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On

“WEATHER APPLICATION”

Submitted in the partial fulfillment of the requirement for the award of degree of

BACHELOR OF ENGINEERING
In
COMPUTER SCIENCE AND ENGINEERING

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SAI VIDYA INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University, Belagavi Recognized by Govt. of Karnataka Approved by AICTE, New Delhi)

RAJANUKUNTE, BENGALURU –560064

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CERTIFICATE

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ABSTRACT

Once a human-only endeavor based mainly upon changes in barometric pressure, current weather conditions, and sky condition or cloud cover, weather forecasting now relies on computer-based models that take many atmospheric factors into account. Human input is still required to pick the best possible forecast model to base the forecast upon, which involves pattern recognition skills, tele-connections, knowledge of model performance, and knowledge of model biases. The inaccuracy of forecasting is due to the chaotic nature of the atmosphere, the massive computational power required to solve the equations that describe the atmosphere, the error involved in measuring the initial conditions, and an incomplete understanding of atmospheric processes.

Hence, forecasts become less accurate as the difference between current time and the time for which the forecast is being made (the *range* of the forecast) increases. The use of ensembles and model consensus help narrow the error and pick the most likely outcome.

There are a variety of end uses to weather forecasts. Weather warnings are important forecasts because they are used to protect life and property. Forecasts based on temperature and precipitation are important to agriculture, and therefore to traders within commodity markets. Temperature forecasts are used by utility companies to estimate demand over coming days. On an everyday basis, people use weather forecasts to determine what to wear on a given day. Since outdoor activities are severely curtailed by heavy rain, snow and wind chill, forecasts can be used to plan activities around these events, and to plan ahead and survive them.

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CHAPTER 1

INTRODUCTION

Weather forecasting is the application of science and technology to predict the conditions of the atmosphere for a given location and time. Human beings 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 at a given place and using meteorology to project how the atmosphere will change. There are a variety of end uses to weather forecasts. Weather warnings are important forecasts because they are used to protect life and property. Forecasts based on temperature and precipitation are important to agriculture, and therefore to traders within commodity markets.

1. Problem Statement

The purpose of developing weather app is to fetch the data in the need of taking information about weather worldwide. Another purpose for developing this software is to generate the report automatically at the end of the session. Today in this article we would be discussing how we can build such an application for Android.

2. Solution for the problem

The scope of the project is the system on which the software is installed, i.e. the project is developed as a desktop application, and it will work for a particular institute or organization. But later on the project can be modified to operate it online.

3. Objective

The main objective of this project is to help us **make sense of information efficiently**. We make sense of new information by organizing it in the context of things we already know. The intention of developing weather app is to fetch the data in the need of taking information about weather worldwide.

4. Organization of Report

After this introductory chapter, Chapter 2 describes Requirement Specifications like Software Requirements, Hardware Requirements, Functional Requirements, Non-Functional Requirements.

Chapter 3 summarizes the System Design with Basic Block Diagram, Deployment Diagram, Protocol Architecture, Flow Chart, State Transition Diagram, Sequence Diagram, Activity Diagram, and Data Flow Diagram.

Chapter 4 provides an account of Implementation with explaining each Project Modules thoroughly.

Chapter 5 presents Testing and its Results with Snapshots of each detail regarding the Android project.

Chapter 6 describes the conclusions drawn from the whole project through Testing and its Results.

Finally, Chapter 7 compiles the suggestions of the Scope for the Future Work

CHAPTER 2

REQUIREMENT SPECIFICATION

The following chapter deals with the software requirements and specifications involved in the project.

1. Software Requirements

Programming language : JAVA

Operating system : WINDOWS

Android Studio Frontend : JAVA

2. Hardware Requirements

C.P. : Pentium IV 2.4GHzabove

Memory (Primary) : 512 MB, 1 GB above

Output Device : Android smart PhoneInput

Devices : Keyboard

Hard Disk : 40GB, 80GB, 160

GB . Monitor : 15 VGA color

Functional Requirements

The design process outlined above, lead to the implantation of the systems in term of a digital remediation of analogue post-its. Hence, it is designed While functional requirements define the system's fundamental behavior, non- functional requirements set out how the system will carry out this function. Technical evaluation must also assess whether the existing systems can be upgraded to use the new technology and whether the organization has the expertise to use it. Install all upgrades framework .

4 Non-Functional Requirements

While functional requirements define the system's fundamental behavior, non- functional requirements set out how the system will carry out this function. Development of this application is highly economically feasible. The only thing to be done is making an environment with an effective supervision. It is cost effective in the sense that has eliminated the paper work completely. The system is also time effective because the calculations are automated which are made at the end of the month or as per the user requirement.

CHAPTER3

SYSTEM DESIGN

1. Basic Block Diagram

A block diagram is a specialized, high-level flowchart used in engineering. It is used to design new systems or to describe and improve existing ones. Its structure provides a high-level overview of major system components, key process participants, and important working relationships.

Figure 3.1: Basic Block Diagram



2. Deployment Diagram

A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them. Deployment diagrams are typically used to visualize the physical hardware and software of a system.

Figure 3.2: Deployment diagram

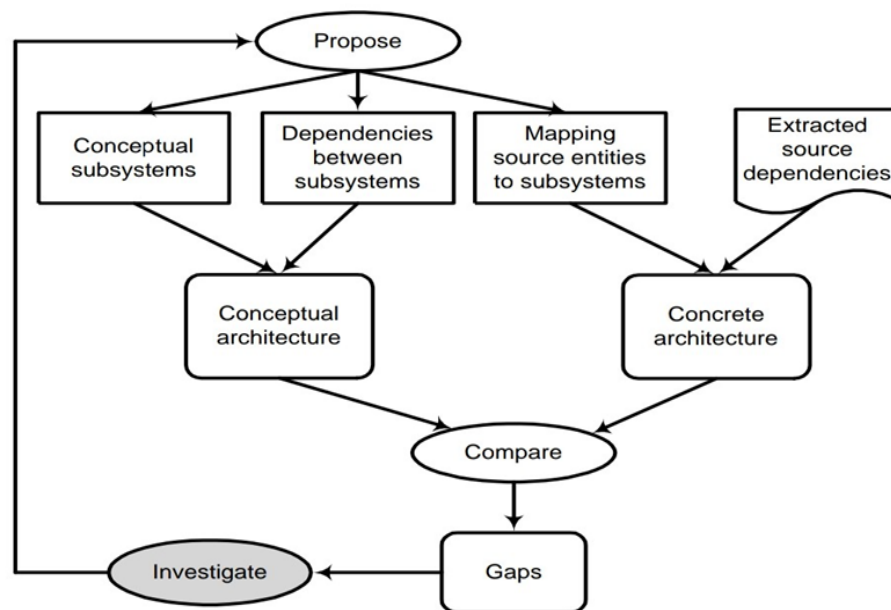
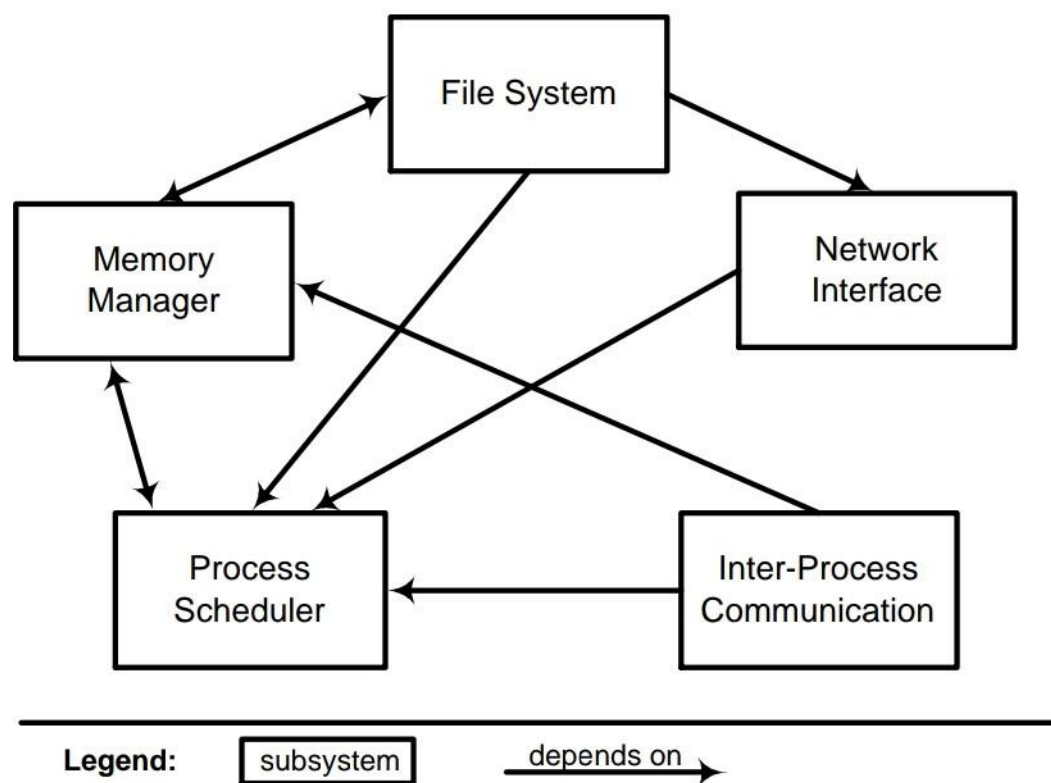


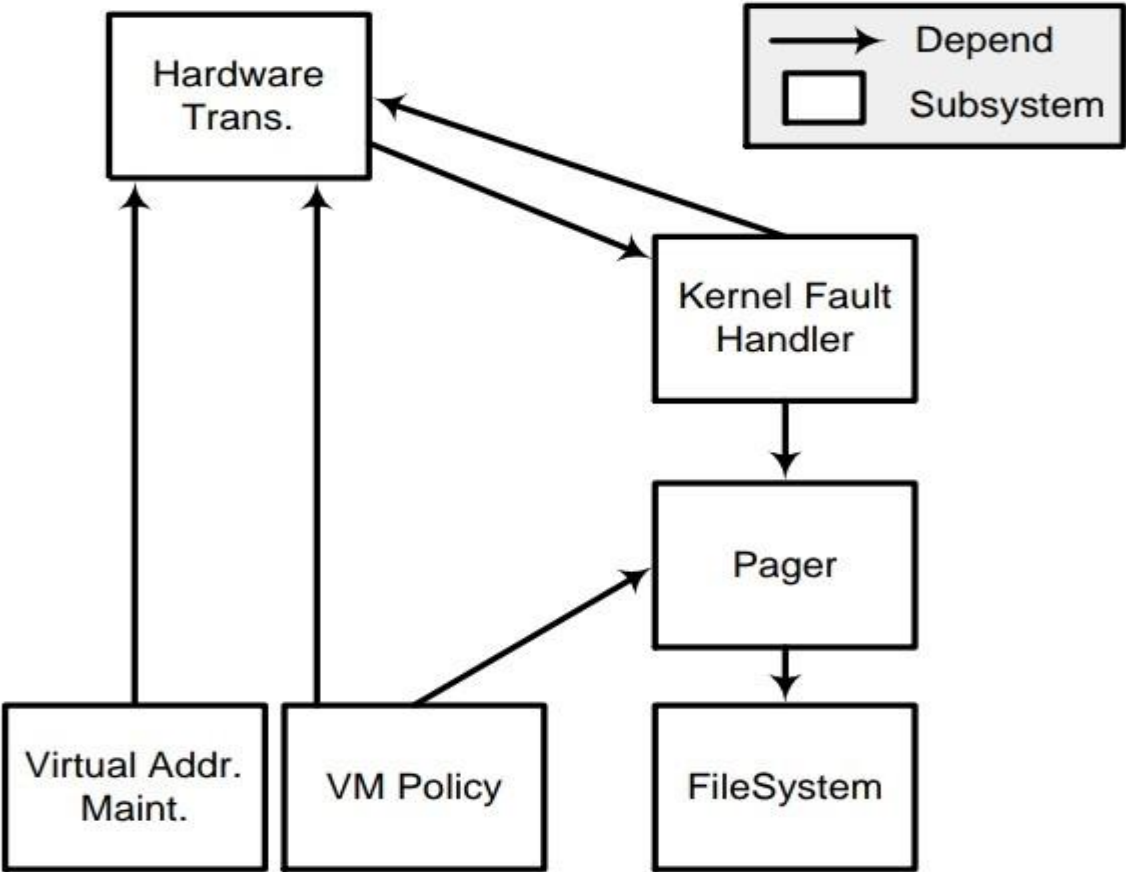
Figure3.3: Protocol Architecture



Flow Chart

A flowchart is simply a graphical representation of steps. It shows steps in sequential order and is widely used in presenting the flow of algorithms, work flow or processes. Typically, a flow chart shows the steps as boxes of various kinds, and their order by connecting them with arrows.

Figure3.3: Flow Chart



3. State Transition Diagram

A state diagram is a type of diagram used in computer science and related fields to describe the behavior of systems. State diagrams require that the system described is composed of a finite number of states sometimes ,this is indeed the case, while at other times this is a reasonable abstraction. Many forms of state diagrams exist, which differ slightly and have different semantics.

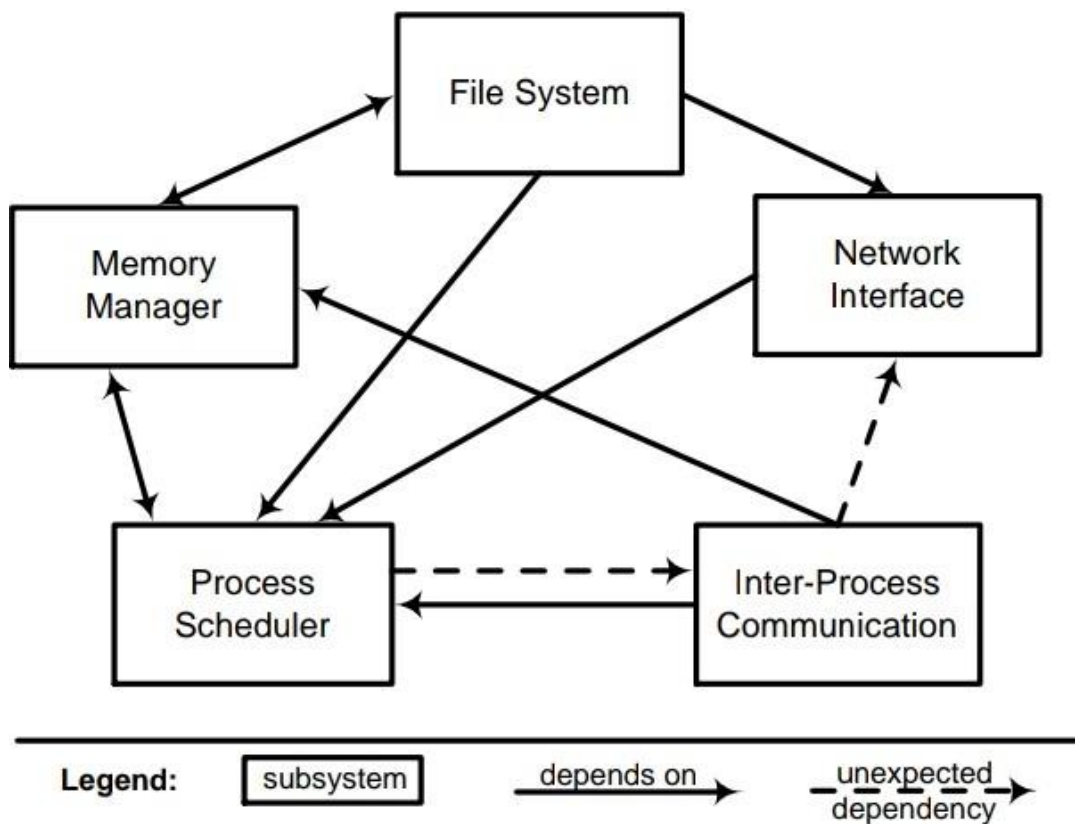
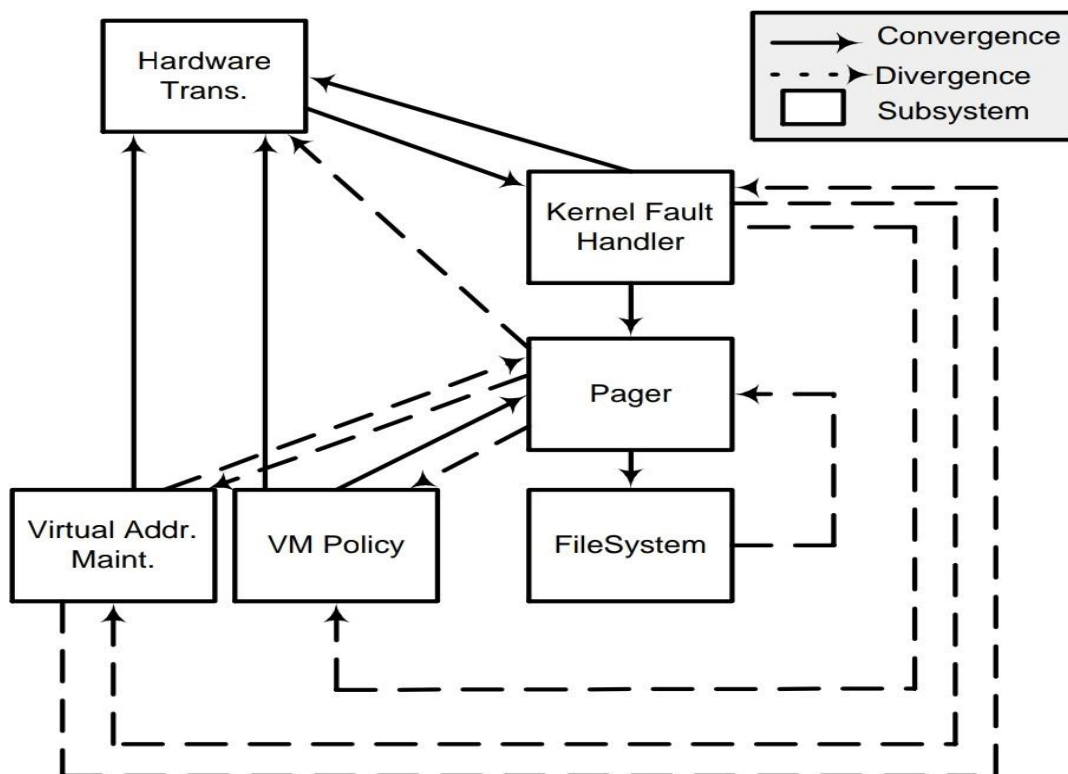


Figure3.5: State Transition diagram

5. Sequence Diagram

A sequence diagram is a type of interaction diagram because it describes how and in what order—a group of objects works together. These diagrams are used by software developers and business professionals to understand requirements for a new system or to document an existing process. Sequence diagrams are sometimes known as event diagrams or event scenarios.

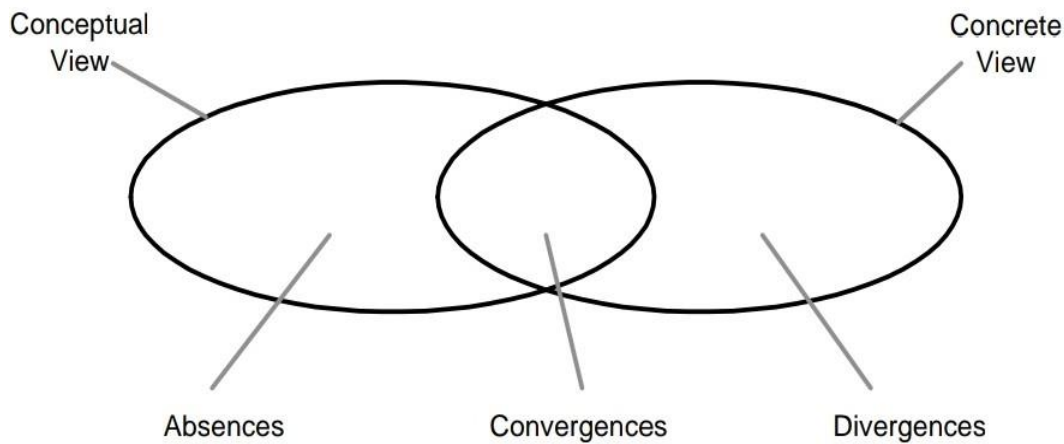
Figure3.6: Sequence diagram



4. Activity Diagram

An activity diagram is a behavioral diagram i.e. it depicts the behavior of a system. An activity diagram portrays the control flow from a start point to a finish point showing the various decision paths that exist while the activity is being executed.

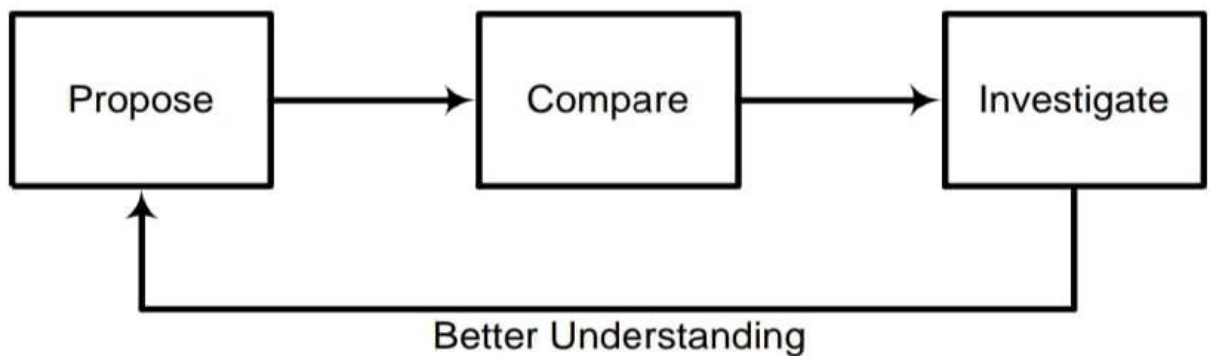
Figure3.7: Activity diagram



6. Data Flow Diagram

A data flow diagram is a way of representing a flow of data through a process of a system. The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow, there are no decision rules and no loops

Figure3.8: Data Flow diagram



CHAPTER4

IMPLEMENTATION

1. PROJECT MODULES

- TextView: It displays the name of the app “Mausam”.
- EditText: It displays “Enter the City name” where in user can enter a valid city name.
- Button: “Get weather” button when clicked weather, pressure and humidity will be displayed.
- TextView: It displays the temperature in degree Celsius.
- TextView1: It displays the humidity in percentage.
- TextView1: It displays the pressure in hPa.

2. PROJECT IMPLEMENTATION

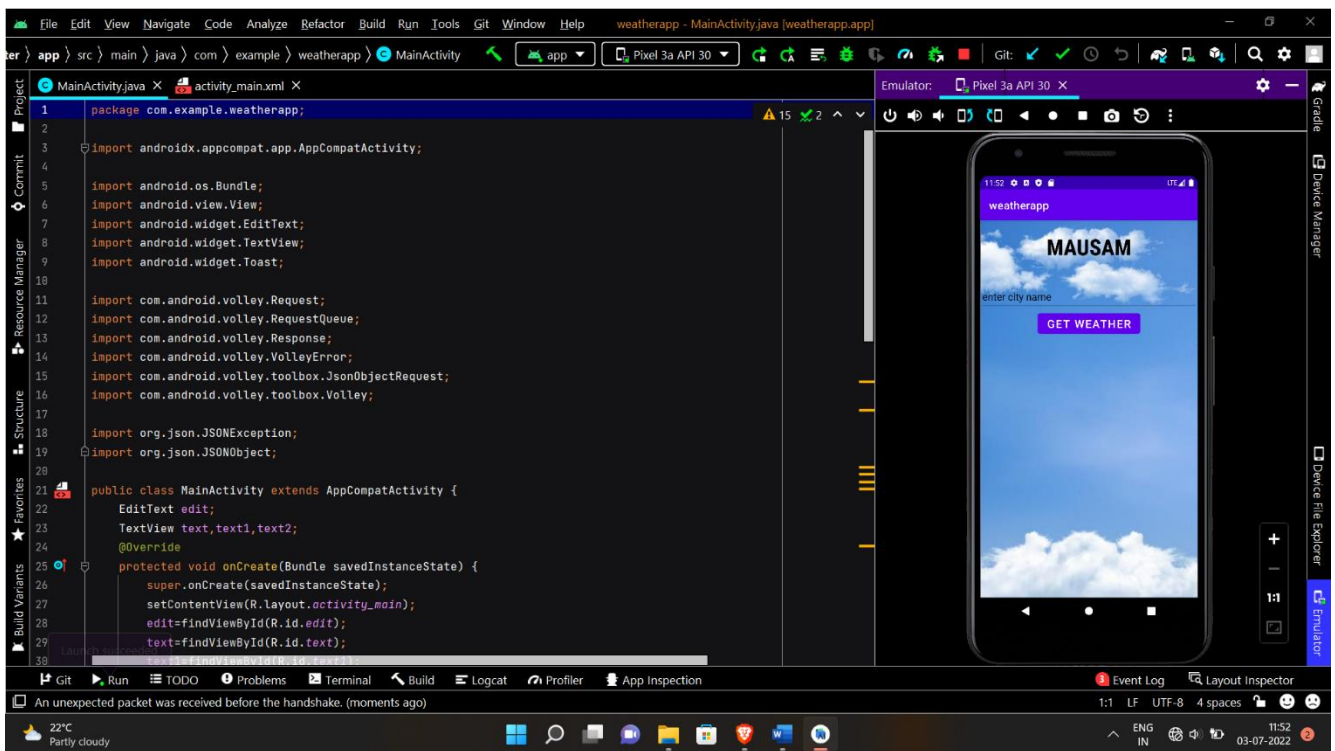
A software system test plan is a document that describes the objectives, scope, approach and focus of software testing effort. The process of preparing a test plan is a usual way to think the efforts needed to validate the acceptability of a software product. The complete document will help people outside the test group understand the "WHY" and "HOW" product validation. It should be through enough to be useful but not so through that no one outside the test group will read it.

CHAPTER 5

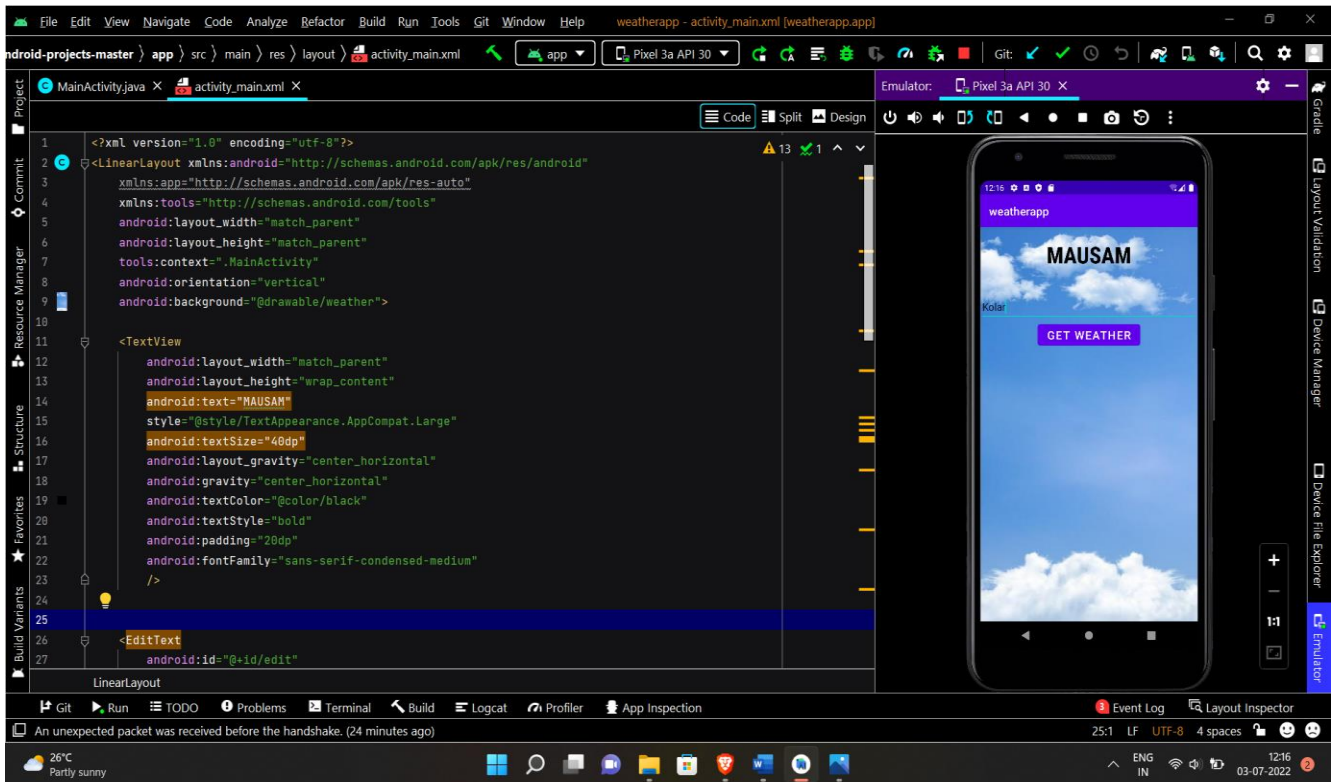
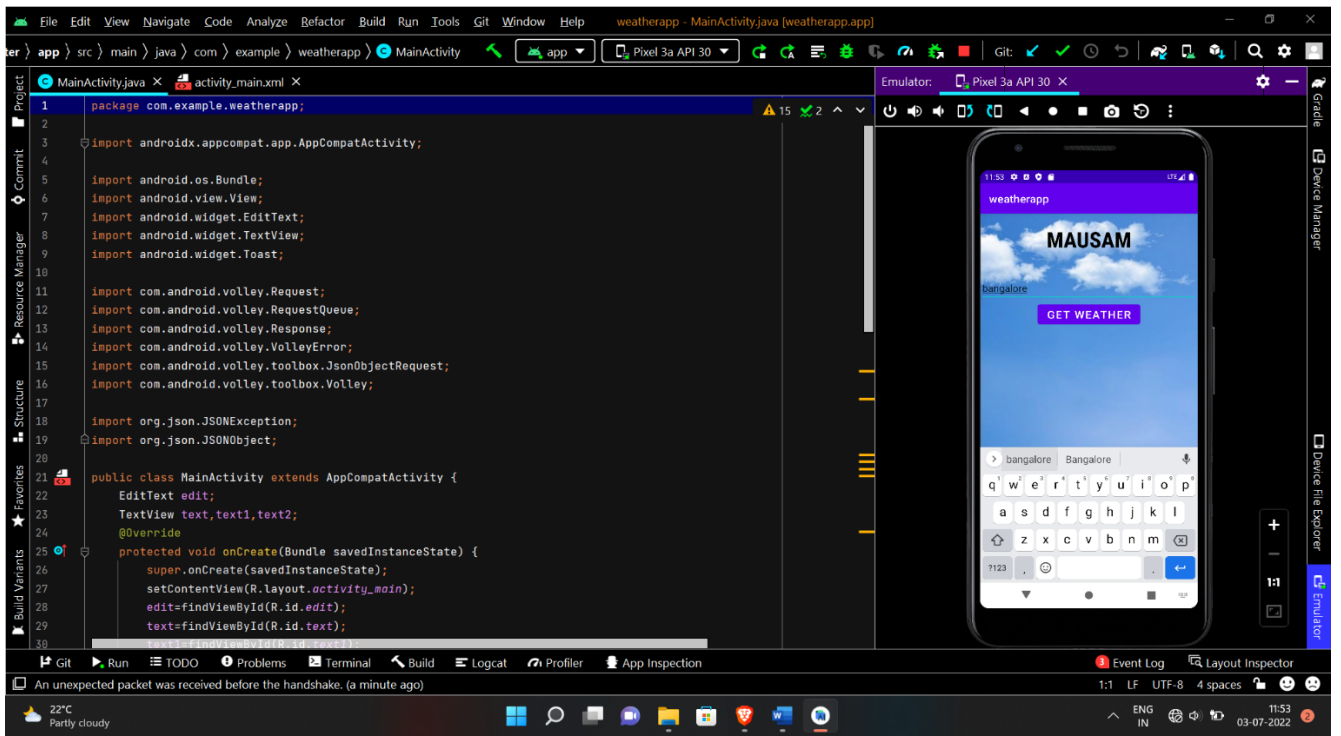
TESTING AND RESULTS

Basically, the main agenda of the application is to display accurate results based on appropriate legal input. Fetching data from the API and synchronizing it to the application was a critical task. All the test cases for various different inputs fetched accurate output. The results were verified and found correct.

5.1 SNAPSHOTS

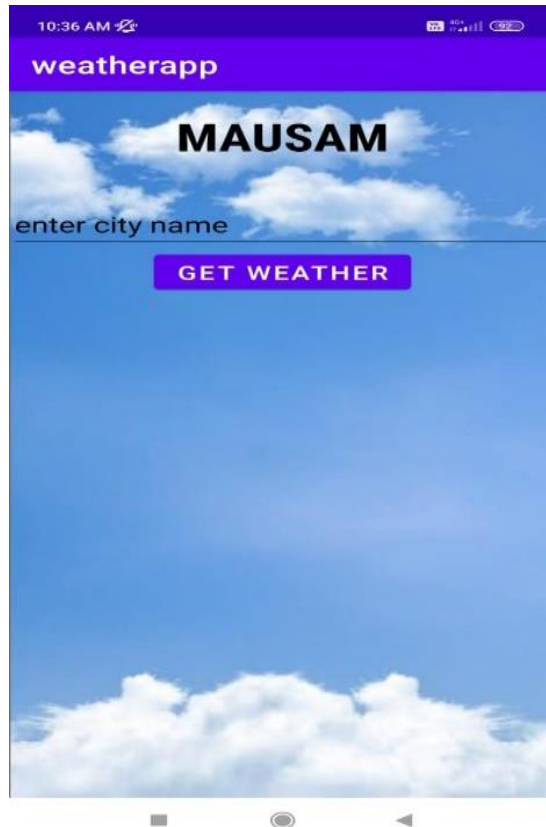


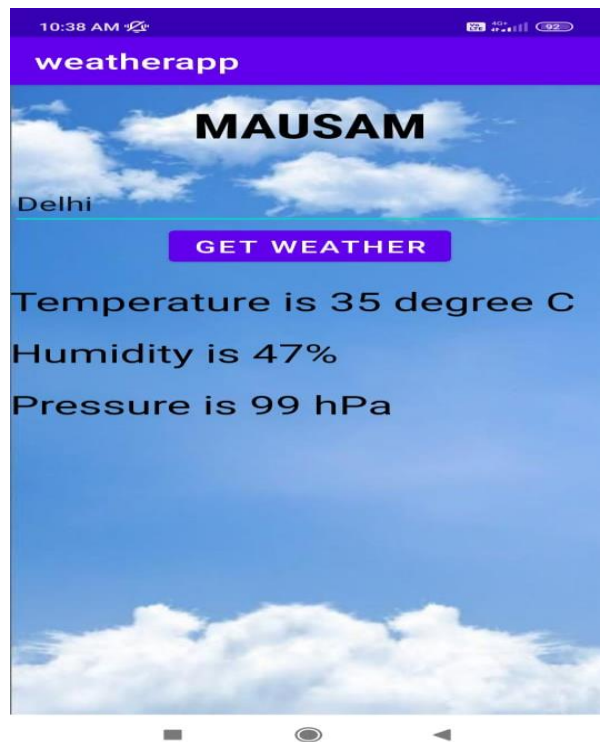
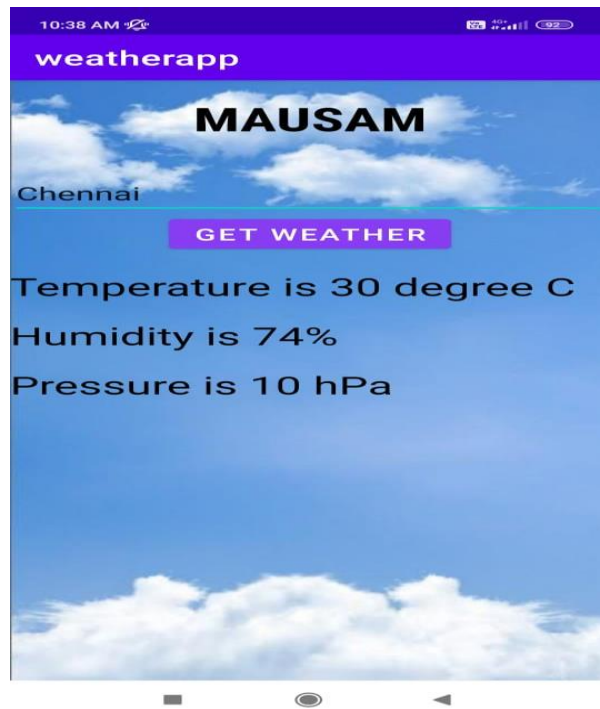
Weather Checking App

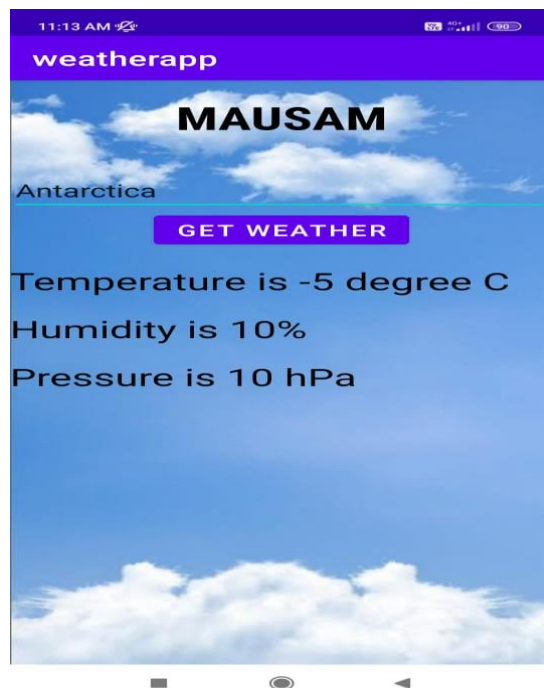


Screen shots from an Android device

This app will work for cities inside India and also around the world.









CHAPTER 6

CONCLUSION

As the people's interest and consciousness towards daily weather data and its analysis is increasing day by day our application is a one tap solution to know the current weather, temperature and humidity of a particular city.

On a whole this application helps user to get his job done in no time and in a simplified manner.

References:

1. <https://openweathermap.org/>
2. <https://developer.android.com/docs>
3. <https://www.geeksforgeeks.org/how-to-build-a-weather-app-in-android>