Nagar Yuwak Shikshan Sanstha's
Yeshwantrao Chavan College of Engineering
(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)
Hingna Road, Wanadongri, Nagpur - 441 110
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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

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.

Name and Signature of Student and Date
(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	6
Course Outcome	
Aim	To implement Regression.
Problem Definition	Predicting the weight of a person when his height is known. ●Gather heights and weights like at least a few observations. ●use the lm() function to create the relationship model ●Use the coefficients from the model and create a mathematical equation. ●Predict the weight of new observations using the predict () function
Theory (100 words)	Regression is a statistical technique used to model the relationship between a dependent variable and one or more independent variables. The goal of regression analysis is to understand the nature and strength of the relationship between variables, make predictions, and identify significant factors that influence the dependent variable. There are different types of regression models, but two of the most common ones are: **Simple Linear Regression:** **Description:** Simple linear regression involves modelling the relationship between two variables, where one variable (the dependent variable) is predicted based on the values of another variable (the independent variable). **Equation:** The equation of a simple linear regression model is often written as y=mx+b, where: • y is the dependent variable, • x is the independent variable, • m is the slope of the regression line, • b is the y-intercept. • Multiple Linear Regression:

Procedure and Execution **(100 Words)**	**Step-by-Step Process:** 1.Gather Data 2. Create Data in R 3. Create the Linear Model using lm() 4. Extract coefficients 5. Create the mathematical equation
	Code: heights <- c(150, 160, 170, 180, 190) weights <- c(55, 60, 70, 80, 85) model <- lm(weights ~ heights) summary(model) coefficients <- coef(model) coefficients cat("The regression equation is: Weight =", round(coefficients[2], 2), "* Height +", round(coefficients[1], 2), "\n") new_heights <- data.frame(heights = c(155, 165, 175)) predicted_weights <- predict(model, new_heights) cat("Predicted Weights for Heights 155, 165, 175 cm:\n") print(predicted_weights) plot(heights, weights, main="Height vs Weight Regression", xlab="Height (cm)", ylab="Weight (kg)", pch=19, col="blue") abline(model, col="red", lwd=2)

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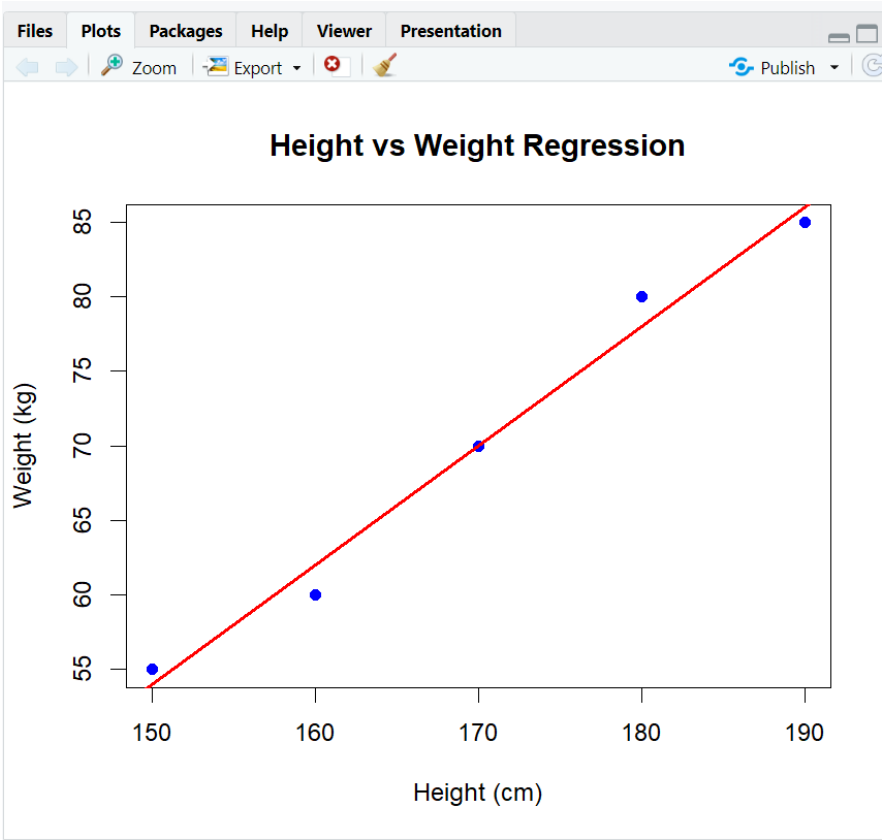
Output:

```
Console   Terminal ×   Background Jobs ×
R 4.5.1 · ~/
(Intercept)     heights
      -66.0         0.8
> cat("The regression equation is: Weight =",
+     round(coefficients[2], 2), "* Height +",
+     round(coefficients[1], 2), "\n")
The regression equation is: Weight = 0.8 * Height + -66
> new_heights <- data.frame(heights = c(155, 165, 175))
> predicted_weights <- predict(model, new_heights)
> cat("Predicted Weights for Heights 155, 165, 175 cm:\n")
Predicted Weights for Heights 155, 165, 175 cm:
> print(predicted_weights)
 1  2  3
58 66 74
> plot(heights, weights, main="Height vs Weight Regression",
+      xlab="Height (cm)", ylab="Weight (kg)", pch=19, col="blue")
> abline(model, col="red", lwd=2)
>
```



Output Analysis	• Regression Equation: Weight (kg) = 0.8 * Height (cm) - 66 • Model Fit: The model explains 98.5% of the variation in weight (R-squared = 0.9846). • Significance: Both the intercept and the height coefficient are statistically significant (p-values < 0.01). • Predictions: For heights of 155, 165, and 175 cm, the predicted weights are 58 kg, 66 kg, and 74 kg respectively.
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.

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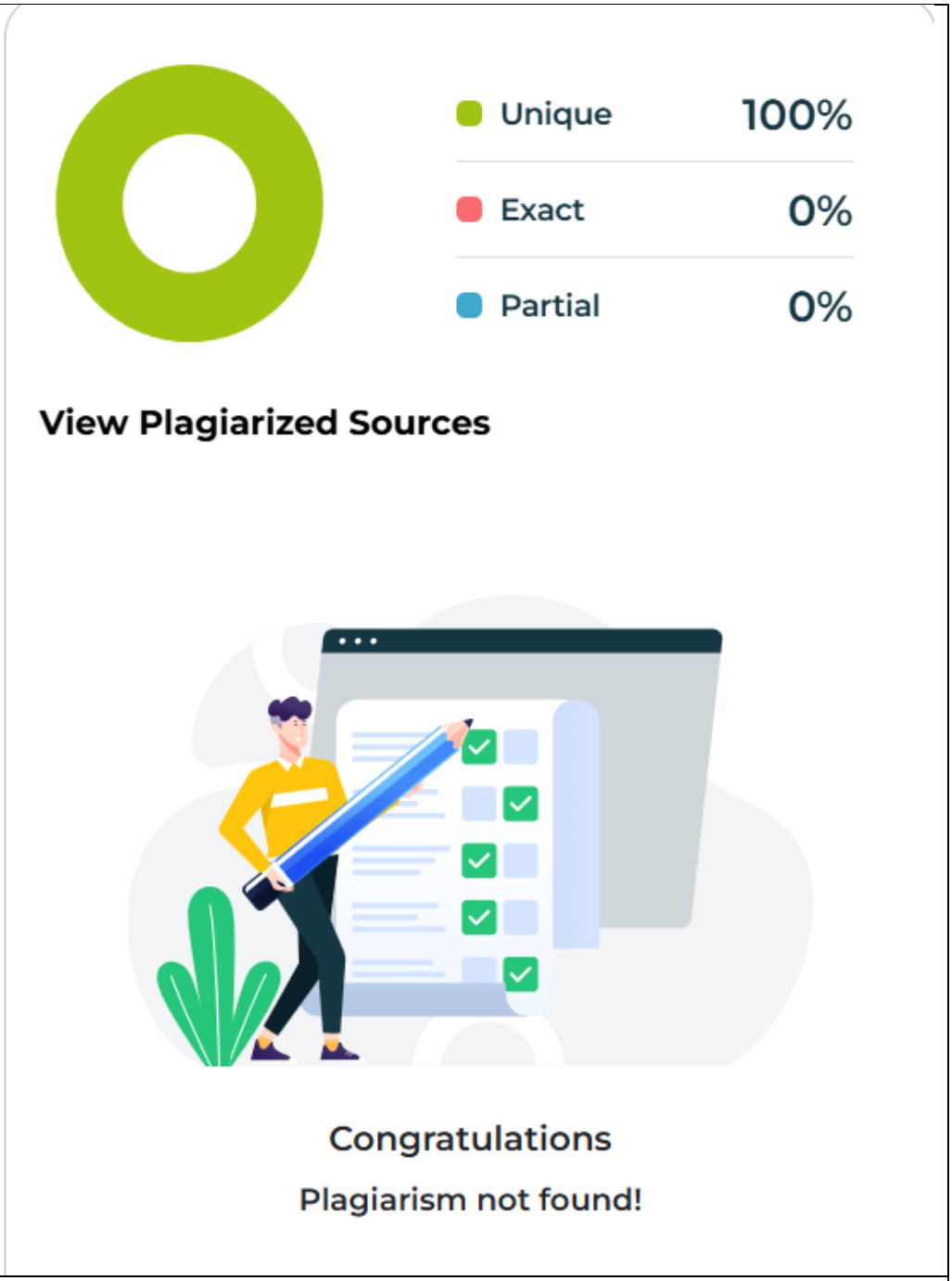
Plag Report (Similarity index < 12%)	
Date	**26/08/25**