

# **REASONING SYSTEM FOR WEATHER**

## *END TERM REPORT*

By

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## **Student Declaration**

This is to declare that this report has been written by S. Venkat and Prerit. No part of the report is copied from other sources. All information included from other sources have been duly acknowledged. We aver that if any part of the report is found to be copied, we are shall take full responsibility for it

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## **Introduction-:**

The process of producing weather forecast is rather complex and should be represented as a linear workflow in which several steps are taken. The initial step consists in gathering data from scratch, and can be derived by many heterogeneous sources. Data gathered by sensor networks and other sources are used in a few ways:

1. To provide the basic data to run the weather forecast models (initialization);
2. To help the forecaster to evaluate the results of a weather forecast model run (execution);
3. To habilitate the forecaster to build a conceptual scenario of the actual weather (remodelling);
4. To estimate the quality of a NWP system (verification - outside the scope of the present work).

In general, data gathering produces scratch unfolded data, consisting in measures of the observational variables in points on the land or in the atmosphere. These can either be real measures taken from sensors, or the results of a run of a weather forecast model is the second step of the process identified above. Essentially, the output of a model consists of a set of four-dimensional matrices, each entry of these matrices being a scalar or vectorial measure.

## **Objectives:**

The following are the objectives of the project of Reasoning system for weather: -.

- The basic output of the project is that it should be able to predict out the accurate weather temperature members of a family accurately just by considering the details of the other members of the family.
- The machine should be able to train itself from the data provided to it.
- Prediction of the relation should be made perfectly.

## Project description:-

The data used in this series will be collected from Weather Underground's free tier API web service. I will be using the requests library to interact with the API to pull in weather data since 2015 for the city of Lincoln, Nebraska. Once collected, the data will need to be process and aggregated into a format that is suitable for data analysis, and then cleaned.

Module Used:-

In order to complete the project the following modules are used

Matplot=:

. **pyplot** is a collection of command style functions that make **matplotlib** work like MATLAB. Each **pyplot** function makes some change to a figure: e.g., creates a figure, creates a **plotting** area in a figure, **plots** some lines in a **plotting** area, decorates the **plot** with labels, etc. In **matplotlib**.

various states are preserved across function calls, so that it keeps track of things like the current figure and plotting area, and the plotting functions are directed to the current axes (please note that “axes” here and in most places in the documentation refers to the *axes* and not the strict mathematical term for more than one axis).

Pandas=>

**Pandas** is an opensource library that allows to you perform data manipulation in **Python**. **Pandas** library is built on top of Numpy, meaning **Pandas** needs Numpy to operate. **Pandas** provide an easy way to create, manipulate and wrangle the data. **Pandas** is also an elegant solution for time series data.

**Using the datasets:** - NumPy is a Python package which stands for 'Numerical Python'. It is the core library for scientific computing, which contains a powerful n-dimensional array object, provide tools for integrating C, C++ etc. It is also useful in linear algebra, random number capability etc. It is used for predicting out the output from a particular dataset.

## **BONAFIDE CERTIFICATE.**

Certified that this project report “Relation Identification System” is the bona fide work of “Ajay verma and Harikesh ” who carried out the project work under my supervision.

Jasleen Kaur. 25340.

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