

R Programming Activities

12215949 SUDHARSAN B K22GM25

Activity 1

Q 1a)

```
d <- read.csv("D:/College/Semester 4/R/diabetes.csv")  
  
d  
head(d,n=10)  
tail(d,n=10)
```

Output

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI
1	6	148	72	35	0	33.6
2	1	85	66	29	0	26.6
3	8	183	64	0	0	23.3
4	1	89	66	23	94	28.1
5	0	137	40	35	168	43.1
6	5	116	74	0	0	25.6
7	3	78	50	32	88	31.0
8	10	115	0	0	0	35.3
9	2	197	70	45	543	30.5
10	8	125	96	0	0	0.0

	DiabetesPedigreeFunction	Age	Outcome
1	0.627	50	1
2	0.351	31	0
3	0.672	32	1
4	0.167	21	0
5	2.288	33	1
6	0.201	30	0
7	0.248	26	1
8	0.134	29	0
9	0.158	53	1
10	0.232	54	1

R Programming Activities

Q1 b) Finding the Mean

```
0
1 i=1
2
3 count <- nrow(d)
4
5 while(i<=ncol(d)){
6   c <- d[i]
7   sum_ <- sum(c)
8   mean_ <- sum_ /count
9
10  print(paste("Mean of ",colnames(c)," : ",mean_))
11
12  i=i+1
13 }
14
15
16
17
18 (Top Level) ▾
```

sole Terminal × Background Jobs ×

R 4.3.2 . ~/ ↗

```
mean_ <- sum_ /count

print(paste("Mean of ",colnames(c)," : ",mean_))

i=i+1

"Mean of Pregnancies : 3.84505208333333"
"Mean of Glucose : 120.89453125"
"Mean of BloodPressure : 69.10546875"
"Mean of skinThickness : 20.5364583333333"
"Mean of Insulin : 79.7994791666667"
"Mean of BMI : 31.992578125"
"Mean of DiabetesPedigreeFunction : 0.471876302083333"
"Mean of Age : 33.2408854166667"
"Mean of Outcome : 0.348958333333333"
```

R Programming Activities

Q1c) Finding the Maximum value

```
i=1

count <- nrow(d)

while(i<=ncol(d)){
  c <- d[i]
  max_ <- max(c)
  max_

  print(paste("Max of ",colnames(c)," : ",max_))

  i=i+1
}
```

```
[1] "Max of Pregnancies : 17"
[1] "Max of Glucose : 199"
[1] "Max of BloodPressure : 122"
[1] "Max of SkinThickness : 99"
[1] "Max of Insulin : 846"
[1] "Max of BMI : 67.1"
[1] "Max of DiabetesPedigreeFunction : 2.42"
[1] "Max of Age : 81"
[1] "Max of Outcome : 1"
```

R Programming Activities

Q1d) Finding the minimum value

```
115
116 count <- nrow(d)
117
118 while(i<=ncol(d)){
119   c <- d[i]
120   min_ <- min(c)
121   min_
122
123   print(paste("Min of ",colnames(c)," : ",min_))
124
125   i=i+1
126 }
127
```

125:8 (Top Level) R Sc

Console Terminal x Background Jobs x

R 4.3.2 ~/
min_ <- min(c)
min_
print(paste("Min of ",colnames(c)," : ",min_))
i=i+1
}

[1] "Min of Pregnancies : 0"
[1] "Min of Glucose : 0"
[1] "Min of BloodPressure : 0"
[1] "Min of SkinThickness : 0"
[1] "Min of Insulin : 0"
[1] "Min of BMI : 0"
[1] "Min of DiabetesPedigreeFunction : 0.078"
[1] "Min of Age : 21"
[1] "Min of outcome : 0"

R Programming Activities

Q1e) Finding the number of columns and rows present in the data frame

```
nrow(d)  
ncol(d)
```

```
> nrow(d)  
[1] 768  
> ncol(d)  
[1] 9
```

R Programming Activities

Activity 2

Q2 a)

```
> head(d,n=10)
  id diagnosis_result radius texture perimeter area smoothness compactness
1  1                M    23     12        151  954      0.143      0.278
2  2                B     9     13        133 1326      0.143      0.079
3  3                M    21     27        130 1203      0.125      0.160
4  4                M    14     16         78  386      0.070      0.284
5  5                M     9     19        135 1297      0.141      0.133
6  6                B    25     25         83  477      0.128      0.170
7  7                M    16     26        120 1040      0.095      0.109
8  8                M    15     18         90  578      0.119      0.165
9  9                M    19     24         88  520      0.127      0.193
10 10               M    25     11         84  476      0.119      0.240
    symmetry fractal_dimension x
1      0.242                0.079 NA
2      0.181                0.057 NA
3      0.207                0.060 NA
4      0.260                0.097 NA
5      0.181                0.059 NA
6      0.209                0.076 NA
7      0.179                0.057 NA
8      0.220                0.075 NA
9      0.235                0.074 NA
10     0.203                0.082 NA
> tail(d,n=10)
  id diagnosis_result radius texture perimeter area smoothness compactness
91 91                B    23     27         95  663      0.090      0.086
92 92                M    10     12        100  728      0.092      0.104
93 93                B    14     14         85  552      0.074      0.051
94 94                B    10     17         87  555      0.102      0.082
95 95                M    22     26        100  706      0.104      0.155
96 96                M    23     16        132 1264      0.091      0.131
97 97                B    22     14         78  451      0.105      0.071
98 98                B    19     27         62  295      0.102      0.053
99 99                B    21     24         74  413      0.090      0.075
100 100               M    16     27         94  643      0.098      0.114
    symmetry fractal_dimension x
91      0.169                0.059 NA
92      0.172                0.061 NA
93      0.139                0.053 NA
94      0.164                0.057 NA
95      0.186                0.063 NA
96      0.210                0.056 NA
97      0.190                0.066 NA
98      0.135                0.069 NA
99      0.162                0.066 NA
100     0.188                0.064 NA
> |
```

R Programming Activities

Question 2 b)

R Programming Activities

```
d
i=1

count <- nrow(d)

while(i<=ncol(d)){
  if(i!=2){
    c <- d[i]
    sum_ <- sum(c)
    mean_ <- sum_ /count

    print(paste("Mean of ",colnames(c)," : ",mean_))
    pregnancies=d1[1]
    print(paste("Min of ",colnames(c),min(c)))
    print(paste("Max of ",colnames(c),max(c)))
    print(paste("Median of",colnames(c), median(as.numeric(unlist(c)))))

    print("-----")
    i=i+1
  }
  i=i+1
}
```

```
[1] "Mean of id : 50.5"
[1] "Min of id 1"
[1] "Max of id 100"
[1] "Median of id 50.5"
[1] "-----"
[1] "Mean of radius : 16.85"
[1] "Min of radius 9"
[1] "Max of radius 25"
[1] "Median of radius 17"
[1] "-----"
[1] "Mean of perimeter : 96.78"
[1] "Min of perimeter 52"
[1] "Max of perimeter 172"
[1] "Median of perimeter 94"
[1] "-----"
[1] "Mean of smoothness : 0.10273"
[1] "Min of smoothness 0.07"
[1] "Max of smoothness 0.143"
[1] "Median of smoothness 0.102"
[1] "-----"
[1] "Mean of symmetry : 0.19317"
[1] "Min of symmetry 0.135"
[1] "Max of symmetry 0.304"
[1] "Median of symmetry 0.19"
[1] "-----"
[1] "Mean of X : NA"
[1] "Min of X NA"
[1] "Max of X NA"
[1] "Median of X NA"
[1] "-----"
```


R Programming Activities

Question 2c)

```
175  
176 d <- read.csv("D:/College/Semester 4/R/Prostate_cancer.csv")  
177  
178 age<- c(5,2,55,2,73,4,7,43,2,9)  
179  
180 d<-cbind(d,age)  
181 d|  
182
```

71	71	M	21	18	124	1130	0.090	0.103
72	72	B	9	26	59	244	0.098	0.153
73	73	M	21	12	114	929	0.107	0.183
74	74	M	22	25	90	584	0.101	0.128
75	75	B	18	13	79	471	0.092	0.068
76	76	M	21	18	104	818	0.092	0.084
77	77	B	10	17	88	559	0.129	0.105
78	78	M	11	21	120	1006	0.107	0.215
79	79	M	16	18	144	1245	0.129	0.345
80	80	B	22	16	83	506	0.099	0.095
81	81	B	10	18	74	402	0.110	0.094
82	82	B	17	21	86	520	0.108	0.154
83	83	M	10	15	172	1878	0.106	0.267

	symmetry	fractal_dimension	x	age
1	0.242	0.079	NA	5
2	0.181	0.057	NA	2
3	0.207	0.060	NA	55
4	0.260	0.097	NA	2
5	0.181	0.059	NA	73
6	0.209	0.076	NA	4
7	0.179	0.057	NA	7
8	0.220	0.075	NA	43
9	0.235	0.074	NA	2
10	0.203	0.082	NA	9
11	0.153	0.057	NA	5
12	0.184	0.061	NA	2
13	0.240	0.078	NA	55
14	0.185	0.053	NA	2
15	0.207	0.077	NA	73
16	0.230	0.071	NA	4
17	0.159	0.059	NA	7
18	0.216	0.074	NA	43
19	0.158	0.054	NA	2
20	0.189	0.058	NA	9

R Programming Activities

Question 2d)

```
d <- subset(d, select = -texture )  
d
```

```
> d  
  id diagnosis_result radius perimeter area smoothness compactness symmetry  
1  1                M    23      151   954    0.143      0.278    0.242  
2  2                B     9      133  1326    0.143      0.079    0.181  
3  3                M    21      130  1203    0.125      0.160    0.207  
4  4                M    14       78   386    0.070      0.284    0.260  
5  5                M     9      135  1297    0.141      0.133    0.181  
6  6                B    25       83   477    0.128      0.170    0.209  
7  7                M    16      120  1040    0.095      0.109    0.179  
8  8                M    15       90   578    0.119      0.165    0.220  
9  9                M    19       88   520    0.127      0.193    0.235  
10 10               M    25       84   476    0.119      0.240    0.203  
11 11               M    24      103   798    0.082      0.067    0.153  
12 12               M    17      104   781    0.097      0.129    0.184  
13 13               B    14      132  1123    0.097      0.246    0.240  
14 14               M    12      104   783    0.084      0.100    0.185  
15 15               M    12       94   578    0.113      0.229    0.207  
16 16               M    22       97   659    0.114      0.160    0.230
```