



Department of Computer Technology B. Tech in Computer Science and Engineering (IOT)

Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

Session 2025-2026

Vision: Dream of where you want.	Mission: Means to achieve Vision
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Program Educational Objectives of the program (PEO): (broad statements that describe the professional and career accomplishments)

PEO1	Preparation	P: Preparation	Pep-CL abbreviation pronounce as Pep-si-LL easy to recall
PEO2	Core Competence	E: Environment (Learning Environment)	
PEO3	Breadth	P: Professionalism	
PEO4	Professionalism	C: Core Competence	
PEO5	Learning Environment	L: Breadth (Learning in diverse areas)	

Program Outcomes (PO): (statements that describe what a student should be able to do and know by the end of a program)

Keywords of POs:

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

PSO Keywords: Cutting edge technologies, Research

"I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life." to contribute to the development of cutting-edge technologies and Research.

Integrity: I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

Omkar V. Jadhav

(Signature and Date in Handwritten)



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Session	2024-25 (ODD)	Course Name	MFDA
Semester	5	Course Code	23IOT1526
Roll No	49	Name of Student	Omkar Panchal

Practical Number	7
Course Outcome	
Aim	To implement the Chi-square test.
Problem Definition	Conduct a Chi-square test of independence to determine whether success on math exam scores (yes, no) is related to gender (male, female).
Theory (100 words)	<p>The Chi-square test is a statistical method used to examine relationships between categorical variables and test how well observed data fits expected outcomes. It's especially useful for hypothesis testing in non-parametric data.</p> <p>Types of Chi-Test:</p> <ul style="list-style-type: none"> 1. Chi-square test of independence <ul style="list-style-type: none"> ○ Checks if two categorical variables are related ○ Example: Is exam success related to gender? 2. Chi-square goodness-of-fit test <ul style="list-style-type: none"> • Checks if observed data matches expected distribution • Example: Do dice rolls match uniform probability? <p>Conditions to Use Chi-Square</p> <ul style="list-style-type: none"> • Data must be categorical (not continuous) • Observations must be independent • Expected frequency in each cell should be ≥ 5 for reliable results • Sample size should be large enough for approximation to hold
Procedure and Execution (100 Words)	<p>Step-by-Step Process:</p> <ol style="list-style-type: none"> 1. Define Hypotheses: <ul style="list-style-type: none"> • Null Hypothesis (H_0): Success on the math exam is independent of gender. • Alternative Hypothesis (H_1): Success on the math exam is dependent on gender. 2. Create a Contingency Table 3. Calculate Expected Frequencies 4. Apply Chi-Square Formula



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5. Find Degrees of Freedom
6. Compare with Critical Value



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```
Success
Gender Yes No
Male 30 20
Female 25 25
> # Chi-square test of independence
> chi_result <- chisq.test(data)
> print(chi_result)

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

data: data
X-squared = 0.64646, df = 1, p-value = 0.4214

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
File Edit Code View Plots Session Build Debug Profile Tools Help
Untitled1Untitled2Untitled3Untitled4 Go to file/function Run Source Addins
1 # omkar_panchal
2 data <- matrix(c(30, 20, 25, 25),
3 nrow = 2,
4 byrow = TRUE)
5
6 rownames(data) <- c("Male", "Female")
7 colnames(data) <- c("Yes", "No")
8
9 print(data)
10
11 result <- chisq.test(data)
12
13 print(result)
14

Environment History Connection Tutorial
R Global Environment
Data data num [1:2, 1:2] 30 25
result List of 9
Files Plots Packages Help Viewer Presentation
Console Terminal Background Jobs
R 4.1.1 ->
> data <- matrix(c(30, 20, 25, 25),
+ nrow = 2,
+ byrow = TRUE)
> rownames(data) <- c("Male", "Female")
> colnames(data) <- c("Yes", "No")
> print(data)
      Yes No
Male 30 20
Female 25 25
> print(data)
      Yes No
Male 30 20
Female 25 25
> result <- chisq.test(data)
> print(result)

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

data: data
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|
```

The screenshot shows an RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Code Editor:** A script editor containing R code for performing a Chi-square test of independence. The code includes loading data from 'mathexam.csv', creating a contingency table, calculating expected frequencies, and interpreting results based on the Chi-square statistic.
- Environment View:** Shows the global environment with objects: 'data' (a numeric vector), 'result' (a list of length 9), and 'rnorm' (a function). It also shows the current memory usage as 140 MB.
- Console View:** Displays the output of the R code, including the contingency table, expected frequencies, and the interpretation of the results.
- Plots View:** Shows a histogram of the 'math' column from the 'data' frame.
- Status Bar:** Shows the current session ID (28.1), the date (07-10-2025), and the time (15:27).



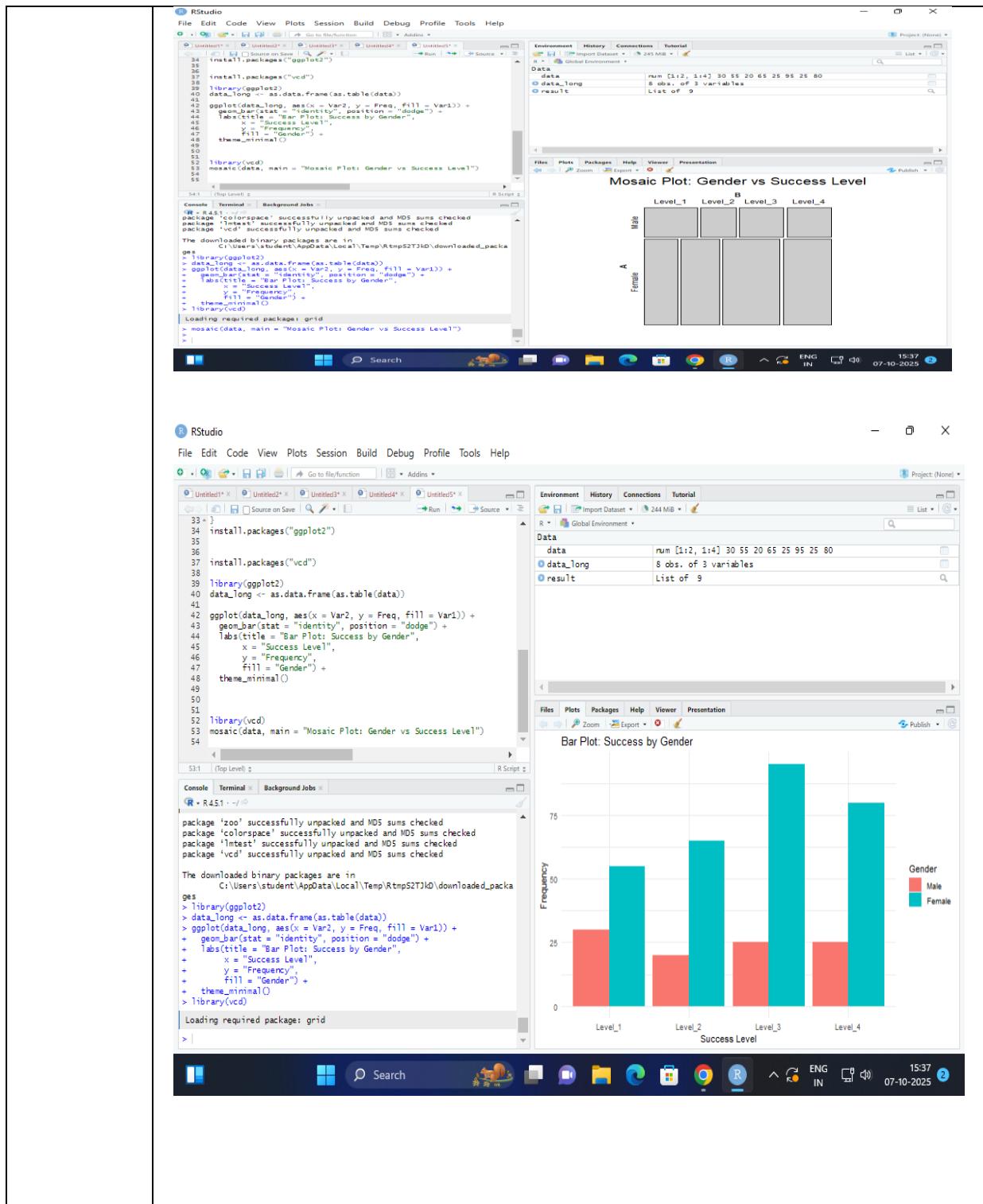
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Output Analysis	Result: No significant relationship between gender and exam success. Interpretation: Gender does not affect math exam success in this sample.
Link of student Github profile where lab assignment has been uploaded	https://github.com/OmkarPanchal06/MFDA_LAB
Conclusion	Hence analyzed the data to find out the estimated value.



Nagar Yuwak Shikshan Sanstha's

Yeshwantrao Chavan College of Engineering

(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

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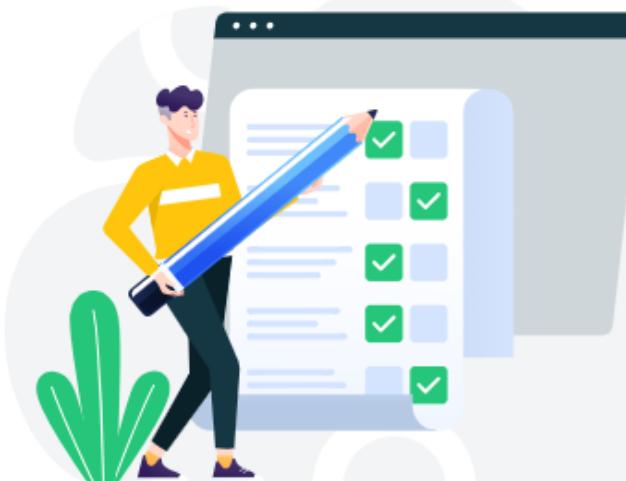
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■ Exact	0%
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Date	7/10/25
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