

EX.NO: 06

PERFORM CORRELATION ANALYSIS AND NORMALIZATION USING R-TOOL

STEPS INVOLVED:

- i. Create a new table with required dataframes.
- ii. After that apply the formula or query for the chi-square test.

The screenshot shows the RStudio interface. The script editor contains the following code:

```
5 a <- c(diabetes$Age)
6 Mean <- mean(a)
7 std <- sd(a)
8 std
9 zscore <- (a-Mean)/std
10 zscore
11
12
```

The console shows the output of the standard deviation calculation:

```
> std <- sd(a)
> std
[1] 11.76023
> |
```

The Environment pane on the right shows the 'Global Environment' with the following variables:

| Variable | Value |
|----------|----------------------|
| a | int [1:768] 50 31... |
| age | num [1:4] 22 24 3... |
| bplot | num [1:7] 18 27 3... |
| diab | 'table' int [1:52... |
| marks | num [1:4] 89 77 9... |
| Mean | 33.2408854166667 |
| names | chr [1:4] "Rajan"... |
| num | 13L |
| num1 | 13L |
| num2 | 8L |
| num3 | 5L |
| price | num [1:11] 5 10 1... |
| scplt | num [1:7] 18 27 3... |
| std | 11.7602315406787 |
| x | num [1:1000] -0.7... |
| y | num [1:1000] 0.29... |
| zscore | num [1:768] 1.425... |

The screenshot shows the RStudio interface. The script editor contains the following code:

```
5 a <- c(diabetes$Age)
6 Mean <- mean(a)
7 std <- sd(a)
8
9 zscore <- (a-Mean)/std
10 zscore
11
12
```

The console shows the output of the z-score calculation:

```
> a <- c(diabetes$Age)
> Mean <- mean(a)
> std <- sd(a)
>
> zscore <- (a-Mean)/std
> zscore
[1] 1.42506672 -0.19054773 -0.10551539 -1.04087112 -0.02048305 -0.27558007
[7] -0.61570943 -0.36061241 1.68016374 1.76519608 -0.27558007 0.06454929
[13] 2.02029310 2.19035777 1.51009906 -0.10551539 -0.19054773 -0.19054773
[19] -0.02048305 -0.10551539 -0.53067709 1.42506672 0.65977566 -0.36061241
[25] 1.51009906 0.65977566 0.82984034 -0.95583878 2.02029310 0.40467865
[31] 2.27539011 -0.44564475 -0.95583878 -0.44564475 0.99990502 -0.02048305
[37] 0.14958163 1.08493736 -0.53067709 1.93526076 -0.61570943 0.31964631
[43] 1.25500204 1.76519608 0.57474333 -0.70074177 -0.36061241 -0.95583878
[49] 0.19054773 0.78577411 0.95583878 0.61570943 0.27558007 0.10551539
```

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| std | 11.7602315406787 |
| x | num [1:1000] -0.7... |
| y | num [1:1000] 0.29... |
| zscore | num [1:768] 1.425... |

RStudio

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Go to file/function Addins

exp_4_hist_bar.R exp_5_hist_sct.R exp_6.R* diabetes

Run Source

```

1 diab <- table(diabetes$Age, diabetes$Insulin)
2 diab
3 chisq.test(diab)
4

```

1:1 (Top Level) R Script

Console Terminal Jobs

```

> diab <- table(diabetes$Age, diabetes$Insulin)
> diab

```

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
| 0 | 14 | 15 | 16 | 18 | 22 | 23 | 25 | 29 | 32 | 36 | 37 | 38 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 48 | 49 | 50 | 51 | |
| 21 | 28 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 22 | 29 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 23 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| 24 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 25 | 18 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 63 | 64 | 65 | 66 | 67 | 68 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | |
| 21 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | |
| 22 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | |
| 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Environment History Connections

Import Dataset List

R Global Environment

Data

- bin_eq... List of 4
- diabet... 768 obs. of 9 v...
- dump 4 obs. of 4 var...
- fold 4 obs. of 3 var...

Values

| | | |
|-------|----------------------|------------|
| age | num [1:4] | 22 24 3... |
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RStudio

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Go to file/function Addins

exp_4_hist_bar.R exp_5_hist_sct.R exp_6.R* diabetes

Run Source

```

1 diab <- table(diabetes$Age, diabetes$Insulin)
2 chisq.test(diab)
3

```

1:146 (Top Level) R Script

Console Terminal Jobs

```

> |

```

Pearson's Chi-squared test

```

data: diab
X-squared = 7561.7, df = 9435, p-value = 1
Warning message:
In chisq.test(diab) : Chi-squared approximation may be incorrect
> |

```

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