2020/11/13(五), 109 學年第一學期 資料科學應用 R 作業(3)

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```
> #ex1.25
> library(readxl)
> Rscore <- read_excel("data/R-score.xlsx", skip=1)
New names:
* `0.15` -> `0.15...6`
* `0.15` -> `0.15...7`
> names(Rscore) <- c("No", "系級", "學號", "姓名", "小考(1)", "小考(2)", "小考(3)", "
作業", "期末考", "點名")
> head(Rscore)
# A tibble: 6 x 10
     No 系級      學號 姓名   `小考(1)` `小考(2)`
  <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
6     6 統計系 1~ 3.26e7 詹宜瑄~         10         35
# ... with 4 more variables: `小考(3)` <dbl>,
#   作業 <dbl>, 期末考 <dbl>, 點名 <dbl>
>
> #ex1.25(b)
> mean(Rscore$"小考(1)")
[1] 25
> mean(Rscore$"小考(2)")
[1] 36.15385
> mean(Rscore$"小考(3)")
[1] 51.15385
> mean(Rscore$"期末考")
[1] 77.23077
> sd(Rscore$"小考(1)")
[1] 18.37117
> sd(Rscore$"小考(2)")
[1] 33.05008
> sd(Rscore$"小考(3)")
```

```
[1] 26.7047
>
> #ex1.25(c)
> Rscore$"學期成績" <- (0.1*Rscore$"小考(1)" + 0.15*Rscore$"小考(2)" +
0.15*Rscore$"小考(3)" + 0.15*Rscore$"小考(3)"+ 0.2*Rscore$"作業" +0.4*Rscore$"
期末考")
> Grade <- data.frame(c(as.matrix(Rscore[, 5:9])%*% as.vector(c(0.1, 0.15, 0.15, 0.2,
0.4))))
> Grade
    c.as.matrix.Rscore...5.9.......as.vector.c.0.1..0.15..0.15..0.2..
1                                                                89.15
2                                                                80.85
3                                                                38.30
4                                                                53.55
5                                                                45.15
6                                                                46.05
7                                                                62.80
8                                                                75.10
9                                                                57.30
10                                                               46.15
11                                                               36.95
12                                                               85.75
13                                                               20.25
>
> #ex1.29(a)
> library(readxl)
> Rscore <- read_excel("data/R-score.xlsx", skip=1)
New names:
* `0.15` -> `0.15...6`
* `0.15` -> `0.15...7`
> head(Rscore, 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(Rscore, 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>
> str(Rscore)
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 ...
>
> #ex1.29(b)
> weather <- read.table("data/20140714-weather.txt", header=T, sep="\t")
> head(weather, 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(weather, 5)
    locationName        lat         lon stationId TEMP
25          臺北 25.0396 121.5067       466920 30.4
26          臺南 22.9952 120.1970       467410 30.0
27          金門 24.4074 118.2893       467110 28.4
28          馬祖 26.1694 119.9232       467990 28.0
29          新屋 25.0067 121.0475       467050 29.3
    ELEV
25       5
26      41
27      48
28      98
29      21
> str(weather)
'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 ...
>
> #ex1.29(c)
> delays14 <- read.csv("data/weather_delays14.csv")
> head(delays14, 5)
   year month day dep_time arr_time carrier
1 2014     1     1     1733     2024      AA
2 2014     1     1     1718     1840      B6
3 2014     1     1      624      946      DL
4 2014     1     1      910     1203      DL
5 2014     1     1     1850     2052      MQ
   tailnum flight origin dest carrier_delay
1   N3HPAA    199    JFK    ORD             0
2   N324JB   1734    JFK    BTV             0
```

```
3    N3751B       479       JFK    ATL                    0
4    N910DL      1174       LGA    PBI                    0
5    N1EAMQ      2839       LGA    STL                    0
   weather_delay nas_delay aircraft_delay
1                  7            51                   11
2                 18             6                    0
3                  9            45                    0
4                 52             0                    0
5                 35            12                    0
> tail(delays14, 5)
        year month day dep_time arr_time carrier
4655 2014       10    26        1135        1451         VX
4656 2014       10    27        1042        1416         VX
4657 2014       10    29        1507        1808         DL
4658 2014       10    31        1500        1751         DL
4659 2014       10    31        1323        1502         AA
        tailnum flight origin dest carrier_delay
4655    N836VA       409       JFK    LAX                  5
4656    N642VA       187       EWR    SFO                 12
4657    N321NB      1923       LGA    MIA                  0
4658    N338NB      1685       LGA    MCO                  0
4659    N3KNAA       329       LGA    ORD                  0
        weather_delay nas_delay aircraft_delay
4655                  11             0                    0
4656                   9             0                    0
4657                  81             0                    0
4658                  28             0                    0
4659                 113             4                    0
> str(delays14)
'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 ...
>
> #ex2.10
> score <- sample(1:100, 50, replace = TRUE)
> if (any(score > 95)) {
+     print("老師請同學吃飯")
+ }else{
+     print("老師很生氣")
+ }
[1] "老師請同學吃飯"
>
```