Climate Change Patterns in Bangladesh: A Correlation Analysis of Temperature and Rainfall Trends

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Project Overview

Objective:

- Explore the relationship between temperature and rainfall patterns in Bangladesh.
- Provide insights for policy decisions and sustainable development planning.

Data Sources:

- Bangladesh Weather Dataset (Kaggle)
- Historical Rainfall Data in Bangladesh (Kaggle)

Data Description

Bangladesh Weather Dataset:

- Comprehensive weather data including temperature.
- URL:https://www.kaggle.com/datasets/yakinrubaiat/bangladesh-weather-dataset

Historical Rainfall Data:

- Detailed rainfall records.
- URL:https://www.kaggle.com/datasets/redikod/historical-rainfall-data-in-bangladesh

Methodology

Data Fetching and Preparation:

- Downloaded datasets from Kaggle.
- Stored in a local SQLite database.

Data Merging:

- Combined datasets on 'Year' and 'Month'.
- Handled missing values.

Correlation Analysis:

- Created scatter plots.
- Calculated Pearson correlation coefficient.

Linear Regression Analysis:

- Determined influence of temperature changes on rainfall.

Results

Scatter Plot:

Shows a positive relationship between temperature and rainfall.

Correlation Coefficient:

Weak positive correlation (approximately 0.232).

Linear Regression:

Each degree Celsius increase in temperature results in an approximate 1.213 mm increase in rainfall.

Conclusions

Findings:

- Moderate positive correlation between temperature and rainfall.
- Rising temperatures could lead to increased rainfall.

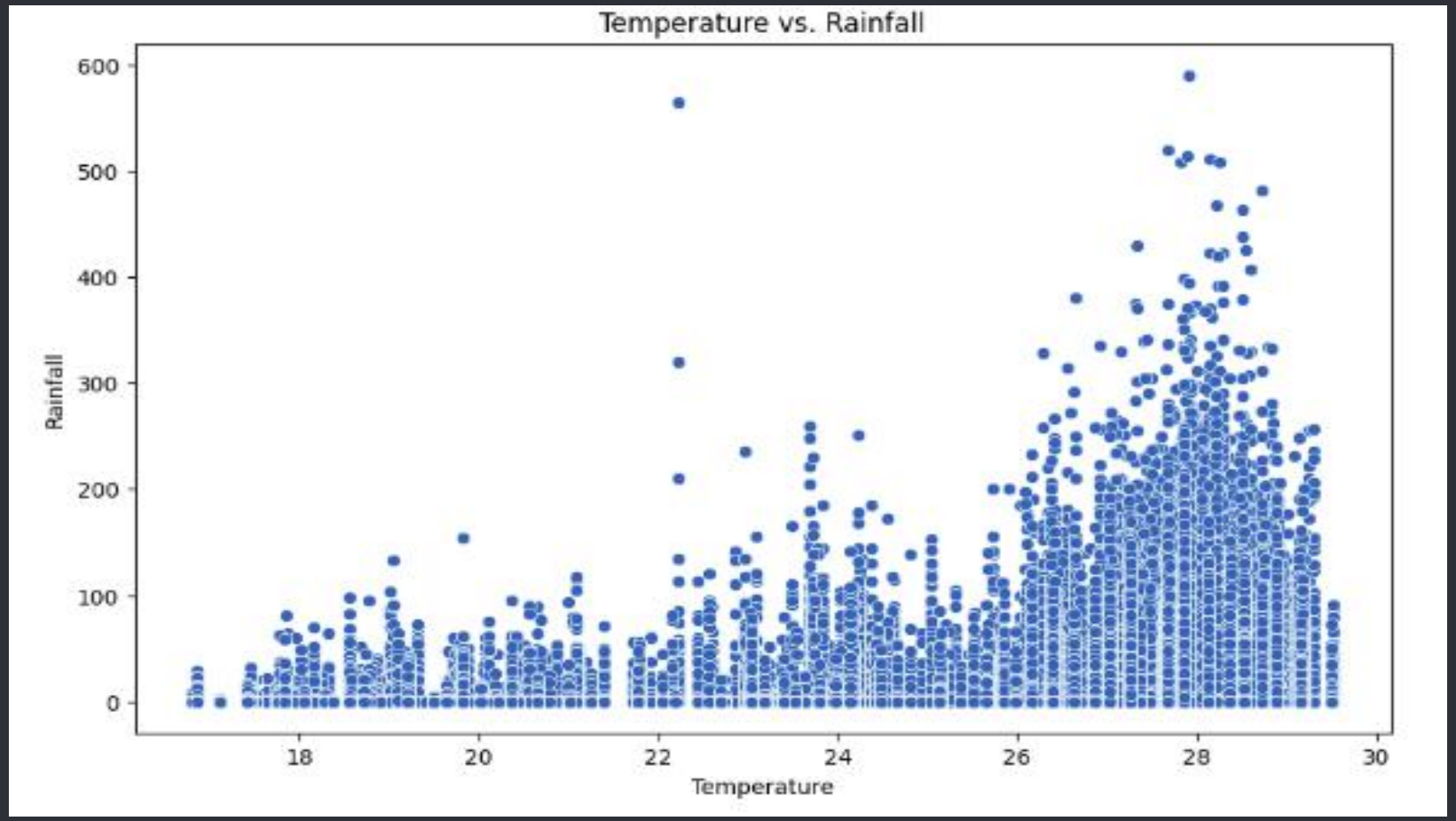
Implications:

- Crucial for developing climate change adaptation strategies.
- Highlights the need to consider temperature's impact on rainfall.

Limitations and Future Work:

- Accuracy depends on data quality.
- Future work should incorporate more variables and advanced models.

Visualization



Thank you all for your attention