```
1           OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
NOTE: ODS statements in the SAS Studio environment may disable some output features.
69
70          /* Generated Code (IMPORT) */
71          /* Source File: diabetes_binary_health_indicators_BRFSS2015.csv */
72          /* Source Path: /home/u64041732/Midterm */
73          /* Code generated on: 10/9/24, 5:44 PM */
74
75          proc import datafile="/home/u64041732/Midterm/diabetes_binary_5050split_health_indicators_BRFSS2015.csv"
76              out=diabetes
77              dbms=csv
78              replace;
79              getnames=yes;
80          run;

NOTE: Unable to open parameter catalog: SASUSER.PARMS.PARMS.SLIST in update mode. Temporary parameter values will be saved to
WORK.PARMS.PARMS.SLIST.
81          /**********************************************************************
82          *    PRODUCT:   SAS
83          *    VERSION:   9.4
84          *    CREATOR:   External File Interface
85          *    DATE:      01NOV24
86          *    DESC:      Generated SAS Datastep Code
87          *    TEMPLATE SOURCE:  (None Specified.)
88          ***********************************************************************/
89              data WORK.DIABETES    ;
90              %let _EFIERR_ = 0; /* set the ERROR detection macro variable */
91              infile '/home/u64041732/Midterm/diabetes_binary_5050split_health_indicators_BRFSS2015.csv' delimiter = ',' MISSOVER
91      ! DSD lrecl=32767 firstobs=2 ;
92                  informat Diabetes_binary best32. ;
93                  informat HighBP best32. ;
94                  informat HighChol best32. ;
95                  informat CholCheck best32. ;
96                  informat BMI best32. ;
97                  informat Smoker best32. ;
98                  informat Stroke best32. ;
99                  informat HeartDiseaseorAttack best32. ;
100                 informat PhysActivity best32. ;
101                 informat Fruits best32. ;
102                 informat Veggies best32. ;
103                 informat HvyAlcoholConsump best32. ;
104                 informat AnyHealthcare best32. ;
105                 informat NoDocbcCost best32. ;
106                 informat GenHlth best32. ;
107                 informat MentHlth best32. ;
108                 informat PhysHlth best32. ;
109                 informat DiffWalk best32. ;
110                 informat Sex best32. ;
111                 informat Age best32. ;
112                 informat Education best32. ;
113                 informat Income best32. ;
114                 format Diabetes_binary best12. ;
115                 format HighBP best12. ;
116                 format HighChol best12. ;
117                 format CholCheck best12. ;
118                 format BMI best12. ;
119                 format Smoker best12. ;
120                 format Stroke best12. ;
121                 format HeartDiseaseorAttack best12. ;
122                 format PhysActivity best12. ;
123                 format Fruits best12. ;
124                 format Veggies best12. ;
125                 format HvyAlcoholConsump best12. ;
126                 format AnyHealthcare best12. ;
127                 format NoDocbcCost best12. ;
128                 format GenHlth best12. ;
129                 format MentHlth best12. ;
130                 format PhysHlth best12. ;
131                 format DiffWalk best12. ;
132                 format Sex best12. ;
133                 format Age best12. ;
134                 format Education best12. ;
135                 format Income best12. ;
136             input
137                         Diabetes_binary
138                         HighBP
139                         HighChol
140                         CholCheck
141                         BMI
142                         Smoker
143                         Stroke
144                         HeartDiseaseorAttack
145                         PhysActivity
146                         Fruits
147                         Veggies
148                         HvyAlcoholConsump
149                         AnyHealthcare
150                         NoDocbcCost
151                         GenHlth
```

```
152                    MentHlth
153                    PhysHlth
154                    DiffWalk
155                    Sex
156                    Age
157                    Education
158                    Income
159               ;
160               if _ERROR_ then call symputx('_EFIERR_',1);  /* set ERROR detection macro variable */
161          run;
```

NOTE: The infile '/home/u64041732/Midterm/diabetes_binary_5050split_health_indicators_BRFSS2015.csv' is:
      Filename=/home/u64041732/Midterm/diabetes_binary_5050split_health_indicators_BRFSS2015.csv,
      Owner Name=u64041732,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=22Oct2024:23:02:29,
      File Size (bytes)=6347570

NOTE: 70692 records were read from the infile '/home/u64041732/Midterm/diabetes_binary_5050split_health_indicators_BRFSS2015.csv'.
      The minimum record length was 88.
      The maximum record length was 91.
NOTE: The data set WORK.DIABETES has 70692 observations and 22 variables.
NOTE: DATA statement used (Total process time):
      real time   0.09 seconds
      user cpu time   0.08 seconds
      system cpu time   0.00 seconds
      memory   10687.28k
      OS Memory   37664.00k
      Timestamp   11/01/2024 10:19:34 PM
      Step Count   216 Switch Count 2
      Page Faults   0
      Page Reclaims   287
      Page Swaps   0
      Voluntary Context Switches   16
      Involuntary Context Switches 2
      Block Input Operations   0
      Block Output Operations   24592

70692 rows created in WORK.DIABETES from /home/u64041732/Midterm/diabetes_binary_5050split_health_indicators_BRFSS2015.csv.

NOTE: WORK.DIABETES data set was successfully created.
NOTE: The data set WORK.DIABETES has 70692 observations and 22 variables.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time   0.14 seconds
      user cpu time   0.13 seconds
      system cpu time   0.01 seconds
      memory   10687.28k
      OS Memory   38180.00k
      Timestamp   11/01/2024 10:19:34 PM
      Step Count   216 Switch Count 9
      Page Faults   0
      Page Reclaims   1725
      Page Swaps   0
      Voluntary Context Switches   92
      Involuntary Context Switches 4
      Block Input Operations   0
      Block Output Operations   24648


```
162
163        proc import datafile="/home/u64041732/Midterm/heart_disease_health_indicators_BRFSS2015.csv"
164            out=heartdisease
165            dbms=csv
166            replace;
167            getnames=yes;
168        run;
```

NOTE: Unable to open parameter catalog: SASUSER.PARMS.PARMS.SLIST in update mode. Temporary parameter values will be saved to
WORK.PARMS.PARMS.SLIST.
```
169        /*********************************************************************
170         *    PRODUCT:   SAS
171         *    VERSION:   9.4
172         *    CREATOR:   External File Interface
173         *    DATE:      01NOV24
174         *    DESC:      Generated SAS Datastep Code
175         *    TEMPLATE SOURCE:  (None Specified.)
176         *********************************************************************/
177            data WORK.HEARTDISEASE    ;
178            %let _EFIERR_ = 0; /* set the ERROR detection macro variable */
179            infile '/home/u64041732/Midterm/heart_disease_health_indicators_BRFSS2015.csv' delimiter = ',' MISSOVER DSD
179      ! lrecl=32767 firstobs=2 ;
180               informat HeartDiseaseorAttack best32. ;
181               informat HighBP best32. ;
182               informat HighChol best32. ;
183               informat CholCheck best32. ;
184               informat BMI best32. ;
185               informat Smoker best32. ;
186               informat Stroke best32. ;
```

```
187             informat Diabetes best32. ;
188             informat PhysActivity best32. ;
189             informat Fruits best32. ;
190             informat Veggies best32. ;
191             informat HvyAlcoholConsump best32. ;
192             informat AnyHealthcare best32. ;
193             informat NoDocbcCost best32. ;
194             informat GenHlth best32. ;
195             informat MentHlth best32. ;
196             informat PhysHlth best32. ;
197             informat DiffWalk best32. ;
198             informat Sex best32. ;
199             informat Age best32. ;
200             informat Education best32. ;
201             informat Income best32. ;
202             format HeartDiseaseorAttack best12. ;
203             format HighBP best12. ;
204             format HighChol best12. ;
205             format CholCheck best12. ;
206             format BMI best12. ;
207             format Smoker best12. ;
208             format Stroke best12. ;
209             format Diabetes best12. ;
210             format PhysActivity best12. ;
211             format Fruits best12. ;
212             format Veggies best12. ;
213             format HvyAlcoholConsump best12. ;
214             format AnyHealthcare best12. ;
215             format NoDocbcCost best12. ;
216             format GenHlth best12. ;
217             format MentHlth best12. ;
218             format PhysHlth best12. ;
219             format DiffWalk best12. ;
220             format Sex best12. ;
221             format Age best12. ;
222             format Education best12. ;
223             format Income best12. ;
224          input
225                     HeartDiseaseorAttack
226                     HighBP
227                     HighChol
228                     CholCheck
229                     BMI
230                     Smoker
231                     Stroke
232                     Diabetes
233                     PhysActivity
234                     Fruits
235                     Veggies
236                     HvyAlcoholConsump
237                     AnyHealthcare
238                     NoDocbcCost
239                     GenHlth
240                     MentHlth
241                     PhysHlth
242                     DiffWalk
243                     Sex
244                     Age
245                     Education
246                     Income
247          ;
248          if _ERROR_ then call symputx('_EFIERR_',1);  /* set ERROR detection macro variable */
249          run;

NOTE: The infile '/home/u64041732/Midterm/heart_disease_health_indicators_BRFSS2015.csv' is:
      Filename=/home/u64041732/Midterm/heart_disease_health_indicators_BRFSS2015.csv,
      Owner Name=u64041732,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=09Oct2024:17:43:47,
      File Size (bytes)=22738147

NOTE: 253680 records were read from the infile '/home/u64041732/Midterm/heart_disease_health_indicators_BRFSS2015.csv'.
      The minimum record length was 88.
      The maximum record length was 91.
NOTE: The data set WORK.HEARTDISEASE has 253680 observations and 22 variables.
NOTE: DATA statement used (Total process time):
      real time           0.33 seconds
      user cpu time       0.32 seconds
      system cpu time     0.02 seconds
      memory              10800.46k
      OS Memory           37664.00k
      Timestamp           11/01/2024 10:19:34 PM
      Step Count                    217  Switch Count  2
      Page Faults                   0
      Page Reclaims                 225
      Page Swaps                    0
      Voluntary Context Switches    15
      Involuntary Context Switches  2
      Block Input Operations        0
      Block Output Operations       87568
```

```
253680 rows created in WORK.HEARTDISEASE from /home/u64041732/Midterm/heart_disease_health_indicators_BRFSS2015.csv.


NOTE: WORK.HEARTDISEASE data set was successfully created.
NOTE: The data set WORK.HEARTDISEASE has 253680 observations and 22 variables.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time            0.38 seconds
      user cpu time        0.35 seconds
      system cpu time      0.02 seconds
      memory               10800.46k
      OS Memory            38180.00k
      Timestamp            11/01/2024 10:19:34 PM
      Step Count                        217  Switch Count  10
      Page Faults                       0
      Page Reclaims                     1510
      Page Swaps                        0
      Voluntary Context Switches        85
      Involuntary Context Switches      5
      Block Input Operations            0
      Block Output Operations           87592


250
251       /* Sort the diabetes dataset by Age */
252       proc sort data=diabetes;
253           by age;
254       run;

NOTE: There were 70692 observations read from the data set WORK.DIABETES.
NOTE: The data set WORK.DIABETES has 70692 observations and 22 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time            0.03 seconds
      user cpu time        0.02 seconds
      system cpu time      0.02 seconds
      memory               17546.06k
      OS Memory            47780.00k
      Timestamp            11/01/2024 10:19:34 PM
      Step Count                        218  Switch Count  3
      Page Faults                       0
      Page Reclaims                     3741
      Page Swaps                        0
      Voluntary Context Switches        16
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           24584


255
256       /* Sort the heartdisease dataset by Age */
257       proc sort data=heartdisease;
258           by age;
259       run;

NOTE: There were 253680 observations read from the data set WORK.HEARTDISEASE.
NOTE: The data set WORK.HEARTDISEASE has 253680 observations and 22 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time            0.13 seconds
      user cpu time        0.07 seconds
      system cpu time      0.06 seconds
      memory               53837.43k
      OS Memory            84044.00k
      Timestamp            11/01/2024 10:19:34 PM
      Step Count                        219  Switch Count  5
      Page Faults                       0
      Page Reclaims                     12724
      Page Swaps                        0
      Voluntary Context Switches        19
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           87560


260
261       /* Now merge the two datasets */
262       data merged_data;
263           merge diabetes heartdisease;
264           by age;
265       run;

NOTE: MERGE statement has more than one data set with repeats of BY values.
NOTE: There were 70692 observations read from the data set WORK.DIABETES.
NOTE: There were 253680 observations read from the data set WORK.HEARTDISEASE.
NOTE: The data set WORK.MERGED_DATA has 253680 observations and 23 variables.
NOTE: DATA statement used (Total process time):
      real time            0.07 seconds
      user cpu time        0.04 seconds
      system cpu time      0.03 seconds
      memory               5489.96k
      OS Memory            36532.00k
```

```
       Timestamp             11/01/2024 10:19:34 PM
       Step Count                       220  Switch Count  5
       Page Faults                      0
       Page Reclaims                    892
       Page Swaps                       0
       Voluntary Context Switches       20
       Involuntary Context Switches     0
       Block Input Operations           0
       Block Output Operations          91408


266
267
268        proc contents data = diabetes;
269        run;

NOTE: PROCEDURE CONTENTS used (Total process time):
       real time           0.04 seconds
       user cpu time       0.04 seconds
       system cpu time     0.00 seconds
       memory              3287.78k
       OS Memory           32688.00k
       Timestamp           11/01/2024 10:19:34 PM
       Step Count                       221  Switch Count  0
       Page Faults                      0
       Page Reclaims                    283
       Page Swaps                       0
       Voluntary Context Switches       3
       Involuntary Context Switches     2
       Block Input Operations           0
       Block Output Operations          32


270
271        proc contents data = heartdisease;
272        run;

NOTE: PROCEDURE CONTENTS used (Total process time):
       real time           0.03 seconds
       user cpu time       0.04 seconds
       system cpu time     0.01 seconds
       memory              2493.56k
       OS Memory           32688.00k
       Timestamp           11/01/2024 10:19:34 PM
       Step Count                       222  Switch Count  0
       Page Faults                      0
       Page Reclaims                    283
       Page Swaps                       0
       Voluntary Context Switches       3
       Involuntary Context Switches     2
       Block Input Operations           0
       Block Output Operations          24


273
274
275        /* Step 1: Assign descriptive labels to each age group */
276
277        data categorized_data;
278            set merged_data;
279
280            /* Categorize BMI */
281            if bmi < 18.5 then nbmi = 'Underweight';
282            else if bmi <= 24.9 and bmi >= 18.5 then nbmi = 'Healthy';
283            else if bmi <= 29.9 and bmi >= 25 then nbmi = 'Overweight';
284            else if bmi <= 39.9 and bmi >= 30 then nbmi = 'Obese';
285            else if bmi >= 40 then nbmi = 'Severely obese';
286
287        run;

NOTE: There were 253680 observations read from the data set WORK.MERGED_DATA.
NOTE: The data set WORK.CATEGORIZED_DATA has 253680 observations and 24 variables.
NOTE: DATA statement used (Total process time):
       real time           0.06 seconds
       user cpu time       0.03 seconds
       system cpu time     0.03 seconds
       memory              3711.06k
       OS Memory           34736.00k
       Timestamp           11/01/2024 10:19:34 PM
       Step Count                       223  Switch Count  9
       Page Faults                      0
       Page Reclaims                    561
       Page Swaps                       0
       Voluntary Context Switches       34
       Involuntary Context Switches     0
       Block Input Operations           0
       Block Output Operations          99336


288
289        /* Step 2: Calculate the percentage of Diabetes and Heart Disease for each BMI category */
```

```
290
291          proc freq data=categorized_data;
292              tables nbmi*Diabetes_binary / nocol nopercent norow;
293              tables nbmi*HeartDiseaseorAttack / nocol nopercent norow;
294          run;

NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE FREQ used (Total process time):
      real time              0.07 seconds
      user cpu time          0.06 seconds
      system cpu time        0.02 seconds
      memory                 2673.96k
      OS Memory              32948.00k
      Timestamp              11/01/2024 10:19:34 PM
      Step Count                     224  Switch Count  11
      Page Faults                    0
      Page Reclaims                  376
      Page Swaps                     0
      Voluntary Context Switches     44
      Involuntary Context Switches   2
      Block Input Operations         0
      Block Output Operations        552


295
296          /* Step 3: Use PROC TABULATE to generate a summary table with age ranges */
297
298          proc tabulate data=categorized_data;
299              class nbmi;
300              var Diabetes_binary HeartDiseaseorAttack;
301              table nbmi, (Diabetes_binary HeartDiseaseorAttack)*(mean='Percentage') / misstext='0.0%';
302          run;

NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE TABULATE used (Total process time):
      real time              0.03 seconds
      user cpu time          0.04 seconds
      system cpu time        0.02 seconds
      memory                 9553.56k
      OS Memory              38344.00k
      Timestamp              11/01/2024 10:19:34 PM
      Step Count                     225  Switch Count  12
      Page Faults                    0
      Page Reclaims                  1777
      Page Swaps                     0
      Voluntary Context Switches     136
      Involuntary Context Switches   0
      Block Input Operations         0
      Block Output Operations        544


303
304          /* Specify the path for the RTF file */
305          ods rtf file="/home/u64041732/Midterm/diabetes_heart_disease_charts.rtf";
NOTE: Writing RTF Body file: /home/u64041732/Midterm/diabetes_heart_disease_charts.rtf
306
307          /* Pie Chart for Diabetes */
308          proc gchart data=categorized_data;
309              where Diabetes_binary = 1; /* Select individuals with diabetes */
310              pie nbmi / coutline=black
311                        percent=inside
312                        noheading
313                        value=arrow;
314          title "Percentage of Individuals with Diabetes by BMI Category";
315          run;

316          quit;

NOTE: There were 218334 observations read from the data set WORK.CATEGORIZED_DATA.
      WHERE Diabetes_binary=1;
NOTE: PROCEDURE GCHART used (Total process time):
      real time              0.40 seconds
      user cpu time          0.35 seconds
      system cpu time        0.05 seconds
      memory                 18304.56k
      OS Memory              49840.00k
      Timestamp              11/01/2024 10:19:35 PM
      Step Count                     226  Switch Count  41
      Page Faults                    0
      Page Reclaims                  8274
      Page Swaps                     0
      Voluntary Context Switches     116
      Involuntary Context Switches   3
      Block Input Operations         0
      Block Output Operations        5576


317
318          /* Pie Chart for Heart Disease */
319          proc gchart data=categorized_data;
320              where HeartDiseaseorAttack = 1; /* Select individuals with heart disease */
```

```
321             pie nbmi / coutline=black
322                       percent=inside
323                       noheading
324                       value=arrow;
325          title "Percentage of Individuals with Heart Disease by BMI Category";
326       run;

327       quit;
```

NOTE: There were 23893 observations read from the data set WORK.CATEGORIZED_DATA.
      WHERE HeartDiseaseorAttack=1;
NOTE: PROCEDURE GCHART used (Total process time):
      real time   0.25 seconds
      user cpu time   0.21 seconds
      system cpu time   0.03 seconds
      memory   7916.56k
      OS Memory   38944.00k
      Timestamp   11/01/2024 10:19:35 PM
      Step Count   227 Switch Count 7
      Page Faults   0
      Page Reclaims   1733
      Page Swaps   0
      Voluntary Context Switches   31
      Involuntary Context Switches   5
      Block Input Operations   0
      Block Output Operations   1104

```
328
329          /* Reshape data for plotting */
330          data plot_data;
331             set categorized_data;
332             Category = "Diabetes";
333             Count = Diabetes_binary;
334             output;
335
336             Category = "Heart Disease";
337             Count = HeartDiseaseorAttack;
338             output;
339
340             keep nbmi Category Count;
341          run;
```

NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: The data set WORK.PLOT_DATA has 507360 observations and 3 variables.
NOTE: DATA statement used (Total process time):
      real time   0.05 seconds
      user cpu time   0.03 seconds
      system cpu time   0.02 seconds
      memory   3703.50k
      OS Memory   36784.00k
      Timestamp   11/01/2024 10:19:35 PM
      Step Count   228 Switch Count 7
      Page Faults   0
      Page Reclaims   561
      Page Swaps   0
      Voluntary Context Switches   24
      Involuntary Context Switches   0
      Block Input Operations   0
      Block Output Operations   32008

```
342
343          /* Stacked Bar Chart */
344          proc sgplot data=plot_data;
345             vbar Category / response=Count group=nbmi groupdisplay=stack datalabel;
346             keylegend / title="BMI Category";
347             xaxis label="Condition";
348             yaxis label="Count";
349          title "Stacked Bar Chart of Diabetes and Heart Disease by BMI Category";
350          run;
```

NOTE: PROCEDURE SGPLOT used (Total process time):
      real time   0.24 seconds
      user cpu time   0.15 seconds
      system cpu time   0.01 seconds
      memory   16797.00k
      OS Memory   46768.00k
      Timestamp   11/01/2024 10:19:35 PM
      Step Count   229 Switch Count 5
      Page Faults   0
      Page Reclaims   3789
      Page Swaps   0
      Voluntary Context Switches   282
      Involuntary Context Switches   6
      Block Input Operations   0
      Block Output Operations   848

NOTE: There were 507360 observations read from the data set WORK.PLOT_DATA.

```
351
```

```
352          /* Close the RTF output */
353          ods rtf close;
354
355
356          /* hypothesis testing - Chi-square */
357
358          proc freq data=categorized_data;
359              tables nbmi*Diabetes_binary / chisq;
360          run;

NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE FREQ used (Total process time):
      real time             0.07 seconds
      user cpu time         0.07 seconds
      system cpu time       0.02 seconds
      memory                2603.15k
      OS Memory             41140.00k
      Timestamp             11/01/2024 10:19:36 PM
      Step Count                       230  Switch Count  7
      Page Faults                      0
      Page Reclaims                    407
      Page Swaps                       0
      Voluntary Context Switches       34
      Involuntary Context Switches     3
      Block Input Operations           0
      Block Output Operations          528


361
362          proc freq data=categorized_data;
363              tables nbmi*HeartDiseaseorAttack / chisq;
364          run;

NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE FREQ used (Total process time):
      real time             0.07 seconds
      user cpu time         0.06 seconds
      system cpu time       0.01 seconds
      memory                2473.06k
      OS Memory             41140.00k
      Timestamp             11/01/2024 10:19:36 PM
      Step Count                       231  Switch Count  11
      Page Faults                      0
      Page Reclaims                    376
      Page Swaps                       0
      Voluntary Context Switches       47
      Involuntary Context Switches     2
      Block Input Operations           0
      Block Output Operations          544


365
366          /* hypothesis testing - t-test */
367
368          proc ttest data=categorized_data;
369          var BMI;
370          class Diabetes_binary;
371          RUN;

NOTE: PROCEDURE TTEST used (Total process time):
      real time             6.70 seconds
      user cpu time         5.22 seconds
      system cpu time       0.59 seconds
      memory                29796.15k
      OS Memory             67048.00k
      Timestamp             11/01/2024 10:19:42 PM
      Step Count                       232  Switch Count  151
      Page Faults                      0
      Page Reclaims                    61986
      Page Swaps                       0
      Voluntary Context Switches       60906
      Involuntary Context Switches     60
      Block Input Operations           0
      Block Output Operations          603512


372
373
374          proc ttest data=categorized_data;
375          var BMI;
376          class heartdiseaseorattack;
377          RUN;

NOTE: PROCEDURE TTEST used (Total process time):
      real time             6.75 seconds
      user cpu time         5.27 seconds
      system cpu time       0.64 seconds
      memory                31139.06k
      OS Memory             68372.00k
      Timestamp             11/01/2024 10:19:49 PM
      Step Count                       233  Switch Count  138
```

```
                Page Faults                     0
                Page Reclaims                   61950
                Page Swaps                      0
                Voluntary Context Switches      57058
                Involuntary Context Switches    76
                Block Input Operations          0
                Block Output Operations         625480


378
379
380         proc tabulate data=categorized_data;
381         class age nbmi;
382         var diabetes_binary heartdiseaseorattack;
383         table age*nbmi,(diabetes_binary heartdiseaseorattack)*(mean='Percentage')/misstext='0.0%';
384         run;

NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE TABULATE used (Total process time):
      real time            0.06 seconds
      user cpu time        0.08 seconds
      system cpu time      0.02 seconds
      memory               9787.68k
      OS Memory            47048.00k
      Timestamp            11/01/2024 10:19:49 PM
      Step Count                     234  Switch Count  7
      Page Faults                    0
      Page Reclaims                  1710
      Page Swaps                     0
      Voluntary Context Switches     214
      Involuntary Context Switches   0
      Block Input Operations         0
      Block Output Operations        560


385
386         /*perform logistic regression because of binary data*/
387         proc logistic data=categorized_data;
388             model Diabetes_binary(event='1') = BMI; /* Replace with actual variable names */
389             title "Logistic Regression of Diabetes on BMI";
390         run;

NOTE: PROC LOGISTIC is modeling the probability that Diabetes_binary='1'.
NOTE: Convergence criterion (GCONV=1E-8) satisfied.
NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE LOGISTIC used (Total process time):
      real time            0.46 seconds
      user cpu time        0.41 seconds
      system cpu time      0.05 seconds
      memory               30064.18k
      OS Memory            70484.00k
      Timestamp            11/01/2024 10:19:50 PM
      Step Count                     235  Switch Count  13
      Page Faults                    0
      Page Reclaims                  5085
      Page Swaps                     0
      Voluntary Context Switches     60
      Involuntary Context Switches   3
      Block Input Operations         0
      Block Output Operations        46128


391
392         proc logistic data=categorized_data;
393             model Diabetes_binary(event='1') = BMI age; /* Replace with actual variable names */
394             title "Logistic Regression of Diabetes with Multiple Predictors";
395         run;

NOTE: PROC LOGISTIC is modeling the probability that Diabetes_binary='1'.
NOTE: Convergence criterion (GCONV=1E-8) satisfied.
NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE LOGISTIC used (Total process time):
      real time            0.51 seconds
      user cpu time        0.45 seconds
      system cpu time      0.05 seconds
      memory               32062.00k
      OS Memory            72468.00k
      Timestamp            11/01/2024 10:19:50 PM
      Step Count                     236  Switch Count  24
      Page Faults                    0
      Page Reclaims                  5067
      Page Swaps                     0
      Voluntary Context Switches     78
      Involuntary Context Switches   13
      Block Input Operations         0
      Block Output Operations        48688


396
397         proc logistic data=categorized_data;
398             model heartdiseaseorattack(event='1') = BMI age; /* Replace with actual variable names */
```

```
399            title "Logistic Regression of Diabetes with Multiple Predictors";
400        run;

NOTE: PROC LOGISTIC is modeling the probability that HeartDiseaseorAttack='1'.
NOTE: Convergence criterion (GCONV=1E-8) satisfied.
NOTE: There were 253680 observations read from the data set WORK.CATEGORIZED_DATA.
NOTE: PROCEDURE LOGISTIC used (Total process time):
        real time              0.52 seconds
        user cpu time          0.47 seconds
        system cpu time        0.05 seconds
        memory                 32062.84k
        OS Memory              72468.00k
        Timestamp              11/01/2024 10:19:51 PM
        Step Count                      237  Switch Count  24
        Page Faults                     0
        Page Reclaims                   5067
        Page Swaps                      0
        Voluntary Context Switches      78
        Involuntary Context Switches    2
        Block Input Operations          0
        Block Output Operations         48688


401
402
403        OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
413
```