```
  treat           float   %9.0g
  > ----------------------------------------------------
        name:  <unnamed>
         log:  F:\ShaziLapTop\Desktop\STATA 16\STATA 16 MP Full Portable Version\St
  > ata16\vitaminsupplement.log
    log type:  text
   opened on:   1 Jan 2000, 00:00:30

1 . use "C:\Users\HP\Desktop\coding_challenge\Part 2\B\vitamins.dta"

2 .
3 . describe

  Contains data from C:\Users\HP\Desktop\coding_challenge\Part 2\B\vitamins.dta
    obs:           500
   vars:             3                          21 May 2015 10:43
  ------------------------------------------------------------------------------
  > ----------------------------------------------------
                storage   display    value
  variable name   type    format     label      variable label
  ------------------------------------------------------------------------------
  > ----------------------------------------------------
  treat           float   %9.0g
  time            double  %12.0g
  supplement      str2    %9s
  ------------------------------------------------------------------------------
  > ----------------------------------------------------
  Sorted by:

4 .
5 . *transforming the completion time recorded in MM.SS format to Normal time forma
  > t

6 .
7 . gen floor = floor(time)

8 .
9 . gen remaining_seconds = 100*(time - floor)

10 .
11 . *minutes and seconds are segregated now. Further, transforming minutes in secon
   > ds and adding respectively would give us time in norma
   > l (seconds) format.

12 .
13 . replace floor = floor * 60
   (500 real changes made)

14 .
15 . gen total_seconds = floor + remaining_seconds
```

```
16 .
17 . *for ease we will drop the redundant variables like time and others.

18 .
19 . drop time floor remaining_seconds

20 .
21 . describe

Contains data from C:\Users\HP\Desktop\coding_challenge\Part 2\B\vitamins.dta
  obs:           500
 vars:             3                          21 May 2015 10:43
-------------------------------------------------------------------------------
> -----------------------------------------------------
              storage   display    value
variable name   type    format     label      variable label
-------------------------------------------------------------------------------
> -----------------------------------------------------
treat           float   %9.0g
supplement      str2    %9s
total_seconds   float   %9.0g
-------------------------------------------------------------------------------
> -----------------------------------------------------
Sorted by:
     Note: Dataset has changed since last saved.

22 .
23 . *We now want to ascertain the impact of treatment i.e. vitamin supplements on t
> he ability to solve math problems fast. We can do this
>  with a simple linear regression.

24 . regress total_seconds treat

      Source |       SS           df       MS      Number of obs   =       500
-------------+----------------------------------   F(1, 498)       =      2.64
       Model |  7409.86771         1  7409.86771   Prob > F        =    0.1045
    Residual |  1395171.48       498  2801.54917   R-squared       =    0.0053
-------------+----------------------------------   Adj R-squared   =    0.0033
       Total |  1402581.35       499  2810.78427   Root MSE        =     52.93

------------------------------------------------------------------------------
total_seco~s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       treat |  -7.705449   4.737965    -1.63   0.105    -17.01431    1.603415
       _cons |   240.7346   3.282558    73.34   0.000     234.2852     247.184
------------------------------------------------------------------------------

25 . ttest total_seconds treat
too many variables specified
r(103);
```

```
26 . ttest total_seconds by(treat)
   factor-variable and time-series operators not allowed
   r(101);

27 . ttest total_seconds, by(treat)

   Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |     260    240.7346    3.807966    61.40161    233.2361    248.2331
       1 |     240    233.0292    2.701763    41.85554    227.7069    238.3515
---------+--------------------------------------------------------------------
combined |     500     237.036    2.370985    53.01683    232.3777    241.6943
---------+--------------------------------------------------------------------
    diff |            7.705449    4.737965               -1.603415    17.01431
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.6263
Ho: diff = 0                                     degrees of freedom =      498

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9477         Pr(|T| > |t|) = 0.1045          Pr(T > t) = 0.0523

28 . graph matrix treat total_seconds

29 . *Reconciling the strange supplements

30 . tab
   varlist required
   r(100);

31 . tab supplement

 supplement |      Freq.     Percent        Cum.
------------+-----------------------------------
          a |          2        0.83        0.83
          2 |          1        0.42        1.25
          3 |          3        1.25        2.50
          A |         34       14.17       16.67
          B |         47       19.58       36.25
          C |         60       25.00       61.25
          D |         25       10.42       71.67
          a |          4        1.67       73.33
          b |         23        9.58       82.92
          b |         12        5.00       87.92
          c |         15        6.25       94.17
          d |         10        4.17       98.33
          n |          3        1.25       99.58
          r |          1        0.42      100.00
------------+-----------------------------------
      Total |        240      100.00
```

```
32 . replace supplement = proper ( supplement)
   proper not found
   r(111);

33 . replace supplement = proper(supplement)
   (70 real changes made)

34 . tab supplement

    supplement |      Freq.     Percent        Cum.
   ------------+-----------------------------------
             A |          2        0.83        0.83
             2 |          1        0.42        1.25
             3 |          3        1.25        2.50
             A |         38       15.83       18.33
             B |         70       29.17       47.50
            B  |         12        5.00       52.50
             C |         75       31.25       83.75
             D |         35       14.58       98.33
             N |          3        1.25       99.58
             R |          1        0.42      100.00
   ------------+-----------------------------------
          Total |        240      100.00

35 . drop if supplement == "N" | supplement == "2" | supplement == "3" | supplement
   > == "R"
   (8 observations deleted)

36 . tab supplement

    supplement |      Freq.     Percent        Cum.
   ------------+-----------------------------------
             A |          2        0.86        0.86
             A |         38       16.38       17.24
             B |         70       30.17       47.41
            B  |         12        5.17       52.59
             C |         75       32.33       84.91
             D |         35       15.09      100.00
   ------------+-----------------------------------
          Total |        232      100.00

37 . tab supplement

    supplement |      Freq.     Percent        Cum.
   ------------+-----------------------------------
             A |          2        0.86        0.86
             A |         38       16.38       17.24
             B |         70       30.17       47.41
            B  |         12        5.17       52.59
             C |         75       32.33       84.91
             D |         35       15.09      100.00
   ------------+-----------------------------------
          Total |        232      100.00
```

```
38 . sort treat

39 . replace supplement = "b" in 262
   (1 real change made)

40 . replace supplement = "B" in 262
   (1 real change made)

41 . replace supplement = "B" in 268
   (1 real change made)

42 . replace supplement = "B" in 277
   (1 real change made)

43 . replace supplement = "B" in 293
   (1 real change made)

44 . replace supplement = "B" in 328
   (1 real change made)

45 . replace supplement = "B" in 352
   (1 real change made)

46 . replace supplement = "B" in 367
   (1 real change made)

47 . replace supplement = "B" in 377
   (1 real change made)

48 . replace supplement = "B" in 399
   (1 real change made)

49 . replace supplement = "B" in 425
   (1 real change made)

50 . replace supplement = "B" in 429
   (1 real change made)

51 . replace supplement = "B" in 475
   (1 real change made)

52 . tab supplement

    supplement |      Freq.     Percent        Cum.
   ------------+-----------------------------------
             A |          2        0.86        0.86
             A |         38       16.38       17.24
             B |         82       35.34       52.59
             C |         75       32.33       84.91
             D |         35       15.09      100.00
   ------------+-----------------------------------
         Total |        232      100.00
```

```
53 . egen avgagemf=mean( total_seconds ), by( supplement )

54 . tab avgagemf

    avgagemf |      Freq.     Percent        Cum.
-------------+-----------------------------------
         197 |          2        0.41        0.41
    224.4474 |         38        7.72        8.13
    229.6585 |         82       16.67       24.80
       236.4 |         35        7.11       31.91
    240.7346 |        260       52.85       84.76
    240.7467 |         75       15.24      100.00
-------------+-----------------------------------
       Total |        492      100.00

55 . *Comparing the means, we can say that supplement A is better because the averag
   > e time is lowest for those who took this supplement.

56 . rename treat treatment

57 . rename avgagemf averagemean

58 . rename supplement treatmenttype

59 . log close
       name:  <unnamed>
        log:  F:\ShaziLapTop\Desktop\STATA 16\STATA 16 MP Full Portable Version\St
   > ata16\vitaminsupplement.log
     log type:  text
    closed on:   1 Jan 2000, 07:39:54
   ------------------------------------------------------------------------------
   > ----------------------------------------------------
```