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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: A107260102  姓名: 熊家濬
> #ex.1.25(a)
> library(readxl)
> q <- read_excel("R-score.xlsx", skip = 1)
New names:
* `0.15` -> `0.15...6`
* `0.15` -> `0.15...7`
> head(q, 5)
# A tibble: 5 x 10
     No 系級          學號 姓名    `0.1` `0.15...6` `0.15...7` `0.2` `0.4` `10 分`
  <dbl> <chr>        <dbl> <chr>   <dbl>      <dbl>      <dbl> <dbl> <dbl>
<dbl>
1     1 統計系 1 32578012 周小如     55         95        100   100    86
10
2     2 統計系 1 32578014 周抒如     30         65         70   100    94
10
3     3 會計系 1 32578016 林育安     10          5         25    10    77
10
4     4 會計系 1 32578018 林育辰     10         20         45    40    87
10
5     5 會計系 1 32578020 黃季晴      5         15         20    25    86
 0
> #ex1.25(b)
> str(q)
tibble [13 × 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(q) <- c("NO","系級", "學號", "姓名","小考 1","小考 2","小考 3", "作業","期
末考", "點名")
```

```
> mean(q$"小考 1")
[1] 25
> mean(q$"小考 2")
[1] 36.15385
> mean(q$"小考 3")
[1] 51.15385
> mean(q$"期末考")
[1] 77.23077
> sd(q$"小考 1")
[1] 18.37117
> sd(q$"小考 2")
[1] 33.05008
> sd(q$"小考 3")
[1] 26.7047
> sd(q$"期末考")
[1] 23.89963
> #ex1.25(c)
> no <- (q$"學號")
> score <- q$"小考 1"*0.1+q$"小考 2"*0.15+q$"小考 3"*0.15+q$"作業"*0.2+q$"期末考"*0.4
> y <- list(q$"學號", score)
> y
[[1]]
 [1] 32578012 32578014 32578016 32578018 32578020 32578022 32578026 32578028
 [9] 32578030 32474226 32475032 32578002 32578004

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

> aa <- data.frame(no , score)
> aa
         no score
1  32578012 89.15
2  32578014 80.85
3  32578016 38.30
4  32578018 53.55
5  32578020 45.15
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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(aa)
[1] "data.frame"
> #ex.1.29
> r <- read_excel("R-score.xlsx", skip = 1)
New names:
* `0.15` -> `0.15...6`
* `0.15` -> `0.15...7`
> t <- read.table("20140714-weather.txt", header = T, encoding = "utf-8")
> y <- read.csv("weather_delays14.csv", header = T)
> str(y)
'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 ...
 $ 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 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(t)
'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 ...
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```
 $ 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(r, 5)
# A tibble: 5 x 10
     No 系級          學號 姓名     `0.1` `0.15...6` `0.15...7` `0.2` `0.4` `10 分`
  <dbl> <chr>        <dbl> <chr>    <dbl>      <dbl>      <dbl> <dbl> <dbl>
<dbl>
1     1 統計系 1 32578012 周小如       55         95        100   100
86     10
2     2 統計系 1 32578014 周抒如       30         65         70   100
94     10
3     3 會計系 1 32578016 林育安       10          5         25    10
77     10
4     4 會計系 1 32578018 林育辰       10         20         45    40
87     10
5     5 會計系 1 32578020 黃季晴        5         15         20    25
86      0
> tail(r, 5)
# A tibble: 5 x 10
     No 系級          學號 姓名     `0.1` `0.15...6` `0.15...7` `0.2` `0.4` `10 分`
  <dbl> <chr>        <dbl> <chr>    <dbl>      <dbl>      <dbl> <dbl> <dbl>
<dbl>
1     9 統計系 1 32578030 黎奕璇       10         15         55    55
87      4
2    10 會計系 1 32474226 蕭偲賢       15          5         30    45
76      7
3    11 會計系 1 32475032 謝涵融       35         10          5     0
78     10
4    12 會計系 1 32578002 羅順霓       50        100         65   100
90     10
5    13 統計系 1 32578004 顧瀚薇       15         10         75    30
0     10
> head(t, 5)
  locationName      lat      lon stationId TEMP ELEV
1         基隆 25.1348 121.7321    466940 29.1   27
2         淡水 25.1656 121.4400    466900 28.5   19
3         板橋 24.9993 121.4338    466880 29.0   10
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4          竹子湖 25.1650 121.5363       466930 25.2    607
5            新竹 24.8300 121.0061       467571 29.8     34
> tail(t, 5)
    locationName        lat          lon stationId TEMP ELEV
25           臺北 25.0396 121.5067       466920 30.4       5
26           臺南 22.9952 120.1970       467410 30.0      41
27           金門 24.4074 118.2893       467110 28.4      48
28           馬祖 26.1694 119.9232       467990 28.0      98
29           新屋 25.0067 121.0475       467050 29.3      21
> head(y, 5)
  year month day dep_time arr_time carrier tailnum flight origin dest
1 2014     1   1     1733     2024      AA  N3HPAA    199    JFK
ORD
2 2014     1   1     1718     1840      B6  N324JB   1734    JFK  BTV
3 2014     1   1      624      946      DL  N3751B    479    JFK  ATL
4 2014     1   1      910     1203      DL  N910DL   1174    LGA  PBI
5 2014     1   1     1850     2052      MQ  N1EAMQ   2839    LGA
STL
  carrier_delay weather_delay nas_delay aircraft_delay
1             0             7        51              11
2             0            18         6               0
3             0             9        45               0
4             0            52         0               0
5             0            35        12               0
> tail(y ,5)
      year month day dep_time arr_time carrier tailnum flight origin dest
4655 2014    10  26     1135     1451      VX  N836VA    409    JFK
LAX
4656 2014    10  27     1042     1416      VX  N642VA    187    EWR
SFO
4657 2014    10  29     1507     1808      DL  N321NB   1923    LGA
MIA
4658 2014    10  31     1500     1751      DL  N338NB   1685    LGA
MCO
4659 2014    10  31     1323     1502      AA  N3KNAA    329    LGA
ORD
      carrier_delay weather_delay nas_delay aircraft_delay
4655             5            11         0              0
```

```
4656                12                 9            0                 0
4657                 0                81            0                 0
4658                 0                28            0                 0
4659                 0               113            4                 0
> #ex.2.10
> score <- sample(1:100, 50, replace = TRUE)
> j <- c(score)
> j
 [1] 37 99 36 28 61 69 58 32 61 37  3 78  5 90 39 73 25 44 93 90 55 47 24 43 50 29
[27] 71  9 48 90 72 82 86  4 76 93 72 50 36 37 70 52 83 29 38 44 67 32 71 74
> if(any(j > 95)) cat("老師請同學吃飯") else cat("老師很生氣")
老師請同學吃飯
> #ex.2.21(a)
> u <- read.csv("score02.csv",header = T, encoding = "utf-8")
> head(u, 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
> str(u)
'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(u) <- c("id", "mid", "final")
> a <- u$mid
> b <- u$final
> id <- (u$id)
> for( i in 1:94){
+     if(a[i] < b[i])
+         cat(id[i], "")
+ }
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
> 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
+ }
> 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
> mean.score<- (u$mid + u$final)/2
> sort(mean.score, decreasing = TRUE)
  [1] 100.0 100.0  96.5  92.5  92.0  91.0  88.5  88.0  88.0  87.0  86.0  86.0
85.0
[14]  85.0  84.0  83.0  82.5  81.5  81.0  79.0  79.0  78.5  78.0  77.5
77.5  77.5
[27]  77.5  77.0  77.0  76.5  75.5  75.0  75.0  75.0  74.0  73.5  73.0
```

70.0 69.5
[40] 69.0 68.5 68.5 68.5 68.5 68.5 68.0 65.5 65.5 65.0 64.0
64.0 63.5
[53] 63.5 63.0 62.5 62.5 62.5 61.5 61.5 61.0 60.5 59.0 58.5
58.0 57.5
[66] 57.5 57.0 56.5 56.0 56.0 56.0 55.0 54.0 53.5 52.0 51.0
51.0 51.0
[79] 50.0 49.5 49.0 48.5 47.5 45.5 45.0 44.5 43.0 42.5 40.0
37.0 35.0
[92] 26.5 26.5 23.0
>
>
>