Lab Assignment 3

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Import library and set working directory

```
library(data.table)
getwd() # find address of  directory
```

```
[1] "C:/Users/mboat/OneDrive/Desktop/PUBH 6851 Lab assignments"
```

```
setwd(getwd()) # set working directory to current directory
```

Read in the data

```
data <-fread("heart_failure.csv")
```

Section 1

Determine the unique elements for the `smoking` variable.

```
unique(data$smoking)
```

```
[1] "No"  "Yes"
```

Section 2

Select all the observations for the `smoking` variable only.

```
data[, .(smoking)] # select smoking variable only
```

```
     smoking
      <char>
  1:      No
  2:      No
  3:     Yes
  4:      No
  5:      No
 ---
295:     Yes
296:      No
297:      No
298:     Yes
299:     Yes
```

Section 3

Select all the observations only for those who do not smoke

```
data[smoking == "No"] # select observations for non-smokers only
```

```
       age anaemia creatinine_phosphokinase diabetes ejection_fraction
     <num>  <char>                    <int>   <char>              <int>
  1:    75      No                      582       No                 20
  2:    55      No                     7861       No                 38
  3:    50     Yes                      111       No                 20
  4:    65     Yes                      160      Yes                 20
  5:    75     Yes                      246       No                 15
 ---
199:    90     Yes                      337       No                 38
200:    45      No                      615      Yes                 55
201:    60      No                      320       No                 35
202:    55      No                     1820       No                 38
203:    45      No                     2060      Yes                 60
     hypertension platelets serum_creatinine serum_sodium    sex smoking  time
           <char>     <num>            <num>        <int> <char>  <char> <int>
  1:          Yes    265000              1.9          130   Male      No     4
  2:           No    263358              1.1          136   Male      No     6
  3:           No    210000              1.9          137   Male      No     7
  4:           No    327000              2.7          116 Female      No     8
  5:           No    127000              1.2          137   Male      No    10
 ---
199:           No    390000              0.9          144 Female      No   256
200:           No    222000              0.8          141 Female      No   257
201:           No    133000              1.4          139   Male      No   258
202:           No    270000              1.2          139 Female      No   271
203:           No    742000              0.8          138 Female      No   278
      death
     <char>
  1:    Yes
  2:    Yes
  3:    Yes
  4:    Yes
  5:    Yes
 ---
199:     No
200:     No
201:     No
202:     No
203:     No
```

Section 4

Select the observations in rows 100 through 110 and show only the `diabetes` and `smoking` variables.

```
data[100:110, .(diabetes, smoking)] # select rows 100 to 110 for diabetes and smoking variables o
```

```
   diabetes smoking
     <char>  <char>
 1:      Yes      No
 2:       No      No
 3:       No      No
 4:       No     Yes
 5:       No     Yes
 6:       No      No
 7:       No     Yes
 8:       No      No
 9:      Yes      No
10:       No     Yes
11:      Yes     Yes
```

Section 5

Select all the observations for those who smoked and died.

```
data[smoking == "Yes" & death == "Yes"] # select observations for smokers who died
```

```
     age anaemia creatinine_phosphokinase diabetes ejection_fraction
   <num>  <char>                    <int>   <char>              <int>
 1:    65      No                      146       No                 20
 2:    90     Yes                       47       No                 40
 3:    60     Yes                      315      Yes                 60
 4:    80     Yes                      123       No                 35
 5:    75     Yes                       81       No                 38
 6:    62      No                      231       No                 25
 7:    68     Yes                      220       No                 35
 8:    80      No                      148      Yes                 38
 9:    70      No                      122      Yes                 45
10:    82      No                       70      Yes                 30
11:    70      No                      582       No                 20
12:    50      No                      124      Yes                 30
13:    70      No                      571      Yes                 45
14:    50      No                      582      Yes                 38
15:    60      No                      582      Yes                 38
16:    60     Yes                      260      Yes                 38
17:    49      No                      789       No                 20
18:    72      No                      364      Yes                 20
19:    60      No                       68       No                 20
20:    72     Yes                      110       No                 25
21:    85      No                     5882       No                 35
```

```
22:    69      No                     582       No                20
23:    60     Yes                      47       No                20
24:    72     Yes                     328       No                30
25:    85      No                     129       No                60
26:    72     Yes                     943       No                25
27:    59     Yes                     176      Yes                25
28:    65      No                     395      Yes                25
29:    58     Yes                     145       No                25
30:    55      No                    1199       No                20
      age anaemia creatinine_phosphokinase diabetes ejection_fraction
    hypertension platelets serum_creatinine serum_sodium    sex smoking  time
           <char>     <num>            <num>        <int> <char>  <char> <int>
 1:           No    162000             1.30          129   Male     Yes      7
 2:          Yes    204000             2.10          132   Male     Yes      8
 3:           No    454000             1.10          131   Male     Yes     10
 4:          Yes    388000             9.40          133   Male     Yes     10
 5:          Yes    368000             4.00          131   Male     Yes     10
 6:          Yes    253000             0.90          140   Male     Yes     10
 7:          Yes    289000             0.90          140   Male     Yes     20
 8:           No    149000             1.90          144   Male     Yes     23
 9:          Yes    284000             1.30          136   Male     Yes     26
10:           No    200000             1.20          132   Male     Yes     26
11:          Yes    263358             1.83          134   Male     Yes     31
12:          Yes    153000             1.20          136 Female     Yes     32
13:          Yes    185000             1.20          139   Male     Yes     33
14:           No    310000             1.90          135   Male     Yes     35
15:          Yes    451000             0.60          138   Male     Yes     40
16:           No    255000             2.20          132 Female     Yes     45
17:          Yes    319000             1.10          136   Male     Yes     55
18:          Yes    254000             1.30          136   Male     Yes     59
19:           No    119000             2.90          127   Male     Yes     64
20:           No    274000             1.00          140   Male     Yes     65
21:           No    243000             1.00          132   Male     Yes     72
22:           No    266000             1.20          134   Male     Yes     73
23:           No    204000             0.70          139   Male     Yes     73
24:          Yes    621000             1.70          138 Female     Yes     88
25:           No    306000             1.20          132   Male     Yes     90
26:          Yes    338000             1.70          139   Male     Yes    111
27:           No    221000             1.00          136   Male     Yes    150
28:           No    265000             1.20          136   Male     Yes    154
29:           No    219000             1.20          137   Male     Yes    170
30:           No    263358             1.83          134   Male     Yes    241
    hypertension platelets serum_creatinine serum_sodium    sex smoking  time
     death
    <char>
 1:    Yes
 2:    Yes
 3:    Yes
 4:    Yes
 5:    Yes
 6:    Yes
```

```
 7:    Yes
 8:    Yes
 9:    Yes
10:    Yes
11:    Yes
12:    Yes
13:    Yes
14:    Yes
15:    Yes
16:    Yes
17:    Yes
18:    Yes
19:    Yes
20:    Yes
21:    Yes
22:    Yes
23:    Yes
24:    Yes
25:    Yes
26:    Yes
27:    Yes
28:    Yes
29:    Yes
30:    Yes
     death
```

Section 6

Select all the observations for those who were either female or who did not smoke or who has diabetes.

```
data[sex == "female"|smoking =="No" | diabetes == "Yes"]
```

```
      age anaemia creatinine_phosphokinase diabetes ejection_fraction
    <num>  <char>                    <int>   <char>              <int>
  1:    75      No                      582       No                 20
  2:    55      No                     7861       No                 38
  3:    50     Yes                      111       No                 20
  4:    65     Yes                      160      Yes                 20
  5:    75     Yes                      246       No                 15
 ---
229:    52      No                      190      Yes                 38
230:    63     Yes                      103      Yes                 35
231:    62      No                       61      Yes                 38
232:    55      No                     1820       No                 38
233:    45      No                     2060      Yes                 60
     hypertension platelets serum_creatinine serum_sodium    sex smoking  time
           <char>     <num>            <num>        <int> <char>  <char> <int>
  1:          Yes    265000              1.9          130   Male      No     4
  2:           No    263358              1.1          136   Male      No     6
```

```
  3:          No    210000             1.9          137   Male      No     7
  4:          No    327000             2.7          116 Female      No     8
  5:          No    127000             1.2          137   Male      No    10
 ---
229:          No    382000             1.0          140   Male     Yes   258
230:          No    179000             0.9          136   Male     Yes   270
231:         Yes    155000             1.1          143   Male     Yes   270
232:          No    270000             1.2          139 Female      No   271
233:          No    742000             0.8          138 Female      No   278
      death
     <char>
  1:    Yes
  2:    Yes
  3:    Yes
  4:    Yes
  5:    Yes
 ---
229:     No
230:     No
231:     No
232:     No
233:     No
```