WEATHER APP

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ABSTRACT

Nowadays we face a huge problem that knowing real weather status instantly in such a place we need to know.it is often complex and challenging skill that involves observing and processing vast amount of data Weather systems can range from small, short lived thunderstorms only a few miles in diameter that last a couple of hours to large scale rain and wind up to a thousand miles in a diameter, and lasting for days. So most of the time we cannot get the real weather forecast and face a lot of troubles. We have another problem in weather forecasting. To do this effectively technology can help a lot.In this android app is developed with the help of Android Studio and API we will help the user to get to know about real-time weather updates of a particular place.

Keywords: Android, Weather Forecasting, Android Studio, API.

I. INTRODUCTION

To summarize and brief in short, 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.

II. 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.

III.   EXPERIMENTAL SETUP

For this project, Java language is used. For the database, we have used SQLite. Short descriptions of the platforms required are mentioned below:

• **Visual Studio Code:** Visual Studio Code is a source-code editor made by Microsoft for Windows, Linux, and macOS. Visual Studio Code provides developers with a new choice of tool that combines the simplicity of a code editor with effective tooling for their core.

• **Android Development Toolkit:** ADT allows you to quickly set up new Android projects, create an application UI, add packages based on the Android Framework API, debug your applications using the Android SDK tools, and even export signed (or unsigned) . apk iles in order to distribute your application.

• **Git & GitHub:** Git is a version control system that allows you to manage and keep track of your source code history. GitHub is a cloud-based hosting service that enables you to manage Git repositories. It is meant for a team of developers to work collaboratively and together for faster development of the product.

Table 1: Hardware Requirements

Sr. No	Hardware Requirements	
	Name of Equipment	Specification
1	Computer System	8 GB RAM or more, 8 GB of available disk space minimum
2	Keyboard	Any
3	Mouse	Any

Table 2: Software Requirements

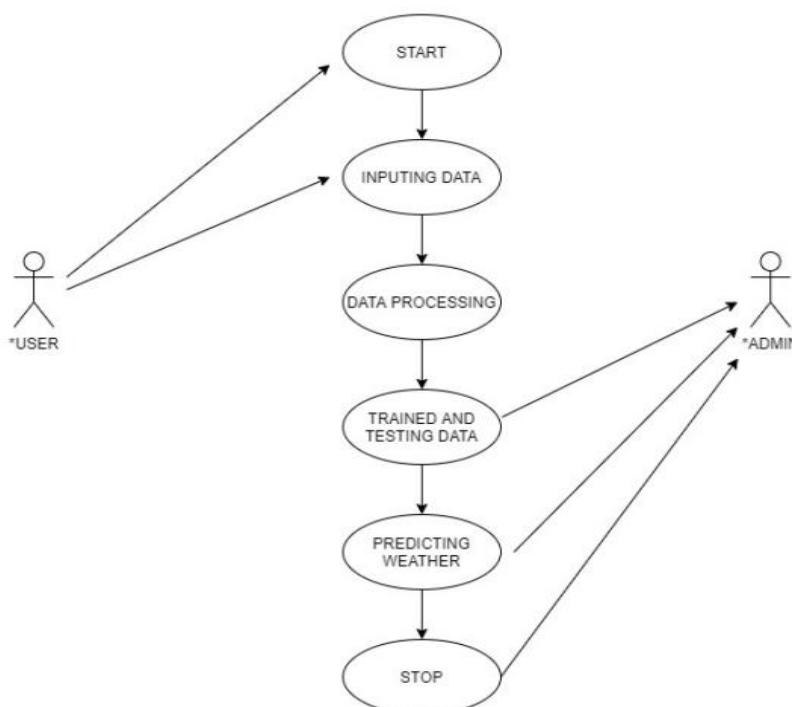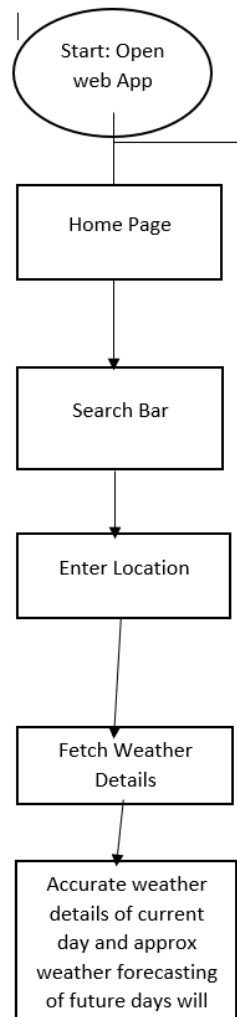| Sr. No	Software Requirements	
	Name of Equipment	Specification
1	Windows/Mac/Linux	Windows – 8/10/11, MacOS 10.14 or higher
2	Android Development Toolkit	Latest
3	Git & Github	Latest
4	Visual Studio Code	Latest

IV.   MODELING AND ANALYSIS
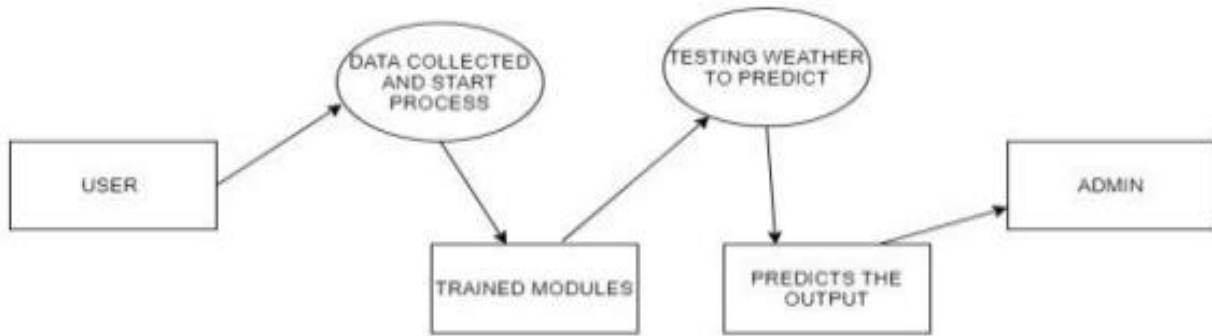
Figure 1: LEVEL ZERO DFD
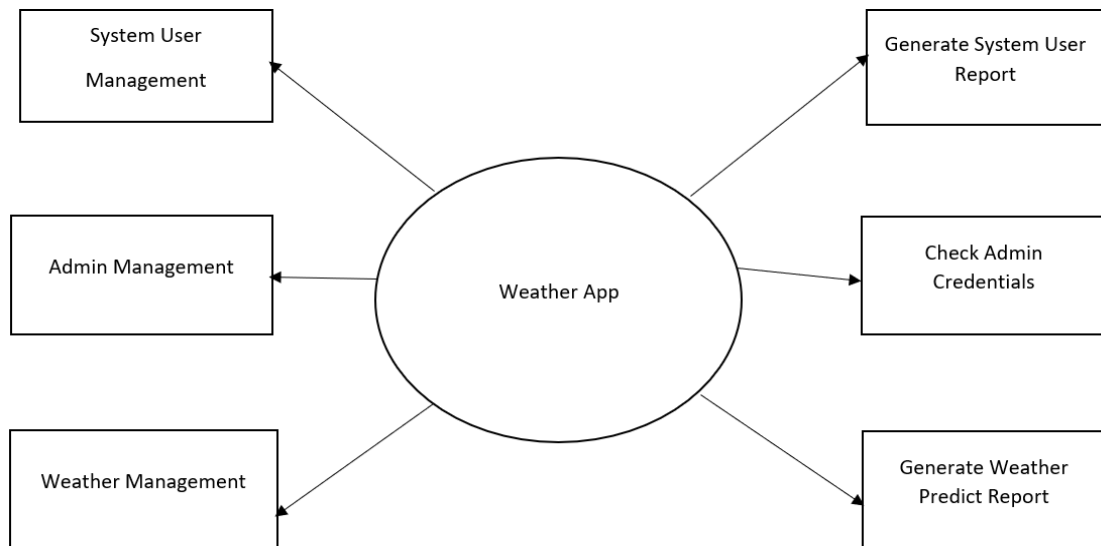
Figure 2: LEVEL ONE DFD

Figure 3: USE CASE DIAGRAM

Figure 4: Application Flowchart

V.   CONCLUSION

From this we can conclude that a weather application can be of great help to users, especially with the increasing use of smartphones and the convenience they provide. Weather applications can be developed for various platforms, but due to the large user base of Android, developing an Android weather app would allow for access to a larger customer base. Android apps are also comparatively cheaper and more accessible, making it easier for users to have access to the app. The weather application will provide users with real-time weather information, forecasts, and other weather-related data, which can help them make better decisions about their day-to-day activities. Additionally, the weather app can provide users with statistical information and trends, which can help them monitor weather patterns over time and make data-driven decisions. Overall, a weather application can be a useful tool for users to stay informed about weather conditions and make better decisions based on that information.

VI.   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, as well as sophisticated algorithms. 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.

VII.   REFERENCES

[1]   https://www.vedantu.com/geography/weather-forecasting

[2]   https://en.wikipedia.org/wiki/Android_Studio

[3]   OpenWeatherMap - Provides weather data API and sample codes for various platforms. https://openweathermap.org/

[4]   Android Developers - Offers comprehensive documentation and tutorials for Android app development, including weather applications. https://developer.android.com/docs

[5]   W3Schools: This website is one of the most popular and comprehensive resources for learning HTML and CSS. It provides tutorials, examples, and references for all aspects of web development, including HTML, CSS, and JavaScript. https://www.w3schools.com/

[6]   MDN Web Docs : This website is a project by Mozilla, and it provides comprehensive documentation and tutorials for web development technologies, including HTML and CSS.

[7]   https://developer.mozilla.org/en-US/docs/Web