

WEATHER REASONING SYSTEM

END TERM REPORT

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Student Declaration

This is to declare that this report has been written by us. 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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Place: Jalandhar, Punjab

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BONAFIDE CERTIFICATE

Certified that this project report “WEATER REASONING SYSTEM” is the Bonafede work of **“Vishal Singh, Aditya Aggarwal, Jinendra Sahoo and Chandresh Yadav”** who carried out the project work under my supervision.

Supervisor

Ms. Nandini Sethi

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1. Introduction & Description of Project

Weather forecasting is the application of science and technology to predict the state of the atmosphere. 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 these predictions prove reliable.

Here this system will predict weather based on parameters such as temperature, humidity and wind. This system is a web application with effective graphical user interface.

User will login to the system using his user ID and password.

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. This system can be used in Air Traffic, Marine, Agriculture, Forestry, Military, and Navy etc.

2. Workflow



3. Work Division

Vishal, Aditya	Dataset Algorithm to take data from dataset Algorithm for forecasting Implementation of night & day mode.
Jinendra, Chandresh	Log In Page Sign Up Page Database & Validation Pie Chart from Forecasted data Picture Designing and GUI.

4. Screenshots

The image displays two screenshots of a web application titled "Weather Reasoning".

The top screenshot shows the "Sign Up Page". It features a dark blue background with the title "Sign Up Page" in white. Below the title, there are four input fields labeled "Full Name", "Username", "Password", and "Country". A black "Sign Up" button is positioned below the fields. At the bottom, there is a link that says "Already have a Account?".

The bottom screenshot shows the "Login Page". It also has a dark blue background with the title "Login Page" in white. Below the title, there are two input fields: "Username" (containing the text "cky13129") and "Password" (containing six asterisks "*****"). A black "Login" button is located below the fields.

Weather Reasoning

Enter today's weather report

Welcome Chandresh Yadav

Temperature

Humidity

Rainfall

Get Forecast

Weather Reasoning

25°C

Warm Windy Slight Rain

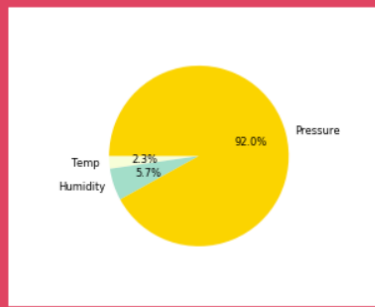
Rainfall: 49cm
Humidity: 63.17%
Pressure: 1014.78hPa

Wind: 12.01km/h
Real feel: 25.14°C
UV: 178.58

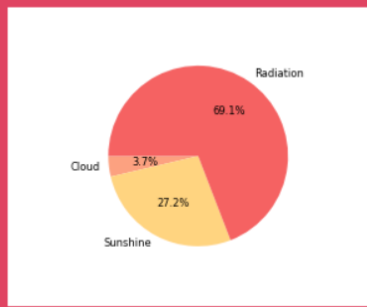
Date: 10/04/2020
Time: 22:48:49

Tommorow's
Weather Forecast

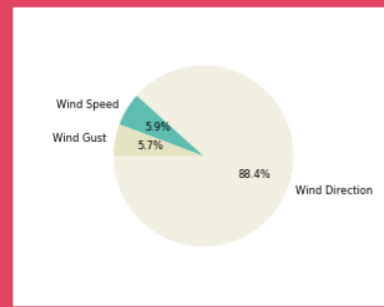
Statistical Data



Temperature-Pressure-Humidity



Cloud-Sunshine-Radiation



Wind

5. Framework and Tools

- 1.Date & Time:** The **datetime** classes in **Python** are categorized into main 5 classes. **date** – Manipulate just date (Month, day, year) **time** – Time independent of the day (Hour, minute, second, microsecond) **datetime** – Combination of time and date (Month, day, year, hour, second, microsecond)
- 2. Pandas:** Python Pandas is defined as an open-source library that provides high-performance data manipulation in Python. Pandas is built on top of the **NumPy** package, means **NumPy** is required for operating the Pandas. It can perform five significant steps required for processing and analysis of data irrespective of the origin of the data, i.e., **load, manipulate, prepare, model, and analyze.**
- 3.Matplotlib:** Matplotlib is a plotting library for the Python programming language and its numerical mathematics extension NumPy. It provides an object-oriented API for embedding plots into applications using general-purpose GUI toolkits like Tkinter, python, Qt, or GTK+.
- 4. SQLite:** It is a relational database management system (RDBMS) contained in a C library. In contrast to many other database management systems, SQLite is not a client–server database engine. Rather, it is embedded into the end program. SQLite is ACID-compliant and implements most of the SQL standard, generally following PostgreSQL syntax.

6. SWOT Analysis

STRENGTHS:

1. We can predict the weather of tomorrow with the help of previously collected information.
2. All the aspects like rainfall, humidity and temperature has been taken into consideration.

Weaknesses:

1. We have used a limited set of data, but in future we can train our system with the help of more datasets.
2. As, we are predicting the weather, so sometimes weather cannot be properly correct.

Opportunities:

1. With the help of this, we can predict future weather and can save many lives in calamities.
2. Other weather prediction sites and models are available on internet, but altogether all models including ours will provide a preciseness to the world for the weather prediction.

Threats:

1. Predictions can never be always true, so there might be chances that our prediction will be wrong sometimes, which can create a threat. But we can improve this by training our model with proper datasets.
2. Sometimes weather changes rapidly, that times it is difficult to predict what is going to happen.