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**Assignment-06**

**Assignment 6: Regression Technique – Predicting Month-wise Temperature**

**🔹 1. Objective**

To predict average monthly temperatures of India using Linear Regression and evaluate the model's accuracy using standard performance metrics.

**🔹 2. Dataset Description**

* Source: Kaggle - Temperatures of India
* Data: Monthly average temperatures across India in Celsius.

**🔹 3. Concept: Linear Regression**

* A **supervised learning algorithm** used to predict a continuous value (temperature).
* Assumes a **linear relationship** between:
  + **Independent variable (x):** Month (1 to 12)
  + **Dependent variable (y):** Average Temperature

**Formula:**

y=mx+cy = mx + cy=mx+c

Where:

* yyy: predicted temperature
* xxx: month number
* mmm: slope of the line
* ccc: intercept

**🔹 4. Model Evaluation Metrics**

* **MSE (Mean Squared Error):**  
  Measures average squared difference between actual and predicted values.  
  Lower is better.
* **MAE (Mean Absolute Error):**  
  Measures average absolute difference between actual and predicted values.  
  Lower is better.
* **R² Score (Coefficient of Determination):**  
  Indicates how well the model explains the variance.  
  Closer to 1 = better model fit.

CODE- From Visual Studio Code.

**🔹 5. Visualization**

* Plot the **regression line** over the scatter plot of actual data.
* Compare **actual vs predicted values** using Matplotlib or Seaborn for interpretation.