```
> #2020/11/20(五) 109學年第一學期 資料科學應用 R作業(3)
> #學號: A107260024 姓名: 游閔超
> #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")
```

```
[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 ...
```

```
 $ 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(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
```

```
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
```

```
[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
```

```
+ }
> 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
```

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
```