PROJECT REPORT

On

WEATHER APP

(CSE III Semester Mini project)

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INTRODUCTION

The project aims to fetch weather data from an API and display the weather forecast for a particular region. Weather App is the application of science and technology to predict the conditions of the atmosphere for a given location and time. People have attempted to predict the weather informally for millennia and formally since the 19th century. Weather forecasts are made by collecting quantitative data about the current state of the atmosphere, land, and ocean and using meteorology to project how the atmosphere will change at a given place. It is very important to get educated on the current weather situation of a particular location as preferred since it affects the day to day life of everyone. It is more effective if we can get quickly updated on current weather status of a required location, as it makes it easy to handle not only our activities, but also our livelihoods too. A huge problem that we are facing nowadays is inability to know real weather status in such places. So if we need to know the current situation in a certain place, it is better to ask from a person who is in that area recently or currently. He is a better source than any prevailing weather information.

LITERATURE SURVEY

Weather App as the name goes is an advanced yet highly promising system helping a tourist or any user to get accurate and best data in no time. This System is an Android Application and uses Web designing languages as its Front End and APIs. The Application acts as a weather forecaster giving out outputs to the user for every input given to the system. The System is highly reliable as it uses foursquare API which are very accurate and same goes for the weather conditions. This System tries the user to give a heads-up giving the weather conditions to make sure that the user will be comfortable to visit the desired place. The User has options to select for the places he wants to visit, for instance parks, beaches, monuments or food joints and so on; the system will ask whether he is searching for the current locality or some other place. The System is very flexible in changing places to display places if the user wishes to. Now, one can simply visit their portal, search for their destination and they will easily find the information about weather conditions of their destination for that particular date or future days.

Need of Application
● Weather Forecasting is crucial since it helps to determine future climate changes. With the use of latitude, we can determine the probability of snow and hail reaching the surface. We are able to identify the thermal energy from the sun that is exposed to a region. Climatology is the scientific study of climates, which in simple words mean weather conditions over a period. A bunch of studies within atmospheric sciences also takes the help of the variables and averages of short-term and long-term weather conditions accumulated. Climatology is different from meteorology and can be divided into further areas of study.

Different approaches to this segment can be taken. Currently, our primary research goal is to motivate and help the development of efficient and effective measures of Environmental activities.

●   Seasons and nature play a major role in agriculture and farming. When it comes to the farming of various fruits, vegetables, and pulses, temperature is extremely important. Farmers didn't have a better understanding of weather forecasts before, so they had to rely on estimates to do their jobs. They do, however, sometimes suffer losses as a result of inaccurate weather forecasts. Farmers will now get all of their forecasts on their smartphones, thanks to advances in technology and the use of unique weather forecasting mechanisms. Of course, education in this area is critical, but the majority of the farmer community at this point understands the fundamentals, making it simple for them to use the features.

Software requirement :

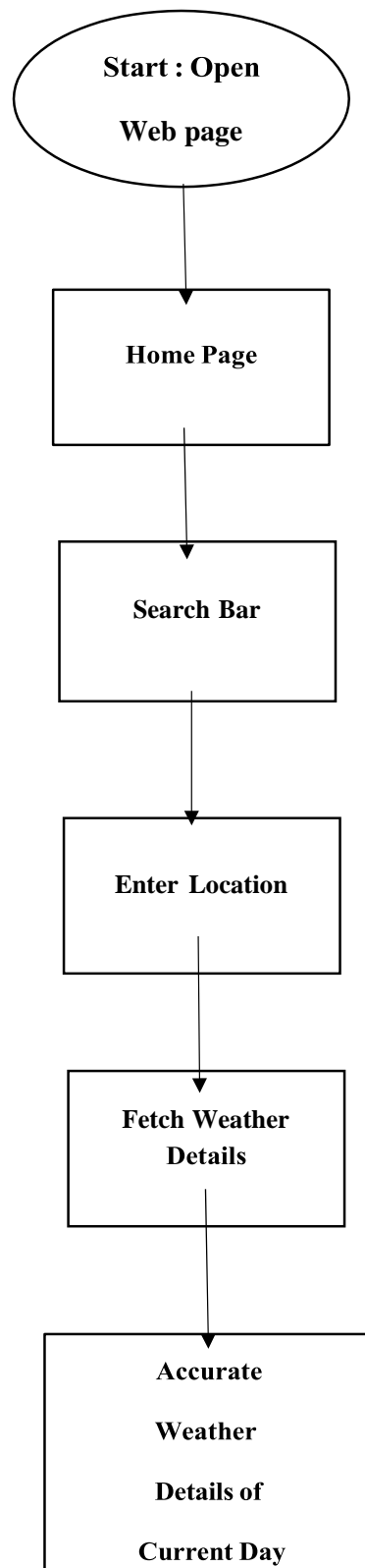## OpenWeatherMap :

For each point on the globe, it provides hyperlocal minute forecast, historical data, current state, and from short-term to annual and forecasted weather data.

Visual Studio Code:

It is a streamlined code editor with support for development operations like debugging, task running, and version control. Each line of the code for making this weather app are written in this.

```
          ┌─────────────────────┐
          │     Start : Open    │
          │      Web page       │
          └─────────────────────┘
                     │
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          ┌─────────────────────┐
          │      Home Page      │
          └─────────────────────┘
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          ┌─────────────────────┐
          │      Search Bar     │
          └─────────────────────┘
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          ┌─────────────────────┐
          │    Enter  Location  │
          └─────────────────────┘
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                     ▼
          ┌─────────────────────┐
          │   Fetch Weather     │
          │      Details        │
          └─────────────────────┘
                     │
                     ▼
          ┌─────────────────────┐
          │      Accurate       │
          │      Weather        │
          │     Details of      │
          │    Current Day      │
          └─────────────────────┘
```

Advantages of the project :

1. **Real-Time Data** : One of the biggest advantages of weather app and also the reason why people have been going in for weather stations is because of the ability to get their information in real-time.
2. **Accurate local forecast :** In reality, the meteorological department may be located far from your home and weather forecasts are made for regions, not a specific area. That's a reason why in these instances, the weather predictions that they give are not always the most accurate.
3. **Ease Of Use** : Ease to use is definitely a big advantage of the weather app. Weather stations like all other weather devices are designed to be efficient and straightforward, therefore, everyone can use them. It is so convenient and comfortable for users to get the most accurate information in the simplest way possible

Disadvantages of the project :

1. Weather is extremely difficult to forecast correctly.
2. The terminology used in weather forecasting can be confusing, making it difficult for some people to understand the predictions.
3. Weather forecasting relies heavily on technology, and if the technology fails or is unavailable, accurate predictions cannot be made.
4. Weather forecasts are not available for many remote or sparsely populated areas, making it difficult for people in these areas to prepare for severe weather.

Future scope :

The future of weather applications is promising, with the increasing demand for real-time and accurate weather information. One potential development is the improvement in accuracy through the use of advanced data collection and analysis techniques. This will lead to more reliable weather forecasts, helping individuals and organizations make informed decisions. Personalization is another area where weather applications are likely to evolve. These apps will offer customized forecasts and alerts based on a user's location, preferences, and behavior. This personalization will make weather information more relevant and useful for the user. Finally, weather applications will become more intuitive and user-friendly, using visualizations and other tools to help users understand complex weather data more easily. This will make weather information more accessible and understandable for everyone, leading to better-informed decisions and actions. Overall, the future scope of weather applications is bright, with continued innovation and advancement in this field expected in the coming years.