데이터마이닝 6주차 과제

M83330 신지유

```
htest <- read.csv("hmeqN_test_map.csv",header = TRUE,fileEncoding = "euc-kr")
str(htest)
```

```
'data.frame':	378 obs. of  7 variables:
 $ ID      : int  5632 675 3234 3537 3804 926 462 2229 4770 184 ...
 $ BAD     : int  1 1 1 1 1 1 1 1 1 1 ...
 $ LOAN    : num  0.7563 -0.0527 0.1924 0.2266 0.2635 ...
 $ MORTDUE: num  0.2667 -0.1457 0.031 -0.013 -0.0327 ...
 $ VALUE   : num  0.19292 0.01992 0.03216 0.00278 0.12148 ...
 $ REASON : int  0 0 -1 -1 -1 -1 0 -1 -1 -1 ...
 $ JOB     : num  -1 -1 0.67 -0.33 0.67 0.67 0 -1 0 0.67 ...
```

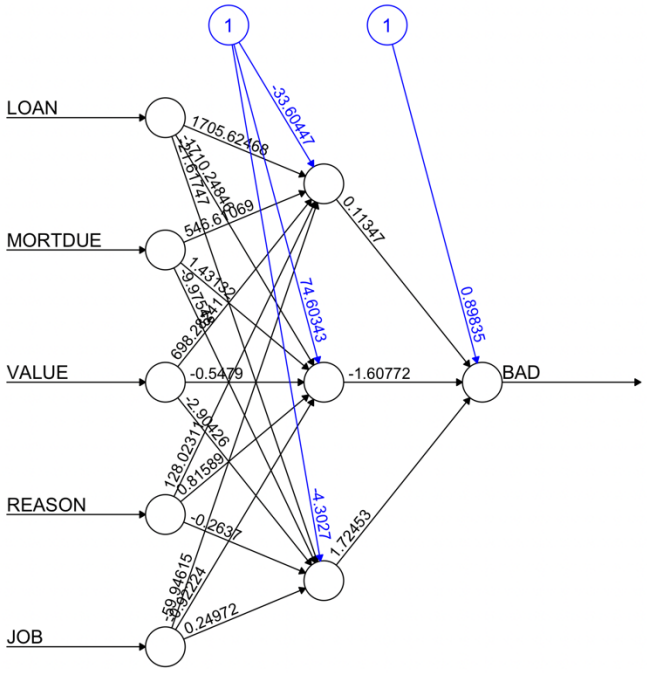
```
htrain <- read.csv("hmeqN_train_map.csv",header = TRUE,fileEncoding = "euc-kr")
str(htrain)
```

```
'data.frame':	2000 obs. of  7 variables:
 $ ID      : int  4952 5546 938 277 5204 5762 2354 2896 76 4700 ...
 $ BAD     : int  1 1 1 1 1 1 1 1 1 1 ...
 $ LOAN    : num  0.4231 0.657 -0.0237 -0.113 0.4757 ...
 $ MORTDUE: num  0.0488 1.6498 -0.2351 -0.0274 -0.0143 ...
 $ VALUE   : num  0.02527 1.00538 -0.10021 -0.00984 0.04683 ...
 $ REASON : int  -1 -1 -1 0 -1 -1 -1 -1 0 -1 ...
 $ JOB     : num  -0.67 -1 0.67 -1 -0.33 0.67 -1 0.67 0.67 -0.33 ...
```

```
install.packages("neuralnet")
library(neuralnet)
```

```
nn1 <- neuralnet(BAD~.-ID,data = htrain,algorithm = "rprop+",act.fct = 'logistic',linear.output = TRUE, hidden=3)
```

```
plot(nn1)
```




```
pred <- compute(nn1,htest[3:7])
print(pred)
```

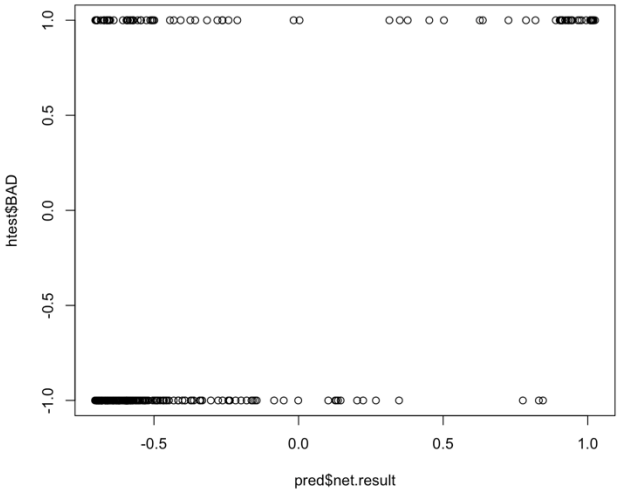
```
$neurons[[1]]
                      LOAN         MORTDUE           VALUE REASON     JOB
  [1,] 1    0.756258235    0.266743315    0.192916768         0 -1.00
  [2,] 1 -0.052700922 -0.145728036    0.019916668         0 -1.00
  [3,] 1    0.192358366    0.031027430    0.032158761        -1    0.67
----------------------------------- 생략 -----------------------------------
[164,] 1 -0.071146245 -0.192879264 -0.094199682         0    0.67
[165,] 1    1.054018445    0.683129260    0.492728722        -1 -1.00
[166,] 1    0.000000000 -0.233132153 -0.064250703         0    0.33
 [ getOption("max.print") 에 도달했습니다 -- 212 행들을 생략합니다 ]

$neurons[[2]]
          [,1]             [,2]             [,3]             [,4]
  [1,]       1    1.000000e+00    0.000000e+00 3.341599e-11
  [2,]       1    7.042702e-57    1.000000e+00 1.173987e-01
  [3,]       1    1.000000e+00 8.210074e-112 2.175420e-04
----------------------------------- 생략 -----------------------------------
[248,]       1 1.665845e-161    1.000000e+00 1.452372e-01
[249,]       1 7.845734e-106    1.000000e+00 6.436352e-02
```

```
[250,]       1    9.999975e-01    1.000000e+00 1.582494e-03
 [ getOption("max.print") 에 도달했습니다 -- 128 행들을 생략합니다 ]


$net.result
                      [,1]
   [1,]    1.011821463
   [2,] -0.506913219
   [3,]    1.012196620
---------------------------------- 생략 ----------------------------------
[376,] -0.671520047
[377,] -0.613013291
[378,] -0.574052957
```

```
plot(htest$BAD~pred$net.result)
```




```
pred1 <- as.data.frame(pred)

install.packages("writexl")
library(writexl)

writexl::write_xlsx(pred1,path="pred1.xlsx")
```

	A	B	C	D	E	F	G	H	I	J	K
1	leurons.V	urons.LO	ons.MOR	urons.VAL	rons.REA	eurons.JO	neurons.1	neurons.2	neurons.3	neurons.4	net.result
2	1	0.756258	0.266743	0.192917	0	-1	1	1	8.6E-236	1.2E-13	1.000788
3	1	-0.0527	-0.14573	0.019917	0	-1	1	1.28E-32	1	0.082072	-0.53118
4	1	0.192358	0.031027	0.032159	-1	0.67	1	1	6.27E-50	3.36E-05	1.000841
5	1	0.226614	-0.01301	0.002783	-1	-0.33	1	1	4.4E-61	1.88E-05	1.000818
6	1	0.263505	-0.03269	0.121481	-1	0.67	1	1	1.08E-73	7.65E-06	1.0008
7	1	-0.02635	-0.11549	-0.06091	-1	0.67	1	1.02E-23	1	0.091794	-0.516
8	1	-0.08169	-0.14983	0.003522	0	0	1	5.1E-42	1	0.232144	-0.29679
9	1	0.097497	-0.10483	-0.00125	-1	-1	1	1	2.03E-18	0.001478	1.003096
10	1	0.395257	-0.03942	-0.11341	-1	0	1	1	8.7E-117	5.23E-07	1.000789
11	1	-0.13175	-0.1954	-0.1067	-1	0.67	1	1.64E-58	1	0.843777	0.658517
12	1	0.289855	0.237092	0.130594	-1	-0.67	1	1	1.2E-81	8.53E-08	1.000788
13	1	0.105402	0.363114	0.184887	-1	-0.33	1	1	1.38E-20	2.21E-06	1.000792
14	1	-0.13966	-0.20093	-0.08716	0	-1	1	1.93E-61	1	0.735092	0.488762
15	1	-0.03689	-0.15045	-0.09363	-1	-0.33	1	2.15E-27	1	0.144901	-0.43305
16	1	0.83531	0.000838	1.843683	0	0.67	1	1	4.3E-265	7.57E-16	1.000788
17	1	-0.01845	0.090904	0.057927	-1	-1	1	1.18E-21	1	0.002292	-0.65579

nn2 <- neuralnet(BAD~.-ID,data = htrain,algorithm = "rprop+",act.fct = 'logistic',linear.output = FALSE, hidden=c(4,3))

plot(nn2)