Statistics/Data analysis

```
      name:  master
       log:  c:\hidrive\o7\Stata GUGM-2021-06\logs/example ini-file.smcl
  log type:  smcl
 opened on:  20 Jul 2021, 09:03:11

. 
. 
. 
. **# HEADER
. **========
. type ./header.txt
/*===============================================================================

file:    example {do|ini|xlsx}-file.do
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date:    25jun2021
version: 1

project: example working w/ external configurations in Stata,
         German Stata Conference '21


description:
demonstration of using external configuratrions in .do-, .ini-, & .xlsx-files
with example of grading fictitious single-choice exam data


external dependencies:
-none-


changelog:
==========
n/a


                           legend: ! = fixed; + = added; * = changed; - = removed
===============================================================================*/

. 
. 
. 
. 
. 
. **#1. Load Settings (from .do)
. **============================
. file open ini using "./config/settings.ini", read

. 
. file read ini line

. while r(eof)==0 {
  2.         local first_char = usubstr(ustrltrim(`"`line'"'), 1, 1)
  3.     if inlist("`first_char'", "", ";", "[")  {
  4.         // do nothing, i.e. skip blank lines, comments (;) and section headings
. }
  5.     else {
  6.         local pos = ustrpos(`"`line'"', "=")
  7.         local name = usubstr(`"`line'"', 1, `=`pos'-1')
  8.         local content = ustrtrim(usubstr(`"`line'"', `=`pos'+1', .))
  9.         global `name' = `"`content'"'
 10.     }
 11. 
```

```
20.     file read ini line
   12. }

21.
22. file close ini

23.
24.
25.
26.
27.
28.
29.
30.
31. **#2. Compute Grades from Exam Data:
32. *===================================
33. macro list rawdata
  rawdata:        ./data/exam shakespeare-101 2021.dta

34. use "$rawdata", clear
  (made-up single-choice exam data)

35.
36.
37. do ./code/grading

38. // actual grading of fictitious single-choice exam data
39.
40.
41. **##2.1 Translate answers to points
42. **--------------------------------
43. forvalues i = 1/$question_ct {
    2.
44.         generate byte points_question_`i' =  ///
  >         (question_`i' == "${question_`i'}") * $question_pt
    3. }

45.
46.
47.
48.
49. **##2.2 Totals & percentages
50. **--------------------------
51. egen int total = rowtotal(points_question_*)

52.
53.
54. generate percent = total/($question_ct*$question_pt) * 100

55. format percent %6.2f

56.
57.
58.
59.
60. **##2.3 Convert to grades
61. **-----------------------
62.
63. quietly: generate grade = ""
```

```
64.
65.
66. if "$grading" == "points"  {
67.         local criterion = "total"
68.     local unit      = "pts."
69. }

70.
71. else {
72.         local criterion = "percent"
73.     local unit      = "%"
74. }

75.
76. local i = 1

77. foreach value of global $grading {
    2.          local grade :word `i' of $grades
    3.
78.         display "  {res}`value' {txt} `unit' -> grade: {res}`grade'"
    4.
79.         quietly: replace grade = "`grade'"  if (`criterion' >= `value') & missing(gr
  > ade)
    5.
80.     local ++i
    6. }
    90  % -> grade: A
    80  % -> grade: B
    70  % -> grade: C
    60  % -> grade: D
    00  % -> grade: F

81.
82.
83. assert !missing(grade)  // check: each participant assigned a grade

84. exit

  end of do-file

85.
86.
87.
88.
89.
90.
91.
92.
93. **#3. Export anonymous grades list:
94. *==================================
95. label var ID        "Student ID"

96. label var total     "Total points"

97. label var grade     "Overall grade"

98.
99. export excel  ID total grade  using "$gradeslist", ///
  >   firstrow(varlabels) replace
  file ./results/grades shakespeare-101 spring21.xlsx saved
```

```
100
101
102
103
104
105
106
107
108 **#4. Plot Grade Distribution
109 *============================
110 preserve

111     gen one = 1

112     collapse (count) freq=one , by(grade)

113
114     sum freq
```

Variable	Obs	Mean	Std. dev.	Min	Max
freq	**5**	**3**	**1.224745**	**2**	**5**

```
115
116     graph bar (asis) freq, over(grade, label(labcolor($text_color)))  ///
  >         title(`"Grade Distribution {it:"$title"}"', color($text_color) span)  ///
  >         ytitle("")  ///
  >         ylabel(, angle(0) labcolor($text_color))  ///
  >         bar(1, color($bar_color))  ///
  >         blabel(bar, pos(inside) color(white))  ///
  >         caption("{it:N} = `r(sum)'", color($text_color) position(5))  ///
  >         graphregion(color(white))

117
118     graph export "./results/barplot grades $shorttitle $term.svg", replace
  file ./results/barplot grades shakespeare-101 spring21.svg saved as SVG format

119 restore

120
121
122
123
124 ********************************************************************************
125 log close master
        name:  master
         log:  c:\hidrive\o7\Stata GUGM-2021-06\logs/example ini-file.smcl
    log type:  smcl
   closed on:  20 Jul 2021, 09:03:13
--------------------------------------------------------------------------------
```