 05:36:12 PM
      Step Count                        53  Switch Count  1
      Page Faults                       0
      Page Reclaims                     261
      Page Swaps                        0
      Voluntary Context Switches        43
      Involuntary Context Switches      0
      Block Input Operations            32
      Block Output Operations           288


 318
 319        proc transpose data=malib.Diabete_sorted
out=malib.diabete_t;
 320        by id_char;
 321        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_SORTED.
 NOTE: The data set MALIB.DIABETE_T has 1500 observations and 4
variables.
 NOTE: PROCEDURE TRANSPOSE a utilisé (Durée totale du traitement) :
      real time           0.01 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              2802.50k
      OS Memory           44464.00k
      Timestamp           21/04/2024 05:36:12 PM
      Step Count                        54  Switch Count  10
      Page Faults                       0
      Page Reclaims                     252
      Page Swaps                        0
      Voluntary Context Switches        82
      Involuntary Context Switches      0
      Block Input Operations            320
      Block Output Operations           528


 322
 323        data malib.diabete_t;
 324        set malib.diabete_t;
 325        label _name_ = "Variable";
 326        label col1 = "Value";
 327        run;

 NOTE: There were 1500 observations read from the data set
MALIB.DIABETE_T.
 NOTE: The data set MALIB.DIABETE_T has 1500 observations and 4
variables.
```

```
NOTE: DATA statement a utilisé (Durée totale du traitement) :
      real time           0.01 seconds
      user cpu time       0.01 seconds
      system cpu time     0.00 seconds
      memory              961.84k
      OS Memory           42668.00k
      Timestamp           21/04/2024 05:36:12 PM
      Step Count                        55  Switch Count  1
      Page Faults                       0
      Page Reclaims                     105
      Page Swaps                        0
      Voluntary Context Switches        48
      Involuntary Context Switches      0
      Block Input Operations            288
      Block Output Operations           264


328
329        title "Boite à moustache";
330        proc sgplot data=malib.diabete_t;
331        yaxis label= "Valeur ";
332        vbox col1 / group=_name_ ;
333        run;

333      !     title;
NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
      real time           0.18 seconds
      user cpu time       0.04 seconds
      system cpu time     0.01 seconds
      memory              2460.71k
      OS Memory           43312.00k
      Timestamp           21/04/2024 05:36:12 PM
      Step Count                        56  Switch Count  1
      Page Faults                       0
      Page Reclaims                     345
      Page Swaps                        0
      Voluntary Context Switches        924
      Involuntary Context Switches      0
      Block Input Operations            288
      Block Output Operations           496

NOTE: There were 1500 observations read from the data set
MALIB.DIABETE_T.

334
335
336        /*representation de la distribution */
337        title "Resumé statistique des variables quantitatives de
la table de données de 375 individus et 21 variables";
338        proc means data=malib.Diabete_clear(keep= _numeric_)
maxdec= 2 min q1 median mean q3 max std;
339        run;

NOTE: There were 375 observations read from the data set
```

```
MALIB.DIABETE_CLEAR.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.05 seconds
       user cpu time       0.06 seconds
       system cpu time     0.00 seconds
       memory              6588.00k
       OS Memory           47548.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        57  Switch Count  1
       Page Faults                       0
       Page Reclaims                     1367
       Page Swaps                        0
       Voluntary Context Switches        23
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           16


 340        title;
 341
 342
 343
 344        PROC UNIVARIATE DATA = malib.Diabete_Fin NOPRINT; VAR
stab_glu;
 345        HISTOGRAM stab_glu;
 346        RUN;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.12 seconds
       user cpu time       0.04 seconds
       system cpu time     0.01 seconds
       memory              7037.62k
       OS Memory           48132.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        58  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1683
       Page Swaps                        0
       Voluntary Context Switches        182
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           400


 347        PROC UNIVARIATE DATA = malib.Diabete_Fin NOPRINT; VAR
hdl;
 348        HISTOGRAM hdl;
 349        RUN;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.10 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              6861.14k
```

```
       OS Memory           47876.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        59  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1529
       Page Swaps                        0
       Voluntary Context Switches        181
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           384


 350        PROC UNIVARIATE DATA = malib.Diabete_Fin NOPRINT; VAR
bp_1s;
 351        HISTOGRAM bp_1s;
 352        RUN;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.10 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              6870.35k
       OS Memory           47876.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        60  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1506
       Page Swaps                        0
       Voluntary Context Switches        179
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           408


 353        PROC UNIVARIATE DATA = malib.Diabete_Fin NOPRINT; VAR
bp_1d;
 354        HISTOGRAM bp_1d;
 355        RUN;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.09 seconds
       user cpu time       0.05 seconds
       system cpu time     0.01 seconds
       memory              6866.20k
       OS Memory           47876.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        61  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1505
       Page Swaps                        0
       Voluntary Context Switches        179
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           384
```

```
 356
 357        PROC UNIVARIATE DATA = malib.Diabete_Fin NOPRINT; VAR
ratio;
 358        HISTOGRAM ratio;
 359        RUN;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.09 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              6917.53k
       OS Memory           48132.00k
       Timestamp           21/04/2024 05:36:12 PM
       Step Count                        62  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1511
       Page Swaps                        0
       Voluntary Context Switches        179
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           392


 360
 361        PROC UNIVARIATE DATA = malib.Diabete_Fin NOPRINT; VAR
ratio_wh;
 362        HISTOGRAM ratio_wh ;
 363        RUN;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.12 seconds
       user cpu time       0.05 seconds
       system cpu time     0.01 seconds
       memory              6856.15k
       OS Memory           47876.00k
       Timestamp           21/04/2024 05:36:13 PM
       Step Count                        63  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1527
       Page Swaps                        0
       Voluntary Context Switches        179
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           384


 364
 365        PROC UNIVARIATE DATA = malib.Diabete_Fin NOPRINT; VAR
glyhb;
 366        HISTOGRAM glyhb;
 367        RUN;
```

```
 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.10 seconds
       user cpu time       0.04 seconds
       system cpu time     0.01 seconds
       memory              6947.56k
       OS Memory           48132.00k
       Timestamp           21/04/2024 05:36:13 PM
       Step Count                        64  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1512
       Page Swaps                        0
       Voluntary Context Switches        179
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           392


 368
 369
 370        proc sgpanel data=malib.diabete_t;
 371        panelby _name_ ;
 372        histogram col1 ;
 373        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.28 seconds
       user cpu time       0.06 seconds
       system cpu time     0.01 seconds
       memory              3195.54k
       OS Memory           44212.00k
       Timestamp           21/04/2024 05:36:13 PM
       Step Count                        65  Switch Count  28
       Page Faults                       0
       Page Reclaims                     1248
       Page Swaps                        0
       Voluntary Context Switches        571
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           1872

 NOTE: There were 1500 observations read from the data set
MALIB.DIABETE_T.

 374
 375        /*
 376        - Variable glucose : moins de 25% avec glucose important
sinon moins de 75% avec glucose inf à 100mg/dl
 377
 378        -Variable HDL : 25% avec un faible taux hdl < 40  et
+25% dans la norme (40-60)
 379
 380        Peut-être faire une variable catégorielle pour temps à
jeun et analyser dessus
 381
```

```
 382        - Variable glyhb : pas de dépendance au jeune car bilan
sur 3 mois du glucose, suprenant car seulement
 383        un faible pourcentage (moins de 25%) ont un bilan
d'hémoglobine glyquée superieur à 6%
 384
 385        Peut-être que la présence de diabète est plus dû au
problème cardiovasculaire car il y a un effectif
 386        importante de personne en surpoid / obésité
 387        */
 388
 389        /
*================================================================
==========*/
 390
 391        /* ANALYSE DESCRIPTIVES DE VARIABLES QUANTITATIVES ET
QUALITATIVES*/
 392        title "distribution du taux de glucose selon le temps de
jeune";
 393        proc sgpanel data=malib.diabete_fin;
 394        panelby time_code;
 395        histogram stab_glu ;
 396        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.32 seconds
       user cpu time       0.08 seconds
       system cpu time     0.01 seconds
       memory              3578.75k
       OS Memory           44472.00k
       Timestamp           21/04/2024 05:36:13 PM
       Step Count                        66  Switch Count  50
       Page Faults                       0
       Page Reclaims                     1304
       Page Swaps                        0
       Voluntary Context Switches        497
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           3520

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 397        title;
 398
 399        title "Distribution du taux HDL selon le temps de
jeune";
 400        proc sgpanel data=malib.diabete_fin;
 401        panelby time_code;
 402        histogram hdl ;
 403        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.25 seconds
       user cpu time       0.08 seconds
```

```
       system cpu time     0.01 seconds
       memory              3502.21k
       OS Memory           44472.00k
       Timestamp           21/04/2024 05:36:14 PM
       Step Count                        67  Switch Count  50
       Page Faults                       0
       Page Reclaims                     1337
       Page Swaps                        0
       Voluntary Context Switches        492
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           3520

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 404        title;
 405
 406        /* Prevésible mais plus le temps à jeun est grand et
plus les taux de glucose sont moins important
 407        neanmoins il y a présence d'individus avec des taux
importants et des périodes de jeune préconisées (8h>)*/
 408
 409
 410        title "Distribution du ratio taille - hanche en fonction
du genre";
 411        proc sgpanel data=malib.diabete_fin;
 412        panelby gender / layout=columnlattice onepanel
colheaderpos=bottom novarname;
 413        histogram ratio_wh ;
 414        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.18 seconds
       user cpu time       0.06 seconds
       system cpu time     0.01 seconds
       memory              3378.65k
       OS Memory           44472.00k
       Timestamp           21/04/2024 05:36:14 PM
       Step Count                        68  Switch Count  25
       Page Faults                       0
       Page Reclaims                     908
       Page Swaps                        0
       Voluntary Context Switches        393
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           1864

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 415        title;
 416
 417
```

```
 418        title "Distribution de l'hémoglobine glyquée en fonction
des tranches d'age";
 419        proc sgpanel data=malib.diabete_fin;
 420        panelby age_code / columns= 1;
 421        histogram glyhb ;
 422        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.42 seconds
       user cpu time       0.13 seconds
       system cpu time     0.02 seconds
       memory              3544.98k
       OS Memory           44472.00k
       Timestamp           21/04/2024 05:36:14 PM
       Step Count                        69  Switch Count  49
       Page Faults                       0
       Page Reclaims                     1809
       Page Swaps                        0
       Voluntary Context Switches        771
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           3752

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 423        title;
 424
 425
 426
 427        /* Le passage dans les tranches d'âge de plus de 40 ans
montre la présence de glyhb > 7%
 428        Le diabète type 2 semble être lié à l'age
 429        */
 430
 431        PROC SGPLOT DATA = malib.Diabete_Fin; SCATTER Y = glyhb
X = age;
 432        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.09 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              1942.68k
       OS Memory           43568.00k
       Timestamp           21/04/2024 05:36:14 PM
       Step Count                        70  Switch Count  1
       Page Faults                       0
       Page Reclaims                     292
       Page Swaps                        0
       Voluntary Context Switches        186
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           432
```

```
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 433
 434        Proc sgpanel data=malib.Diabete_Fin nocycleattrs;
 435        panelby age_code / layout=columnlattice onepanel
colheaderpos=bottom novarname;
 436        vbox glyhb;  run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.23 seconds
       user cpu time       0.10 seconds
       system cpu time     0.02 seconds
       memory              3701.07k
       OS Memory           44472.00k
       Timestamp           21/04/2024 05:36:15 PM
       Step Count                        71  Switch Count  50
       Page Faults                       0
       Page Reclaims                     1396
       Page Swaps                        0
       Voluntary Context Switches        758
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           3536

 WARNING: The font <sans-serif> is not available. Albany AMT will be
used.
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 437
 438
 439        /* ------------------ANALYSE DE VARIANCE et Ttest
------------------*/
 440
 441        /* Test de comparaison de moyenne
 442
 443        -Verification des hypothèses de normalité en traçant la
distribution de la gaussienne associée à la variable
 444        quantitative
 445        - Si normalité, verification du plan equilibré
 446        */
 447
 448
 449        /*---------- ANALYSE DE L'INFLUENCE DU GENRE SUR
L'HEMOGLOBINE ------------ */
 450
 451
 452        proc means data= malib.diabete_fin mean std; /* Plan
equilibré */
 453        class gender ;
 454        var glyhb;
 455        run;
```

```
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              8996.20k
       OS Memory           51900.00k
       Timestamp           21/04/2024 05:36:15 PM
       Step Count                        72  Switch Count  1
       Page Faults                       0
       Page Reclaims                     2058
       Page Swaps                        0
       Voluntary Context Switches        13
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           16


 456
 457        proc univariate normal data=malib.diabete_fin;
 458        var glyhb; class gender ; run;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.08 seconds
       user cpu time       0.09 seconds
       system cpu time     0.00 seconds
       memory              951.37k
       OS Memory           43432.00k
       Timestamp           21/04/2024 05:36:15 PM
       Step Count                        73  Switch Count  0
       Page Faults                       0
       Page Reclaims                     104
       Page Swaps                        0
       Voluntary Context Switches        1
       Involuntary Context Switches      1
       Block Input Operations            0
       Block Output Operations           56


 459
 460        proc sgpanel data=malib.diabete_fin;
 461        panelby gender / layout=columnlattice onepanel
colheaderpos=bottom novarname;
 462        histogram glyhb ;
 463        density glyhb;/* Pas de distribution normale donc
impossible d'effectuer le Ttest
 464        On effectue un test de Man-Withney
 465        */
 466        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.22 seconds
```

```
      user cpu time       0.07 seconds
      system cpu time     0.02 seconds
      memory              3482.03k
      OS Memory           45240.00k
      Timestamp           21/04/2024 05:36:15 PM
      Step Count                        74  Switch Count  26
      Page Faults                       0
      Page Reclaims                     927
      Page Swaps                        0
      Voluntary Context Switches        1399
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           1952

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 467
 468
 469        proc sgpanel data=malib.diabete_fin;
 470        panelby gender / layout=columnlattice onepanel
colheaderpos=bottom novarname;
 471        vbox glyhb ;
 472        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
      real time           0.12 seconds
      user cpu time       0.06 seconds
      system cpu time     0.01 seconds
      memory              3277.15k
      OS Memory           45240.00k
      Timestamp           21/04/2024 05:36:15 PM
      Step Count                        75  Switch Count  26
      Page Faults                       0
      Page Reclaims                     933
      Page Swaps                        0
      Voluntary Context Switches        772
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           1856

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 473
 474
 475
 476        /*test de Man-Withney*/
 477
 478        proc npar1way data=malib.diabete_fin wilcoxon;
 479            class gender;
 480            var glyhb;
 481        run;
```

```
 NOTE: PROCEDURE NPAR1WAY a utilisé (Durée totale du traitement) :
       real time           0.16 seconds
       user cpu time       0.06 seconds
       system cpu time     0.01 seconds
       memory              3247.93k
       OS Memory           44596.00k
       Timestamp           21/04/2024 05:36:15 PM
       Step Count                        76  Switch Count  0
       Page Faults                       0
       Page Reclaims                     788
       Page Swaps                        0
       Voluntary Context Switches        312
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           664


 482
 483        /* Pas de différence significatives entre hommes et
femmes */
 484
 485        /* ----------- Analyse hémoglobine et age --------------
*/
 486        proc sgplot data=malib.Diabete_Fin;
 487        histogram glyhb;
 488        density glyhb;
 489        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.08 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              2262.59k
       OS Memory           44592.00k
       Timestamp           21/04/2024 05:36:15 PM
       Step Count                        77  Switch Count  1
       Page Faults                       0
       Page Reclaims                     334
       Page Swaps                        0
       Voluntary Context Switches        217
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           504

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 490
 491        proc univariate normal data=malib.diabete_fin;
 492        var glyhb ; run;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.04 seconds
       user cpu time       0.04 seconds
```

```
      system cpu time     0.00 seconds
      memory              1035.18k
      OS Memory           43688.00k
      Timestamp           21/04/2024 05:36:15 PM
      Step Count                        78  Switch Count  0
      Page Faults                       0
      Page Reclaims                     58
      Page Swaps                        0
      Voluntary Context Switches        1
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           32


 493        /* Pas de normalité des sous échantillon donc test de
Test de Kruskal et Wallis*/
 494
 495        title "Distribution de l'hémoglobine glyquée en fonction
des tranches d'age et test de normalité";
 496        proc sgpanel data=malib.diabete_fin;
 497        panelby age_code / columns= 3;
 498        histogram glyhb ;
 499        density glyhb;
 500        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
      real time           0.27 seconds
      user cpu time       0.09 seconds
      system cpu time     0.01 seconds
      memory              3583.40k
      OS Memory           45752.00k
      Timestamp           21/04/2024 05:36:16 PM
      Step Count                        79  Switch Count  50
      Page Faults                       0
      Page Reclaims                     1397
      Page Swaps                        0
      Voluntary Context Switches        517
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           3784

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 501        title;
 502
 503
 504        /*La statistique h va suivre un khi2(5) car on a 6
classes */
 505        proc npar1way data=malib.diabete_fin;
 506        class age_code;
 507        var glyhb;
 508        run;
```

```
NOTE: PROCEDURE NPAR1WAY a utilisé (Durée totale du traitement) :
      real time           0.74 seconds
      user cpu time       0.35 seconds
      system cpu time     0.03 seconds
      memory              4357.43k
      OS Memory           46132.00k
      Timestamp           21/04/2024 05:36:16 PM
      Step Count                        80  Switch Count  0
      Page Faults                       0
      Page Reclaims                     1676
      Page Swaps                        0
      Voluntary Context Switches        3828
      Involuntary Context Switches      2
      Block Input Operations            0
      Block Output Operations           2560


 509        /* la pvalue < .001 < .05 (seuil), on ne peut accepter
l'hypothèse nulle (moyennes des classes ==)
 510        Donc l'âge afflut sur l'apparition d'un diabète de type
 511         */
 512
 513
 514        /* ANALYSE IMC ET AGE */
 515
 516
 517        proc univariate normal data=malib.diabete_fin;
 518        var imc;  run;

NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
      real time           0.04 seconds
      user cpu time       0.05 seconds
      system cpu time     0.00 seconds
      memory              894.53k
      OS Memory           44968.00k
      Timestamp           21/04/2024 05:36:16 PM
      Step Count                        81  Switch Count  0
      Page Faults                       0
      Page Reclaims                     55
      Page Swaps                        0
      Voluntary Context Switches        1
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           32


 519
 520        title "Visualisation d'une présence ou non d'une
distribution normale pour la variable d'hémoglobine glyquée";
 521        proc sgplot data=malib.Diabete_Fin;
 522        histogram imc;
 523        density imc;
 524        run;
```

```
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.09 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              2181.43k
       OS Memory           45872.00k
       Timestamp           21/04/2024 05:36:16 PM
       Step Count                        82  Switch Count  1
       Page Faults                       0
       Page Reclaims                     301
       Page Swaps                        0
       Voluntary Context Switches        217
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           520

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 525        title;
 526
 527        title "Distribution de l'IMC en fonction des tranches
d'age et test de normalité";
 528        proc sgpanel data=malib.diabete_fin;
 529        panelby age_code / columns= 1;
 530        histogram IMC ;
 531        density IMC;
 532        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.42 seconds
       user cpu time       0.15 seconds
       system cpu time     0.03 seconds
       memory              3708.43k
       OS Memory           46776.00k
       Timestamp           21/04/2024 05:36:17 PM
       Step Count                        83  Switch Count  50
       Page Faults                       0
       Page Reclaims                     1771
       Page Swaps                        0
       Voluntary Context Switches        884
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           4232

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 533        title;
 534
 535        title "verification des hypothèse d'équilibre";
 536        proc means data=malib.diabete_fin std mean ;
 537        class age_code;
 538        var imc;
```

```
 539        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.02 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              8991.46k
       OS Memory           52924.00k
       Timestamp           21/04/2024 05:36:17 PM
       Step Count                        84  Switch Count  1
       Page Faults                       0
       Page Reclaims                     1960
       Page Swaps                        0
       Voluntary Context Switches        14
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           16


 539      !      /*Pas de plan equilibré */
 540        title;
 541
 542
 543        proc npar1way  data=malib.Diabete_Fin;
 544        class age_code; var imc; run;

 NOTE: PROCEDURE NPAR1WAY a utilisé (Durée totale du traitement) :
       real time           0.65 seconds
       user cpu time       0.35 seconds
       system cpu time     0.03 seconds
       memory              4151.12k
       OS Memory           46644.00k
       Timestamp           21/04/2024 05:36:18 PM
       Step Count                        85  Switch Count  0
       Page Faults                       0
       Page Reclaims                     1672
       Page Swaps                        0
       Voluntary Context Switches        3780
       Involuntary Context Switches      1
       Block Input Operations            0
       Block Output Operations           2720


 545
 546
 547        /* -------- Analyse de variance pour l'imc en fonction
de la tension arterielle ------- */
 548        Proc sgpanel data=malib.Diabete_Fin nocycleattrs;
 549        panelby bp_code / layout=columnlattice onepanel
colheaderpos=bottom ;
 550        vbox imc ; run;
```

```
 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.16 seconds
       user cpu time       0.06 seconds
       system cpu time     0.02 seconds
       memory              3100.34k
       OS Memory           47032.00k
       Timestamp           21/04/2024 05:36:18 PM
       Step Count                        86  Switch Count  38
       Page Faults                       0
       Page Reclaims                     1106
       Page Swaps                        0
       Voluntary Context Switches        565
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           2440

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 551
 552
 553        title "verification des hypothèse d'équilibre";
 554        proc means data=malib.diabete_fin std mean ;
 555        class bp_code;
 556        var imc;
 557        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.01 seconds
       memory              8987.79k
       OS Memory           53436.00k
       Timestamp           21/04/2024 05:36:18 PM
       Step Count                        87  Switch Count  1
       Page Faults                       0
       Page Reclaims                     1953
       Page Swaps                        0
       Voluntary Context Switches        14
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           0


 557      !      /*Pas de plan equilibré */
 558        title;
 559
 560        proc univariate normal data=malib.diabete_fin;
 561        var imc;  run;

 NOTE: PROCEDURE UNIVARIATE a utilisé (Durée totale du traitement) :
       real time           0.04 seconds
```

```
      user cpu time       0.04 seconds
      system cpu time     0.00 seconds
      memory              894.87k
      OS Memory           44968.00k
      Timestamp           21/04/2024 05:36:18 PM
      Step Count                        88  Switch Count  0
      Page Faults                       0
      Page Reclaims                     58
      Page Swaps                        0
      Voluntary Context Switches        2
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           24


 562
 563        proc sgplot data=malib.Diabete_Fin;
 564        histogram imc;
 565        density imc;
 566        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.08 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              2296.17k
       OS Memory           45872.00k
       Timestamp           21/04/2024 05:36:18 PM
       Step Count                        89  Switch Count  1
       Page Faults                       0
       Page Reclaims                     304
       Page Swaps                        0
       Voluntary Context Switches        216
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           512

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 567
 568        title "Distribution de l'IMC en fonction des catégories
de tension arterielle et test de normalité";
 569        proc sgpanel data=malib.diabete_fin;
 570        panelby bp_code / layout=columnlattice onepanel
colheaderpos=bottom novarname;
 571        histogram IMC ;
 572        density IMC;
 573        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.23 seconds
       user cpu time       0.08 seconds
       system cpu time     0.01 seconds
```

```
      memory              3587.96k
      OS Memory           46776.00k
      Timestamp           21/04/2024 05:36:18 PM
      Step Count                        90  Switch Count  38
      Page Faults                       0
      Page Reclaims                     1143
      Page Swaps                        0
      Voluntary Context Switches        454
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           2680

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 574        title;
 575
 576        proc npar1way  data=malib.Diabete_Fin;
 577        class bp_code; var imc; run;

 NOTE: PROCEDURE NPAR1WAY a utilisé (Durée totale du traitement) :
      real time           0.59 seconds
      user cpu time       0.33 seconds
      system cpu time     0.03 seconds
      memory              4019.06k
      OS Memory           46644.00k
      Timestamp           21/04/2024 05:36:19 PM
      Step Count                        91  Switch Count  0
      Page Faults                       0
      Page Reclaims                     1634
      Page Swaps                        0
      Voluntary Context Switches        3229
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           2432


 578
 579        /* Seule l'influence de la pression est visible */
 580        Proc sgpanel data=malib.Diabete_Fin nocycleattrs;
 581        panelby age_code / layout=columnlattice onepanel
colheaderpos=bottom novarname;
 582        vbox imc / group= bp_code; run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
      real time           0.21 seconds
      user cpu time       0.08 seconds
      system cpu time     0.02 seconds
      memory              3356.75k
      OS Memory           47032.00k
      Timestamp           21/04/2024 05:36:19 PM
      Step Count                        92  Switch Count  50
      Page Faults                       0
      Page Reclaims                     1292
```

```
       Page Swaps                         0
       Voluntary Context Switches         1282
       Involuntary Context Switches       0
       Block Input Operations             0
       Block Output Operations            3616

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 583
 584        /
*================================================================
==========*/
 585
 586        /* ANALYSE DESCRIPTIVES DEUX VARIABLES QUANTITATIVES*/
 587
 588        /* On regarde les corrélations de l'hémoglobine avec
certaines variables */
 589
 590        proc corr data=malib.diabete_fin ;
 591        var glyhb hdl bp_1s bp_1d ratio_wh IMC chol;
 592        run;

 NOTE: PROCEDURE CORR a utilisé (Durée totale du traitement) :
       real time           0.06 seconds
       user cpu time       0.07 seconds
       system cpu time     0.00 seconds
       memory              1261.25k
       OS Memory           45480.00k
       Timestamp           21/04/2024 05:36:19 PM
       Step Count                         93  Switch Count  0
       Page Faults                        0
       Page Reclaims                      130
       Page Swaps                         0
       Voluntary Context Switches         1
       Involuntary Context Switches       0
       Block Input Operations             0
       Block Output Operations            24


 593        /* D'un point de vue maladie diabète : corr
significative avec le HDL, pression_S, ratio_WH ++, IMC
 594        en revanche la pression_D n'est pas corr
 595        - HDL a pas de corr signif avec les pressions */
 596
 597
 598        proc sgplot data=malib.diabete_fin;
 599        scatter X = age Y = glyhb ;
 600        reg x=age y=glyhb;
 601        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.13 seconds
       user cpu time       0.07 seconds
```

```
      system cpu time     0.00 seconds
      memory              3080.96k
      OS Memory           47528.00k
      Timestamp           21/04/2024 05:36:19 PM
      Step Count                        94  Switch Count  1
      Page Faults                       0
      Page Reclaims                     688
      Page Swaps                        0
      Voluntary Context Switches        217
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           696

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 602        /* Graphe qui montre la présence d'aucune relation
(linéaire ou pas) entre HDL et tension */
 603        proc sgplot data=malib.diabete_fin;
 604        scatter X = bp_1s Y = hdl ;
 605        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
      real time           0.09 seconds
      user cpu time       0.05 seconds
      system cpu time     0.00 seconds
      memory              1447.81k
      OS Memory           47664.00k
      Timestamp           21/04/2024 05:36:19 PM
      Step Count                        95  Switch Count  1
      Page Faults                       0
      Page Reclaims                     432
      Page Swaps                        0
      Voluntary Context Switches        184
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           512

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 606
 607        proc sgplot data=malib.diabete_fin;
 608        scatter X = bp_1d Y = hdl ;
 609        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
      real time           0.08 seconds
      user cpu time       0.04 seconds
      system cpu time     0.01 seconds
      memory              2248.87k
      OS Memory           47920.00k
      Timestamp           21/04/2024 05:36:19 PM
      Step Count                        96  Switch Count  1
```

```
      Page Faults                       0
      Page Reclaims                     377
      Page Swaps                        0
      Voluntary Context Switches        186
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           464

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 610
 611        /*------------*/
 612        proc sgplot data=malib.diabete_fin;
 613        scatter X = bp_1s Y = glyhb ;
 614        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
      real time           0.08 seconds
      user cpu time       0.04 seconds
      system cpu time     0.00 seconds
      memory              2104.21k
      OS Memory           47920.00k
      Timestamp           21/04/2024 05:36:19 PM
      Step Count                        97  Switch Count  1
      Page Faults                       0
      Page Reclaims                     333
      Page Swaps                        0
      Voluntary Context Switches        185
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           472

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 615
 616        proc sgplot data=malib.diabete_fin;
 617        scatter X = hdl Y = glyhb ;
 618        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
      real time           0.08 seconds
      user cpu time       0.04 seconds
      system cpu time     0.01 seconds
      memory              2263.43k
      OS Memory           48176.00k
      Timestamp           21/04/2024 05:36:20 PM
      Step Count                        98  Switch Count  1
      Page Faults                       0
      Page Reclaims                     379
      Page Swaps                        0
      Voluntary Context Switches        184
      Involuntary Context Switches      0
```

```
      Block Input Operations            0
      Block Output Operations           480

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 619
 620        proc sgplot data=malib.diabete_fin;
 621        scatter X = bp_1d Y = glyhb ;
 622        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.08 seconds
       user cpu time       0.04 seconds
       system cpu time     0.01 seconds
       memory              2104.25k
       OS Memory           47920.00k
       Timestamp           21/04/2024 05:36:20 PM
       Step Count                        99  Switch Count  1
       Page Faults                       0
       Page Reclaims                     331
       Page Swaps                        0
       Voluntary Context Switches        184
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           472

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 623
 624        proc sgplot data=malib.diabete_fin;
 625        scatter X = ratio_wh Y = chol ;
 626        run;

 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.08 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              2103.75k
       OS Memory           47920.00k
       Timestamp           21/04/2024 05:36:20 PM
       Step Count                        100  Switch Count  1
       Page Faults                       0
       Page Reclaims                     333
       Page Swaps                        0
       Voluntary Context Switches        186
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           464

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
```

```
 627
 628        proc sgplot data=malib.diabete_fin;
 629        scatter X = ratio_wh Y = glyhb / group=gender ;
 630        run;

 630      !      /* Interpretation : dès que le ratio est superieur
à .8
 NOTE: PROCEDURE SGPLOT a utilisé (Durée totale du traitement) :
       real time           0.12 seconds
       user cpu time       0.05 seconds
       system cpu time     0.01 seconds
       memory              2259.28k
       OS Memory           48176.00k
       Timestamp           21/04/2024 05:36:20 PM
       Step Count                        101  Switch Count  1
       Page Faults                       0
       Page Reclaims                     380
       Page Swaps                        0
       Voluntary Context Switches        1320
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           504

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 631        il y a une présence d'individus avec un fort pourcentage
d'hemoglobine
 632        Dommage on peut pas tracer de vline x = .8*/
 633
 634
 635
 636        /
*================================================================
==========*/
 637
 638        /* ANALYSE DESCRIPTIVES DEUX VARIABLES QUALITATIVES*/
 639
 640        title "Proportion des individus en fonction du genre et
de la classe IMC";
 641        proc sgpanel data=malib.diabete_fin;
 642        panelby gender;
 643        vbar imc_code ;
 644        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.17 seconds
       user cpu time       0.06 seconds
       system cpu time     0.01 seconds
       memory              3426.46k
       OS Memory           49080.00k
       Timestamp           21/04/2024 05:36:20 PM
       Step Count                        102  Switch Count  16
       Page Faults                       0
```

```
       Page Reclaims                     1005
       Page Swaps                        0
       Voluntary Context Switches        322
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           1344

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 645        title;
 646        /*présence d'obésité / surpoids plus important chez les
femmes que chez les hommes */
 647
 648        proc freq data=malib.diabete_fin;
 649        tables IMC_code * gender / norow nocol nopercent;
 650        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
       real time           0.02 seconds
       user cpu time       0.02 seconds
       system cpu time     0.00 seconds
       memory              1349.78k
       OS Memory           47536.00k
       Timestamp           21/04/2024 05:36:20 PM
       Step Count                        103  Switch Count  4
       Page Faults                       0
       Page Reclaims                     317
       Page Swaps                        0
       Voluntary Context Switches        25
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           536


 651
 652
 653        title "Proportion des individus en fonction du genre et
de la classe de pression";
 654        proc sgpanel data=malib.diabete_fin;
 655        panelby gender;
 656        vbar bp_code ;
 657        run;

 NOTE: PROCEDURE SGPANEL a utilisé (Durée totale du traitement) :
       real time           0.14 seconds
       user cpu time       0.05 seconds
       system cpu time     0.00 seconds
       memory              3163.43k
       OS Memory           49336.00k
       Timestamp           21/04/2024 05:36:20 PM
       Step Count                        104  Switch Count  16
```

```
       Page Faults                       0
       Page Reclaims                     1045
       Page Swaps                        0
       Voluntary Context Switches        312
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           1304

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.

 658        title;
 659
 660        proc freq data=malib.diabete_fin;
 661        tables bp_code * gender / norow nocol nopercent;
 662        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.02 seconds
       system cpu time     0.01 seconds
       memory              1229.65k
       OS Memory           47792.00k
       Timestamp           21/04/2024 05:36:20 PM
       Step Count                        105  Switch Count  4
       Page Faults                       0
       Page Reclaims                     267
       Page Swaps                        0
       Voluntary Context Switches        27
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           536


 663
 664        /*Tension arterielle de stade 2 pour plus de femmes*/
 665
 666
 667        /* Différents tableaux de contingences pour les
variables qualitatives + khi 2 d'indépendance */
 668
 669        proc freq data=malib.diabete_fin;
 670        tables gender*IMC_code / chisq plots = freqplot;
 671        tables gender*Bp_code / chisq plots = freqplot;
 672        tables IMC_code*Bp_code/ chisq plots = freqplot;
 673        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE FREQ a utilisé (Durée totale du traitement) :
       real time           0.62 seconds
       user cpu time       0.27 seconds
```

```
       system cpu time     0.01 seconds
       memory              3732.06k
       OS Memory           48952.00k
       Timestamp           21/04/2024 05:36:21 PM
       Step Count                        106  Switch Count  4
       Page Faults                       0
       Page Reclaims                     1259
       Page Swaps                        0
       Voluntary Context Switches        1192
       Involuntary Context Switches      1
       Block Input Operations            0
       Block Output Operations           1568


 674
 675        /* data malib.diabete_fin_bp_code */
 676
 677
 678
 679        /* reg log avec chol hdl  */
 680
 681        proc logistic data=malib.diabete_fin desc ;
 682        format Bp_code;
 683
 684           class Bp_code ;
 685           class gender (ref = 'male') / PARAM = REFERENCE;
 686           model Bp_code = chol hdl stab_glu glyhb age gender
IMC ratio_WH / selection=backward ;
 687
 688        run;

 NOTE: PROC LOGISTIC is fitting the logit cumulé model. The
probabilities modeled are summed over the responses having the lower
       Ordered Values in the Response Profile table.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 0.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 1.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 2.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 3.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 4.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 5.
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE LOGISTIC a utilisé (Durée totale du traitement) :
       real time           0.20 seconds
       user cpu time       0.20 seconds
       system cpu time     0.00 seconds
       memory              2555.00k
       OS Memory           48568.00k
       Timestamp           21/04/2024 05:36:21 PM
       Step Count                        107  Switch Count  0
       Page Faults                       0
       Page Reclaims                     540
       Page Swaps                        0
       Voluntary Context Switches        2
```

```
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           136


 689
 690        /* on enlève col hdl pour remplacer par le ratio  */
 691
 692        proc logistic data=malib.diabete_fin desc ;
 693        format Bp_code;
 694
 695           class Bp_code ;
 696           class gender (ref = 'male') / PARAM = REFERENCE;
 697           model Bp_code = ratio stab_glu glyhb age gender IMC
ratio_WH / selection=backward ;
 698
 699        run;

 NOTE: PROC LOGISTIC is fitting the logit cumulé model. The
probabilities modeled are summed over the responses having the lower
       Ordered Values in the Response Profile table.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 0.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 1.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 2.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 3.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 4.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 5.
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE LOGISTIC a utilisé (Durée totale du traitement) :
       real time           0.19 seconds
       user cpu time       0.20 seconds
       system cpu time     0.00 seconds
       memory              2541.96k
       OS Memory           48568.00k
       Timestamp           21/04/2024 05:36:21 PM
       Step Count                       108  Switch Count  0
       Page Faults                      0
       Page Reclaims                    254
       Page Swaps                       0
       Voluntary Context Switches       1
       Involuntary Context Switches     0
       Block Input Operations           0
       Block Output Operations          152


 700
 701        /* on essaie avec ratio chol hdl  */
 702
 703        proc logistic data=malib.diabete_fin desc ;
 704        format Bp_code;
 705
 706           class Bp_code ;
 707           class gender (ref = 'male') / PARAM = REFERENCE;
```

```
 708           model Bp_code = ratio chol hdl stab_glu glyhb age
gender IMC ratio_WH / selection=backward ;
 709
 710        run;

 NOTE: PROC LOGISTIC is fitting the logit cumulé model. The
probabilities modeled are summed over the responses having the lower
       Ordered Values in the Response Profile table.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 0.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 1.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 2.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 3.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 4.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied in Step 5.
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE LOGISTIC a utilisé (Durée totale du traitement) :
       real time           0.19 seconds
       user cpu time       0.19 seconds
       system cpu time     0.01 seconds
       memory              2499.31k
       OS Memory           48824.00k
       Timestamp           21/04/2024 05:36:21 PM
       Step Count                        109  Switch Count  0
       Page Faults                       0
       Page Reclaims                     254
       Page Swaps                        0
       Voluntary Context Switches        1
       Involuntary Context Switches      1
       Block Input Operations            0
       Block Output Operations           128


 711
 712        /* --> Mais probablement ajout de colinéarité trop
importante  */
 713
 714        /* summary IMC  */
 715
 716        proc means data = malib.Diabete_Fin;
 717        var IMC;
 718        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE MEANS a utilisé (Durée totale du traitement) :
       real time           0.01 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              6905.96k
       OS Memory           53964.00k
       Timestamp           21/04/2024 05:36:21 PM
       Step Count                        110  Switch Count  1
       Page Faults                       0
```

```
       Page Reclaims                     1692
       Page Swaps                        0
       Voluntary Context Switches        20
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           8


 719
 720        /* deux modèles différents + estimation des proba pour
les interprétations */
 721
 722        proc logistic data=malib.diabete_fin desc ;
 723        format Bp_code;
 724
 725           class Bp_code ;
 726           model Bp_code =  hdl   age  IMC  ;
 727           estimate "Pr prob Bp_code = 4 at hdl=50" intercept 1
hdl 50 age 46 IMC 28.83 / ilink category='4';
 728           estimate "Pr prob Bp_code = 4 at hdl=70" intercept 1
hdl 70 age 46 IMC 28.83 / ilink category='4';
 729           estimate "Pr prob Bp_code >=3 at hdl=50" intercept 1
hdl 50 age 46 IMC 28.83 / ilink category='3';
 730           estimate "Pr prob Bp_code >=3 at hdl=70" intercept 1
hdl 70 age 46 IMC 28.83 / ilink category='3';
 731           estimate "Pr prob Bp_code >=2 at hdl=50" intercept 1
hdl 50 age 46 IMC 28.83 / ilink category='2';
 732           estimate "Pr prob Bp_code >=2 at hdl=70" intercept 1
hdl 70 age 46 IMC 28.83 / ilink category='2';
 733
 734        run;

 NOTE: PROC LOGISTIC is fitting the logit cumulé model. The
probabilities modeled are summed over the responses having the lower
       Ordered Values in the Response Profile table.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied.
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE LOGISTIC a utilisé (Durée totale du traitement) :
       real time           0.10 seconds
       user cpu time       0.10 seconds
       system cpu time     0.01 seconds
       memory              2586.75k
       OS Memory           48824.00k
       Timestamp           21/04/2024 05:36:22 PM
       Step Count                        111  Switch Count  0
       Page Faults                       0
       Page Reclaims                     371
       Page Swaps                        0
       Voluntary Context Switches        1
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           96
```

```
 735
 736        proc logistic data=malib.diabete_fin desc ;
 737        format Bp_code;
 738
 739           class Bp_code ;
 740           model Bp_code =  age  IMC  ;
 741           estimate "Pr prob Bp_code = 4 at hdl=50" intercept 1
age 46 IMC 28.83 / ilink category='4';
 742           estimate "Pr prob Bp_code = 4 at hdl=70" intercept 1
age 46 IMC 35 / ilink category='4';
 743           estimate "Pr prob Bp_code >=3 at hdl=50" intercept 1
age 46 IMC 28.83 / ilink category='3';
 744           estimate "Pr prob Bp_code >=3 at hdl=70" intercept 1
age 46 IMC 35 / ilink category='3';
 745           estimate "Pr prob Bp_code >=2 at hdl=50" intercept 1
age 46 IMC 28.83 / ilink category='2';
 746           estimate "Pr prob Bp_code >=2 at hdl=70" intercept 1
age 46 IMC 35 / ilink category='2';
 747
 748        run;

 NOTE: PROC LOGISTIC is fitting the logit cumulé model. The
probabilities modeled are summed over the responses having the lower
       Ordered Values in the Response Profile table.
 NOTE: Convergence criterion (GCONV=1E-8) satisfied.
 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: PROCEDURE LOGISTIC a utilisé (Durée totale du traitement) :
       real time           0.10 seconds
       user cpu time       0.10 seconds
       system cpu time     0.00 seconds
       memory              2568.40k
       OS Memory           49080.00k
       Timestamp           21/04/2024 05:36:22 PM
       Step Count                        112  Switch Count  0
       Page Faults                       0
       Page Reclaims                     244
       Page Swaps                        0
       Voluntary Context Switches        1
       Involuntary Context Switches      1
       Block Input Operations            0
       Block Output Operations           96


 749
 750        /* Régression linéaire */
 751
 752        proc reg data=malib.diabete_fin;
 753        model glyhb = chol hdl stab_glu age ratio_WH height
weight bp_1s bp_1d / selection=backward;
 754
 755        run;
```

```
 756

 NOTE: PROCEDURE REG a utilisé (Durée totale du traitement) :
       real time           0.78 seconds
       user cpu time       0.41 seconds
       system cpu time     0.03 seconds
       memory              11697.09k
       OS Memory           56804.00k
       Timestamp           21/04/2024 05:36:22 PM
       Step Count                        113  Switch Count  22
       Page Faults                       0
       Page Reclaims                     13021
       Page Swaps                        0
       Voluntary Context Switches        895
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           1896


 757        data __;
 758        set malib.diabete_fin;
 759        run;

 NOTE: There were 375 observations read from the data set
MALIB.DIABETE_FIN.
 NOTE: The data set WORK.__ has 375 observations and 22 variables.
 NOTE: DATA statement a utilisé (Durée totale du traitement) :
       real time           0.00 seconds
       user cpu time       0.01 seconds
       system cpu time     0.00 seconds
       memory              1012.06k
       OS Memory           51116.00k
       Timestamp           21/04/2024 05:36:22 PM
       Step Count                        114  Switch Count  2
       Page Faults                       0
       Page Reclaims                     119
       Page Swaps                        0
       Voluntary Context Switches        19
       Involuntary Context Switches      0
       Block Input Operations            0
       Block Output Operations           264


 760
 761
 762        ods pdf close;
 NOTE: ODS PDF printed 136 pages to /home/u63585891/Diabete_project/
Rapport.pdf.
 763
 764
 765
 766
 767        OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
 777
```