

A PYTHON PROGRAM TO IMPLEMENT UNIVARIATE, BIVARIATE AND MULTIVARIATE REGRESSION

Aim:

To implement a Python program using univariate, bivariate and multivariate regression features for a given Iris dataset.

Algorithm:

Step 1: Import necessary libraries:

- pandas for data manipulation,
- numpy for numerical operations, and
- matplotlib.pyplot for plotting.

Step 2: Read the dataset:

- Load the Iris dataset.
- Store the dataset in a DataFrame.

Step 3: Prepare the data:

- Extract independent variables (X) and dependent variable (y).
- Reshape the data if required.

Step 4: Univariate Regression:

- Use one independent variable.
- Fit a Linear Regression model.
- Predict values and calculate R-squared.

Step 5: Bivariate Regression:

- Use two independent variables.
- Fit a Linear Regression model.
- Predict values and calculate R-squared.

Step 6: Multivariate Regression:

- Use more than two independent variables.
- Fit a Linear Regression model.
- Predict values and calculate R-squared.

Step 7: Plot the results:

- Scatter plot with regression line for univariate.
- 3D scatter plot for bivariate.
- Actual vs predicted plot for multivariate.

Step 8: Display the results:

- Print coefficients, intercepts, and R-squared values.

PROGRAM:

RESULT:

Thus, the Python program to implement univariate, bivariate and multivariate regression for the given Iris dataset was successfully executed and the features were analyzed using appropriate plots.