

# CHAPTER 1. INTRODUCTION

## 1.1 Background

Indonesia only has two seasons—rainy and dry—because it is a tropical nation and does not experience winter, autumn, summer, or spring. The majority of Indonesia, including Java and Bali, has a dry season from April to October, though there are variations depending on the location. While November until March is considered the rainy season. Seasonal fluctuations in Indonesia, on the other hand, are rather difficult to forecast due to the side effects of global warming.

A weather forecast is essential to our daily life. It gives us crucial knowledge about the local climate and weather, which helps how well we are able to make good decisions. For a variety of purposes, such as public safety, transportation planning, agriculture, and energy management, weather forecasting is crucial. Accurate weather forecasts can assist with preparation for extreme weather conditions, such as hurricanes, tornadoes, and snowstorms, as well as with crop planting and harvesting decisions for farmers. Here are some reasons why we need weather forecast in our lives:

### 1 Planning our day

We can better plan our day when we have a weather forecast. The information it provides about the temperature, humidity, and precipitation levels aids in our decision-making regarding what to wear and travel arrangements. We can make plans to stay indoors or take the necessary safety precautions while traveling if there is a forecast for significant rain or snowfall. The weather forecast can also assist us in determining whether it is safer to postpone outdoor activities like picnics and hikes for a later date.

### 2 Agriculture

A good weather forecast is essential for farming. In order to plan their crops and harvest, farmers need to be aware of the weather conditions. Storms, droughts, and other extreme weather events can have a big impact on crop yield. Our economy is based on

agriculture, and weather forecasts help to ensure that the country has access to enough food. This knowledge can help farmers decide when to plant, irrigate, or harvest their crops, which will increase revenue and lower losses.

### 3 Tourism

The ability to forecast the weather is crucial for tourism. Extreme weather, like hurricanes or blizzards, can interfere with travel plans, inconvenience travelers, and result in financial losses. Throughout the world, an important share of the economy is supported by the tourism sector. The tourism industry depends heavily on weather forecasts because they help travelers plan their trips more effectively and fully enjoy their destinations. To decide when to travel and what activities to schedule, a tourist might, for instance, want to know the weather forecast if they are planning a beach vacation.

The demand for tourism services can be affected by weather conditions. For instance, in areas where the winters are cold, tourism businesses might see a drop in demand over the winter because of unfavorable weather. On the other hand, areas with hot summers might see a rise in demand for tourism-related services during the summer. Tourism companies can plan their operations and staffing to meet customer needs by using weather forecast information. Additionally, weather forecasts can aid in the emergency and hazard preparation of tourism businesses. For instance, tourism businesses can take the necessary precautions to ensure the safety of their visitors and employees if an area is predicted to experience extreme weather conditions, such as a hurricane or a blizzard. This could mean stopping operations, removing visitors, and offering temporary shelter.

Despite developments in technology, weather forecasting is still an inexact science. There are many variables that can affect weather patterns, including topography, ocean currents, and even human activity. The accuracy and dependability of weather forecasts are, however, still being improved by ongoing research and advancements in forecasting models and methods.

In conclusion, weather forecasts are a crucial tool that aid in life planning, food security, and avoiding natural disasters. To make wise decisions and stay safe, we need to properly utilize weather forecast information. Understanding the importance of weather forecasts will help us appreciate their impact on our daily lives and contribute to a future that is more resilient and sustainable.

This application offers users real-time weather data for any location they choose, including their current location. The program accesses current and predicted weather data for a particular location through an API (Application Programming Interface). This application was created to fill the need for an easy, personalized, and accurate weather forecasting tool that can give users access to reliable weather data whenever and wherever they need it. Users can access weather data such as temperature, humidity, wind speed, precipitation, and air quality index. Users can easily and quickly access the information they need thanks to the application's user-friendly and intuitive user interface. Users can view weather information in various formats, and save their favorite locations using the application.

## 1.2 Problem Statement

Despite the abundance of weather data online, lot of users often find it difficult to locate accurate and reliable weather data that is personalized for their needs and location. Numerous weather applications offer generic weather information that might not be relevant to the user's location or offer precise forecasts for their unique needs. As a result, users might miss out on important information that might influence their daily lives and safety. Therefore, it is necessary to create a weather forecasting application that can offer precise and trustworthy weather forecasts, based on the user's location and preferences. Additionally, the application should be simple to use and available to all users. In order to help users to make wise decisions and ensure their safety, this project aims to create a weather forecasting application that can address these issues and offer precise, dependable, and personalized weather predictions.

### 1.3 Research Limitation

There may be some of the potential problems and limitations in this application which are:

1. Data accuracy, the quality and accuracy of the API being used may have constraints on the reliability and accuracy of the weather forecast data. There might be restrictions on some APIs regarding the amount of data that can be accessed as well as the frequency of data updates.
2. Connectivity issues, in order to access real-time weather information, the application needs an active internet connection. Users may encounter problems with the application's functionality in places with poor network coverage or limited connectivity.
3. Device compatibility, the application might not work on all Android devices, especially older or less powerful ones that might not have enough processing power or memory to meet the application's requirements.
4. Lack of customization, not all users' needs may be met by the application's customization options. For instance, some users might need elaborate customization options or more in-depth weather information than what the application offers.
5. External factors, unexpected weather events, natural disasters, and climate change are just a few examples of external factors that have an impact on the weather and are out of the application's control. This might lower the forecasts' precision and dependability.

### 1.4 Research Purpose

The purpose of the research is to create an application that can access real-time and forecasted weather information for a user's location or any other location they choose via an API. The application's interface should be simple and easy to use, allowing users to quickly and easily access the data they need. Additionally, provide a reliable and accurate solution to users' weather information needs, enabling them to make informed decisions and stay safe in all weather conditions.

## 1.5 Research Benefit

This application has several potential benefits:

1. User-friendly interface, the goal of the research is to create an intuitive and user-friendly interface that enables users to access the information quickly and easily they need.
2. Accessibility, with API, this application can be used from any location with an internet connection, making it simple for users to stay up to date on weather conditions while on the go.
3. Accuracy and reliability, the API used is using advanced machine learning and statistical modeling techniques to analyze current and historical weather data, giving users access to more accurate and reliable weather information.