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> #2020/11/20(五) 109學年第一學期 資料科學應用 R作業(3)
> #學號: A107260080 姓名: 劉得宇
> #ex.1.25(a)
> library(readxl)
> s <- read_excel("R-score.xlsx", skip = 1)
New names:
* `0.15` -> `0.15...6`
* `0.15` -> `0.15...7`
> head(s, 5)
# A tibble: 5 x 10
  No 系級 學號 姓名 `0.1` `0.15...6`
  <dbl> <chr> <dbl> <chr> <dbl>    <dbl>
1 1 統計系1~ 3.26e7 周小如~ 55 95
2 2 統計系1~ 3.26e7 周抒如~ 30 65
3 3 會計系1~ 3.26e7 林育安~ 10 5
4 4 會計系1~ 3.26e7 林育辰~ 10 20
5 5 會計系1~ 3.26e7 黃季晴~ 5 15
# ... with 4 more variables: `0.15...7` <dbl>,
# `0.2` <dbl>, `0.4` <dbl>, `10分` <dbl>
> str(s)
tibble [13 x 10] (S3: tbl_df/tbl/data.frame)
 $ No : num [1:13] 1 2 3 4 5 6 7 8 9 10 ...
 $ 系級 : chr [1:13] "統計系1" "統計系1" "會計系1" "會計系1" ...
 $ 學號 : num [1:13] 32578012 32578014 32578016 32578018 32578020 ...
 $ 姓名 : chr [1:13] "周小如" "周抒如" "林育安" "林育辰" ...
 $ 0.1 : num [1:13] 55 30 10 10 5 10 25 55 10 15 ...
 $ 0.15...6: num [1:13] 95 65 5 20 15 35 50 45 15 5 ...
 $ 0.15...7: num [1:13] 100 70 25 45 20 60 40 75 55 30 ...
 $ 0.2 : num [1:13] 100 100 10 40 25 0 60 100 55 45 ...
 $ 0.4 : num [1:13] 86 94 77 87 86 77 87 79 87 76 ...
 $ 10分 : num [1:13] 10 10 10 10 0 0 10 10 4 7 ...
> names(s) <- c("NO", "系級", "學號", "姓名", "小考1", "小考2", "小考3", "作業", "期末考", "點名")
> #ex.1.25(b)
> mean(s$"小考1")
[1] 25
> mean(s$"小考2")
[1] 36.15385
> mean(s$"小考3")
[1] 51.15385
> mean(s$"期末考")
[1] 77.23077
> sd(s$"小考1")
[1] 18.37117
> sd(s$"小考2")
[1] 33.05008
> sd(s$"小考3")
[1] 26.7047
> sd(s$"期末考")

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[1] 23.89963
> #ex.1.25(c)
> no <- (s$"學號")
> score <- s$"小考1"*0.1+s$"小考2"*0.15+s$"小考3"*0.15+s$"作業"*0.2+s$"期末考"*0.4
> z <- list(s$"學號", score)
> z
[[1]]
[1] 32578012 32578014 32578016 32578018
[5] 32578020 32578022 32578026 32578028
[9] 32578030 32474226 32475032 32578002
[13] 32578004

[[2]]
[1] 89.15 80.85 38.30 53.55 45.15 46.05 62.80
[8] 75.10 57.30 46.15 36.95 85.75 20.25

> dy <- data.frame(no , score)
> dy
      no score
1 32578012 89.15
2 32578014 80.85
3 32578016 38.30
4 32578018 53.55
5 32578020 45.15
6 32578022 46.05
7 32578026 62.80
8 32578028 75.10
9 32578030 57.30
10 32474226 46.15
11 32475032 36.95
12 32578002 85.75
13 32578004 20.25
> class(dy)
[1] "data.frame"
> #ex.1.29(a)
> a <- read_excel("R-score.xlsx", skip = 1)
New names:
* `0.15` -> `0.15...6`
* `0.15` -> `0.15...7`
> b <- read.table("20140714-weather.txt", header = T, encoding = "utf-8")
> c<- read.csv("weather_delays14.csv", header = T)
> str(c)
'data.frame':  4659 obs. of  14 variables:
 $ year      : int  2014 2014 2014 2014 2014 2014 2014 2014 2014 2014 ...
 $ month     : int  1 1 1 1 1 1 1 1 1 1 ...
 $ day       : int  1 1 1 1 1 2 2 2 2 2 ...
 $ dep_time  : int  1733 1718 624 910 1850 2049 738 5 1618 1657 ...
 $ arr_time  : int  2024 1840 946 1203 2052 45 1124 339 1958 2050 ...

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$ carrier      : chr "AA" "B6" "DL" "DL" ...
$ tailnum      : chr "N3HPAA" "N324JB" "N3751B" "N910DL" ...
$ flight       : int 199 1734 479 1174 2839 21 33 185 133 145 ...
$ origin       : chr "JFK" "JFK" "JFK" "LGA" ...
$ dest         : chr "ORD" "BTV" "ATL" "PBI" ...
$ carrier_delay : int 0 0 0 0 0 0 0 0 0 ...
$ weather_delay : int 7 18 9 52 35 87 8 53 32 6 ...
$ nas_delay    : int 51 6 45 0 12 41 26 14 5 18 ...
$ aircraft_delay : int 11 0 0 0 0 22 0 97 1 101 ...
> str(b)
'data.frame': 29 obs. of 6 variables:
 $ locationName: chr "基隆" "淡水" "板橋" "竹子湖" ...
 $ lat        : num 25.1 25.2 25 25.2 24.8 ...
 $ lon        : num 122 121 121 122 121 ...
 $ stationId  : chr "466940" "466900" "466880" "466930" ...
 $ TEMP       : num 29.1 28.5 29 25.2 29.8 29.4 29.2 27.8 22.8 14.4 ...
 $ ELEV       : int 27 19 10 607 34 84 7 11 1015 2413 ...
> head(a, 5)
# A tibble: 5 x 10
  No 系級 學號 姓名 `0.1` `0.15...6`
  <dbl> <chr> <dbl> <chr> <dbl> <dbl>
1 1 統計系1~ 3.26e7 周小如~ 55 95
2 2 統計系1~ 3.26e7 周抒如~ 30 65
3 3 會計系1~ 3.26e7 林育安~ 10 5
4 4 會計系1~ 3.26e7 林育辰~ 10 20
5 5 會計系1~ 3.26e7 黃季晴~ 5 15
# ... with 4 more variables: `0.15...7` <dbl>,
# `0.2` <dbl>, `0.4` <dbl>, `10分` <dbl>
> tail(a, 5)
# A tibble: 5 x 10
  No 系級 學號 姓名 `0.1` `0.15...6`
  <dbl> <chr> <dbl> <chr> <dbl> <dbl>
1 9 統計系1~ 3.26e7 黎奕璇~ 10 15
2 10 會計系1~ 3.25e7 蕭偲賢~ 15 5
3 11 會計系1~ 3.25e7 謝涵融~ 35 10
4 12 會計系1~ 3.26e7 羅順霓~ 50 100
5 13 統計系1~ 3.26e7 顧瀚薇~ 15 10
# ... with 4 more variables: `0.15...7` <dbl>,
# `0.2` <dbl>, `0.4` <dbl>, `10分` <dbl>
> #ex.1.29(b)
> head(a, 5)
# A tibble: 5 x 10
  No 系級 學號 姓名 `0.1` `0.15...6`
  <dbl> <chr> <dbl> <chr> <dbl> <dbl>
1 1 統計系1~ 3.26e7 周小如~ 55 95
2 2 統計系1~ 3.26e7 周抒如~ 30 65
3 3 會計系1~ 3.26e7 林育安~ 10 5
4 4 會計系1~ 3.26e7 林育辰~ 10 20

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5 5 會計系1~ 3.26e7 黃季晴~ 5 15
# ... with 4 more variables: `0.15...7` <dbl>,
# `0.2` <dbl>, `0.4` <dbl>, `10分` <dbl>
> tail(a, 5)
# A tibble: 5 x 10
  No 系級 學號 姓名 `0.1` `0.15...6`
  <dbl> <chr> <dbl> <chr> <dbl> <dbl>
1 9 統計系1~ 3.26e7 黎奕璇~ 10 15
2 10 會計系1~ 3.25e7 蕭偲賢~ 15 5
3 11 會計系1~ 3.25e7 謝涵融~ 35 10
4 12 會計系1~ 3.26e7 羅順霓~ 50 100
5 13 統計系1~ 3.26e7 顧瀚薇~ 15 10
# ... with 4 more variables: `0.15...7` <dbl>,
# `0.2` <dbl>, `0.4` <dbl>, `10分` <dbl>
> #ex.1.29(c)
> head(b, 5)
  locationName lat lon stationId TEMP
1 基隆 25.1348 121.7321 466940 29.1
2 淡水 25.1656 121.4400 466900 28.5
3 板橋 24.9993 121.4338 466880 29.0
4 竹子湖 25.1650 121.5363 466930 25.2
5 新竹 24.8300 121.0061 467571 29.8
  ELEV
1 27
2 19
3 10
4 607
5 34
> tail(b, 5)
  locationName lat lon stationId
25 臺北 25.0396 121.5067 466920
26 臺南 22.9952 120.1970 467410
27 金門 24.4074 118.2893 467110
28 馬祖 26.1694 119.9232 467990
29 新屋 25.0067 121.0475 467050
  TEMP ELEV
25 30.4 5
26 30.0 41
27 28.4 48
28 28.0 98
29 29.3 21
> #ex.2.10
> score <- sample(1:100, 50, replace = TRUE)
> s <- c(score)
> s
[1] 85 71 64 48 87 59 38 4 31 35 90 71 81 60
[15] 62 40 47 85 4 84 92 27 50 37 25 87 31 4
[29] 16 46 94 92 87 93 25 78 28 55 48 55 84 66

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[43] 84 52 24 31 14 88 31 46
> if(any(s > 95)) cat("老師請同學吃飯") else cat("老師很生氣")
老師很生氣
> #ex.2.21(a)
> s <- read.csv("score02.csv",header = T, encoding = "utf-8")
> head(s, 7)
      學號 期中考 期末考
1 410072106    80    60
2 410073023    50    73
3 410079062    45    35
4 410079090    77    54
5 410079118    62    54
6 410079120    67    45
7 410079121    72    78
> #ex.2.21(b)
> str(s)
'data.frame':  94 obs. of  3 variables:
 $ 學號 : int  410072106 410073023 410079062 410079090 410079118 410079120
410079121 410172016 410172027 410172103 ...
 $ 期中考: int  80 50 45 77 62 67 72 62 82 92 ...
 $ 期末考: int  60 73 35 54 54 45 78 75 95 66 ...
> names(s) <- c("id", "mid", "final")
> #ex.2.21(c)
> a <- s$mid
> b <- s$final
> id <- (s$id)
> for( i in 1:94){
+   if(a[i] < b[i])
+     cat(id[i], "")
+   else
+     cat("")
+ }
410073023 410079121 410172016 410172027 410173072 410173136 410174210
410273014 410273016 410273042 410273048 410273062 410273067 410273073
410273076 410273108 410273116 410275016 410275029 410275051 410279018
410279049 410279054 410279063 410279075 49981011
> #ex.2.21(d)
> count <- 0
> for( i in 1:94){
+   if(a[i] >= 60 & b[i] >= 60)
+     count <- count+1
+ }
> cat(count)
38
> count <- 0
> for( i in 1:94){
+   if(a[i] >= 60 & b[i] < 60)
+     count <- count+1

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+ }
> cat(count)
32
> count <- 0
> for( i in 1:94){
+   if(a[i] < 60 & b[i] >= 60)
+     count <- count+1
+ }
> cat(count)
9
> count <- 0
> for( i in 1:94){
+   if(a[i] < 60 & b[i] < 60)
+     count <- count+1
+ }
> cat(count)
15
> #ex.2.21(d)
> mean.score<- (s$mid + s$final)/2
> id.mean.score<- data.frame(id, mean.score)
> id.mean.score
      id mean.score
1 410072106    70.0
2 410073023    61.5
3 410079062    40.0
4 410079090    65.5
5 410079118    58.0
6 410079120    56.0
7 410079121    75.0
8 410172016    68.5
9 410172027    88.5
10 410172103    79.0
11 410173029    26.5
12 410173072    64.0
13 410173101    73.0
14 410173134    85.0
15 410173135    77.5
16 410173136    84.0
17 410174210    56.5
18 410183004    92.5
19 410183012    51.0
20 410184012    45.5
21 410184015    48.5
22 410273002    62.5
23 410273004    77.5
24 410273005    57.5
25 410273007    88.0
26 410273010    56.0

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27 410273011	50.0
28 410273014	51.0
29 410273016	81.0
30 410273018	62.5
31 410273019	68.5
32 410273020	75.0
33 410273024	65.0
34 410273031	76.5
35 410273032	69.5
36 410273034	58.5
37 410273040	61.5
38 410273041	42.5
39 410273042	77.5
40 410273048	57.0
41 410273049	56.0
42 410273050	49.5
43 410273051	26.5
44 410273057	75.0
45 410273060	45.0
46 410273062	68.0
47 410273065	77.5
48 410273067	78.0
49 410273069	73.5
50 410273070	86.0
51 410273073	81.5
52 410273075	63.5
53 410273076	61.0
54 410273081	60.5
55 410273094	54.0
56 410273095	77.0
57 410273096	78.5
58 410273102	100.0
59 410273105	68.5
60 410273106	75.5
61 410273108	92.0
62 410273109	85.0
63 410273110	87.0
64 410273116	91.0
65 410275001	35.0
66 410275005	82.5
67 410275015	47.5
68 410275016	57.5
69 410275017	52.0
70 410275020	88.0
71 410275029	86.0
72 410275032	59.0
73 410275033	44.5
74 410275034	83.0

75	410275036	49.0
76	410275040	63.5
77	410275051	62.5
78	410275055	69.0
79	410275058	100.0
80	410279001	74.0
81	410279006	23.0
82	410279018	51.0
83	410279021	37.0
84	410279039	65.5
85	410279049	53.5
86	410279054	43.0
87	410279063	77.0
88	410279075	64.0
89	410279080	63.0
90	49973086	79.0
91	49979003	55.0
92	49979046	68.5
93	49981006	68.5
94	49981011	96.5

> sort((s\$mid + s\$final)/2, decreasing = TRUE)

```
[1] 100.0 100.0 96.5 92.5 92.0 91.0 88.5
[8] 88.0 88.0 87.0 86.0 86.0 85.0 85.0
[15] 84.0 83.0 82.5 81.5 81.0 79.0 79.0
[22] 78.5 78.0 77.5 77.5 77.5 77.5 77.0
[29] 77.0 76.5 75.5 75.0 75.0 75.0 74.0
[36] 73.5 73.0 70.0 69.5 69.0 68.5 68.5
[43] 68.5 68.5 68.5 68.0 65.5 65.5 65.0
[50] 64.0 64.0 63.5 63.5 63.0 62.5 62.5
[57] 62.5 61.5 61.5 61.0 60.5 59.0 58.5
[64] 58.0 57.5 57.5 57.0 56.5 56.0 56.0
[71] 56.0 55.0 54.0 53.5 52.0 51.0 51.0
[78] 51.0 50.0 49.5 49.0 48.5 47.5 45.5
[85] 45.0 44.5 43.0 42.5 40.0 37.0 35.0
[92] 26.5 26.5 23.0
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