

# SHETH L.U.J & SIR M.V COLLEGE OF SCIENCE

## SUBJECT : R-PROGRAMMING

**AIM : Conducting Chi-square tests using chisq.test() (R)**

### OUTPUT

The screenshot displays the RStudio interface with the following components:

- Source Editor:** Contains R code for reading a CSV file and performing a chi-square test.
- Console:** Shows the output of the R code, including the structure of the data and the results of the chi-square test.
- Environment:** Lists the objects in the environment, including 'chi\_res...' and 'data'.
- Files:** Shows the file explorer with the 'dataset.csv' file.

**R Code:**

```
R - R4.5.2 - ~/> data <- read.csv("dataset.csv")> # Step 2: View first few records> head(data)
```

**Console Output:**

```
Restaurant.ID Restaurant.Name Country.Code City
1 6317637 Le Petit Souffle 162 Makati City
2 6304287 Izakaya Kikufuji 162 Makati City
3 6300002 Heat - Edsa Shangri-La 162 Mandaluyong City
4 6318506 Ooma 162 Mandaluyong City
5 6314302 Sambo Kojin 162 Mandaluyong City
6 18189371 Din Tai Fung 162 Mandaluyong City

Address
1 Third Floor, Century City Mall, Kalayaan Avenue, Poblacion, Makati City
2 Little Tokyo, 2277 Chino Roces Avenue, Legaspi Village, Makati City
3 Edsa Shangri-La, 1 Garden Way, Ortigas, Mandaluyong City
4 Third Floor, Mega Fashion Hall, SM Megamall, Ortigas, Mandaluyong City
5 Third Floor, Mega Atrium, SM Megamall, Ortigas, Mandaluyong City
6 Ground Floor, Mega Fashion Hall, SM Megamall, Ortigas, Mandaluyong City

Locality
1 Century City Mall, Poblacion, Makati City
2 Little Tokyo, Legaspi Village, Makati City
3 Edsa Shangri-La, Ortigas, Mandaluyong City
4 SM Megamall, Ortigas, Mandaluyong City
5 SM Megamall, Ortigas, Mandaluyong City
6 SM Megamall, Ortigas, Mandaluyong City

Longitude Latitude Cuisines Average.Cost.for.two Currency
1 121.0275 14.56544 French, Japanese, Desserts 1100 Botswana Pula(P)
2 121.0141 14.55371 Japanese 1200 Botswana Pula(P)
3 121.0568 14.58140 Seafood, Asian, Filipino, Indian 4000 Botswana Pula(P)
4 121.0565 14.58532 Japanese, Sushi 1500 Botswana Pula(P)
5 121.0575 14.58445 Japanese, Korean 1500 Botswana Pula(P)
6 121.0563 14.58376 Chinese 1000 Botswana Pula(P)
```

**Console Output (Continued):**

```
Has.Table.booking Has.Online.delivery Is.delivering.now Switch.to.order.menu Price.range
1 Yes No No No 3
2 Yes No No No 3
3 Yes No No No 4
4 No No No No 4
5 Yes No No No 4
6 No No No No 3

Aggregate.rating Rating.color Rating.text Votes
1 4.8 Dark Green Excellent 314
2 4.5 Dark Green Excellent 591
3 4.4 Green Very Good 270
4 4.9 Dark Green Excellent 365
5 4.8 Dark Green Excellent 229
6 4.4 Green Very Good 336
```

**R Code (Continued):**

```
> # Step 3: Create contingency table> contingency_table <- table(+ data$Has.Online.delivery,+ data$Has.Table.booking)> print(contingency_table)
```

**Console Output (Continued):**

```
No Yes
No 6377 723
```

The screenshot shows the RStudio environment with the following content:

**Source**

```
R - R4.5.2 ~ />
# data$has.Online.Delivery,
+ data$has.Table.booking
+ )
> print(contingency_table)
```

**Console**

```
No      Yes
No 6377  723
Yes 2016  435

> # Step 4: Apply Chi-Square Test
> chi_result <- chisq.test(contingency_table)

> print(chi_result)
```

Pearson's Chi-squared test with Yates' continuity correction

```
data: contingency_table
X-squared = 97.153, df = 1, p-value < 2.2e-16

>
> if (chi_result$p.value < 0.05) {
+   cat("Result: Reject H0\n")
+   cat("Conclusion: Has Online Delivery and Has Table Booking are significantly associated.\n")
+ } else {
+   cat("Result: Fail to Reject H0\n")
+   cat("Conclusion: Has Online Delivery and Has Table Booking are independent.\n")
+ }
Result: Reject H0
Conclusion: Has Online Delivery and Has Table Booking are significantly associated.

> |
```

**Environment**

Global Environment

**Data**

chi\_res... List of 9

data 9551 obs. of 21 va...

**Values**

conting... 'table' int [1:2, 1:...

**Files**

Home

Name	Size
.RData	447.2 KB
.Rhistory	9 KB
Custom Office Templates	
dataset.csv	2.1 MB
Dell	
desktop.ini	418 B
My Music	
My Videos	
NetBeansProjects	
Shortcut to Documents (OneDrive - P...	1.7 KB

The screenshot shows the RStudio environment with the following components:

- Environment Pane:** Displays the 'chi\_result' object as a list of length 9. The elements and their values are:
 

Element	Type	Value
chi_result	list [9] (S3: htest)	List of length 9
statistic	double [1]	97.15347
parameter	integer [1]	1
p.value	double [1]	6.41567e-23
method	character [1]	'Pearson's Chi-squared test with Yates' continuity correction'
data.name	character [1]	'contingency_table'
observed	integer [2 x 2] (S3: table)	6377 2016 723 435
expected	double [2 x 2]	6239 2154 861 297
residuals	double [2 x 2] (S3: table)	1.74 -2.97 -4.70 8.00
stdres	double [2 x 2] (S3: table)	9.89 -9.89 -9.89 9.89
- Console:** Shows the command `view(chi_result)` and the output:
 

```
R - R 4.5.2 - ~/
> 
> 
> Result: Reject H0
> Conclusion: Has Online Delivery and Has Table Booking are significantly associated.
> view(chi_result)
> 
```
- Files Pane:** Shows the project structure with folders like .RData, .Rhistory, dataset.csv, and desktop.ini.

