```
1          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69         *
70         AST 503
71         Program 10
72         Zainab Akinjobi
73
74         regression homework
75
76         Y  is  patient satisfaction .
77         x1  =  wait time (time) .
78         x2  =  age of patient  .
79
80         time is measured in 15 minute
81         increments  ....  1 = 15 minutes..
82
83         What is the slope for this regression?
84         0.72520
85         What is the Y-intercept?
86         9.13600
87
88         What is the R squared value?
89         0.8224
90
91         What is the MSE?
92         142.00460
93
94         What is the  Ho for testing the slope? Ho : bi_hat = o
95         What is the p-value in this case? <.0001
96
97         Inspect the graph of pat_sat as a function of age.
98         Inspect the residual plot.
99
100        Predict the pat_sat when age  =  25.
101        (9.13600 + 0.72520)/ 25  =  0.39
102        ;
103
104
105
106        data  mydata  ;
107
108        seed  = 17771 ;
109
110        do  time  =  2 to  6 ;
111
112        do  age  =   20  to  40  by 5 ;
113        pat_sat  =  6 +  0.7*age  +  1.1 * time  +  2.5*rannor(seed ) ;
114        pat_sat = round ( pat_sat,  0.1 ) ;
115        output;
116        end;
117        end;
118
119
120
```

```
NOTE: The data set WORK.MYDATA has 25 observations and 4 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              665.43k
      OS Memory           28324.00k
      Timestamp           12/13/2021 03:31:00 AM
```

```
      Step Count                        123  Switch Count  2
      Page Faults                       0
      Page Reclaims                     101
      Page Swaps                        0
      Voluntary Context Switches        9
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           272


121         proc print  data  = mydata  (  obs  = 10 );
122         title1  ' Print a sub-sample of the regression data ';
123         var  time  age  pat_sat  ;
124
125
126          *   Y as a function  of  one variable  - - - - - - -;
127
128

NOTE: There were 10 observations read from the data set WORK.MYDATA.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.01 seconds
      user cpu time       0.01 seconds
      system cpu time     0.00 seconds
      memory              1290.56k
      OS Memory           28324.00k
      Timestamp           12/13/2021 03:31:00 AM
      Step Count                        124  Switch Count  1
      Page Faults                       0
      Page Reclaims                     60
      Page Swaps                        0
      Voluntary Context Switches        6
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           8


129         proc sgplot  data  = mydata  ;
130         scatter  x = age  y = pat_sat  ;
131         title1  ' Plot  Y vs  age, SLR ';
132
133

134         proc reg  data  =  mydata ;
NOTE: PROCEDURE SGPLOT used (Total process time):
      real time           0.09 seconds
      user cpu time       0.04 seconds
      system cpu time     0.00 seconds
      memory              7960.71k
      OS Memory           33836.00k
      Timestamp           12/13/2021 03:31:00 AM
      Step Count                        125  Switch Count  2
      Page Faults                       0
      Page Reclaims                     1579
      Page Swaps                        0
      Voluntary Context Switches        145
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           464

NOTE: There were 25 observations read from the data set WORK.MYDATA.

135         model pat_sat  = age  ;
136         title1  ' first regression ';
137
```

```
138
139         *  Y  as a function of  two variables  - - - - - - - - -;
140
141
```

```
NOTE: PROCEDURE REG used (Total process time):
      real time           0.60 seconds
      user cpu time       0.21 seconds
      system cpu time     0.04 seconds
      memory              11785.31k
      OS Memory           42720.00k
      Timestamp           12/13/2021 03:31:01 AM
      Step Count                        126  Switch Count  23
      Page Faults                       0
      Page Reclaims                     13142
      Page Swaps                        0
      Voluntary Context Switches        828
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           920
```

```
142         proc reg  data  = mydata  ;
143         model pat_sat  = age time / vif  ;
144         title1  ' multiple regression ';
145
146         run;

147
148         OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
158
```