

Rainfall Prediction

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Motivation and Description:

Monsoon prediction is clearly of great importance for India. Two types of rainfall predictions can be done, They are

- **Long term predictions:** Predict rainfall over few weeks/months in advance.
- **Short term predictions:** Predict rainfall a few days in advance in specific locations.

Indian meteorological department provides forecasting data required for project. In this project we are planning to work on long term predictions of rainfall. The main motive of the project is to predict the amount of rainfall in a particular division or state well in advance. We predict the amount of rainfall using past data.

Dataset:

- Dataset1(<https://data.gov.in/resources/district-rainfall-normal-mm-monthly-seasonal-and-annual-data-period-1951-2000>) This dataset has average rainfall from 1951-2000 for each district, for every month.
- Dataset2(<https://data.gov.in/resources/subdivision-wise-rainfall-and-its-departure-1901-2015>) This dataset has average rainfall for every year from 1901-2015 for each state.

Methodology:

1. Converting data in to the correct format to conduct experiments.
2. Make a good analysis of data and observe variation in the patterns of rainfall.
3. Finally, we try to predict the average rainfall by separating data into training and testing. We apply various statistical and machine learning approaches(RNN, SVM, etc) in prediction and make analysis over various approaches. By using various approaches we try to minimize the error.

Expected Outcome

1. Various visualizations of data to observe the fluctuations and patterns in data which helps in implementing the approaches for prediction.
2. Prediction of amount of rainfall for both the types of dataset.