Project Title : Weather Gauge

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ABSTRACT

- Weather forecasting is the application of science and technology to predict the state of the atmosphere for a given location.

- Ancient weather forecasting methods usually relied on observed patterns of events, also termed pattern recognition.

- For example, it might be observed that if the sunset was particularly red, the following day often brought fair weather.However, not all of these predictions prove reliable.

- Here this system will predict weather based on parameters such as temperature, humidity and wind. User will enter current temperature; humidity and wind, System will take this parameter and will predict weather(rainfall in inches) from previous data in database(dataset). .

Problem Definition and Scope

- It is important to exactly determine the rainfall for effective use of water resources, crop productivity and pre-planning of water structures.

- **Scope:**It tells us how many inches of rainfall we can expect.

Proposed System

- User will enter current temperature; humidity and wind, System will take this parameter and will predict weather from previous data in database. The role of the admin is to add previous weather data in database, so that system will calculate weather based on these data.

- Weather forecasting system takes parameters such as temperature, humidity, and wind and will forecast weather based on previous record therefore this prediction will prove reliable.

Modules Description

In this project we have Two modules :

1) Data gathering and pre - processing.
2) Applying Algorithm for prediction.

Explanation:

- In this module we first gather the data(dataset) for our prediction model.Data comes in all forms, most of it being very messy and unstructured. They rarely come ready to use. Datasets, large and small, come with a variety of issues- invalid fields, missing and additional values, and values that are in forms different from the one we require.

Algorithm:

- Linear Regression is a machine learning algorithm based on supervised learning. It performs a regression task. Regression models a target prediction value based on independent variables. It is mostly used for finding out the relationship between variables and forecasting. Different regression models differ based on the kind of relationship between dependent and independent variables, they are considering and the number of independent variables being used.
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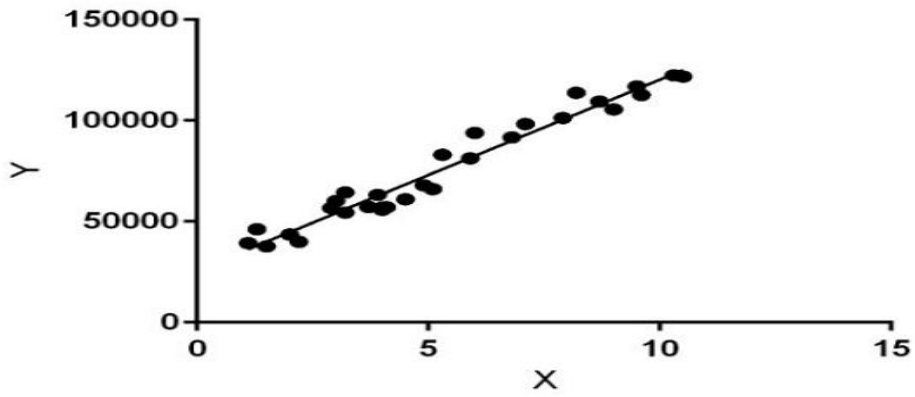

- Linear regression performs the task to predict a dependent variable value (y) based on a given independent variable (x). So, this regression technique finds out a linear relationship between x (input) and y(output). Hence, the name is Linear Regression.

- In the figure above, X (input) is the work experience and Y (output) is the salary of a person. The regression line is the best fit line for our model.

- Hypothesis function for Linear Regression :

- $y=mx+c$

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- Where
- y is the response variable.
- x is the predictor variable.
- m and c are constants which are called the coefficients.

Data Set

- The dataset is a public weather dataset from Austin, Texas available on Kaggle.

- austin_weather.csv

THANK YOU