

EXPEREIMENT-4: MIN-MAX NORMALIZATION

CODE:

```
data=read.csv("diabetes.csv")
```

```
View(data)
```

```
A=c(data$Age)
```

```
Mean=mean(A)
```

```
print(Mean)
```

```
Min=min(data$Age)
```

```
print(Min)
```

```
Maximum=max(data$Age)
```

```
print(Maximum)
```

```
MinMax=(A-Min)/(Maximum-Min)
```

```
print(MinMax)
```

```
decimalscaling=(A/100)
```

```
print(decimalscaling)
```

```
std=sd(A)
```

```
print(std)
```

```
Zscore=(A-Mean)/std
```

```
print(Zscore)
```

OUTPUT:

The screenshot displays the RStudio interface with the following components:

- Script Editor:** Contains R code for reading a CSV file, calculating mean, min, max, standard deviation, and z-scores for a variable 'Age'.
- Console:** Shows the execution output of the script, including the mean of 'Age' (33.24089), the minimum (21), the maximum (81), and a matrix of standardized values.
- Environment:** Lists the objects created in the global environment, including 'Min', 'MinMax', 'result', 'std', 'stddev', 'x', 'y', and 'Zscore'.

```
1 data=read.csv("diabetes.csv")
2 View(data)
3 A=c(data$Age)
4 Mean=mean(A)
5 print(Mean)
6
7 Min=min(data$Age)
8 print(Min)
9 Maximum=max(data$Age)
10 print(Maximum)
11 MinMax=(A-Min)/(Maximum-Min)
12 print(MinMax)
13 decimalscaling=(A/100)
14 print(decimalscaling)
15 std=sd(A)
16 print(std)
17 Zscore=(A-Mean)/std
18 print(Zscore)
```

Console Output:

```
R 4.2.2 ~ /
> data=read.csv("diabetes.csv")
> View(data)
> A=c(data$Age)
> Mean=mean(A)
> print(Mean)
[1] 33.24089
>
> Min=min(data$Age)
> print(Min)
[1] 21
> Maximum=max(data$Age)
> print(Maximum)
[1] 81
> MinMax=(A-Min)/(Maximum-Min)
> print(MinMax)
[1] 0.4833333 0.1666667 0.1833333 0.0000000 0.2000000 0.1500000 0.0833333 0.1333333
[9] 0.5333333 0.5500000 0.1500000 0.2166667 0.6000000 0.6333333 0.5000000 0.1833333
[17] 0.1666667 0.1666667 0.2000000 0.1833333 0.1000000 0.4833333 0.3333333 0.1333333
[25] 0.5000000 0.3333333 0.3666667 0.0166667 0.6000000 0.2833333 0.6500000 0.1166667
[33] 0.0166667 0.1166667 0.4000000 0.2000000 0.2333333 0.4166667 0.1000000 0.5833333
```

Environment:

Object	Class	Value
Min	num	[1:768] 0.483 0.167 0.183 0 0.2 ...
MinMax	num	[1:768] 63.4 78.9 54.6 87 47.9 ...
result	num	[1:768] 11.7602315406787
std	num	[1:10] 151 174 138 186 128 136 179 163 152 131
stddev	num	[1:10] 63 81 56 91 47 57 76 72 62 48
x	num	[1:768] 1.4251 -0.1905 -0.1055 -1.0409 -0.0205 ...
y	num	[1:768] 1.4251 -0.1905 -0.1055 -1.0409 -0.0205 ...
Zscore	num	[1:768] 1.4251 -0.1905 -0.1055 -1.0409 -0.0205 ...