MINI PROJECT-II (2021-22)

"WEATHER APP"

Project Report

Institute of Engineering & Technology

Submitted By –

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Under the Supervision Of

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Declaration

We hereby declare that the work which is being presented in the Bachelor of technology.

"**Weather App",** in partial fulfillment of the requirements for mini Project viva voce,is an authentic record of our own work carried by the team members under the supervision of our mentor Mr. Mandeep Singh.

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Course: B.Tech (Computer Science and Engineering)

Year: 3rd Semester: 6th

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Certificate

This is to certify that the above statements made by the candidates are correct to the best of my/our knowledge and belief.

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Supervisor

Mr. Mandeep Singh

Assistant Professor

Dept of CEA, GLA University

_____	_____
Project Coordinator	Program Coordinator
(Mr. Mandeep Singh)	(Mr. Shashi Shekar)

INTRODUCTION

About the Project

Weather App is an android application made to facilitate users with has a solution so that user are able to fetch live weather update. Whether you're looking to fetch weather data when you are going to office or to fetch another city data by sitting at home, This app would be better for that. This application is designed to help you to acknowledge better with live weather forecast.It is a hassle- free and pinpoint accurate platform with retrieving information of each and everything related to basic weather application, including live weather of the required city using React Native and Weather API. To check temperature, wind speed, humidity and weather of required location. We also provide background suited for respective weather conditions.

The main goal of the service is to develop a Live Weather Forecast Expo App which provide live weather of the required city using React Native and Weather api. To check temperature, wind speed, humidity and weather of required location.

This software is provided as an online only resource so that it may be continually extended and updated.

Motivation

Live Weather android application are a perfect platform for people to get knowledge about any particular problem. The basic objective of developing this project are:

- Ability to fetch Live weather forecast.
- Fetch any city forecast in hassle free manner
- Allows you to fetch wind speed and humidity as well for any respective city

Acknowledgement

The satisfaction that accompanies the successful completion of this project would be incomplete without the mention of the people who made it possible, without whose constant guidance and encouragement would have made efforts go in vain.

I consider myself privileged to express gratitude and respect towards all those who guided us through the completion of this project. I convey thanks to my project guide **Mr Mandeep Singh** of Computer Science and Engineering Department for providing encouragement, constant support and guidance which was of a great help to complete this project successfully.

Last but not the least, we wish to thank our parents for financing our studies in this college as well as for constantly encouraging us to learn engineering. Their personal sacrifice in providing this opportunity to learn engineering is gratefully acknowledged.

Contents

Introduction

App development, also known as client-side development is the practice of that a user can see and interact with them directly. The challenge associated with app development is that the tools and techniques used to create the app change constantly and so the developer needs to constantly be aware of how the field is developing.

Developing a application we follow these steps:

- **Planning**, which involves identifying a need, consideration of solution options, and possibly considering the features of competing applications.
- **Analysis**, which involves documenting the functional requirements for the app and anticipating potential problems that may be encountered.
- **Design**, which involves defining how the app will work and what features and components it will have.
- **Construction**, which is where the actual programming occurs using the requirements and design as a guideline.
- **Testing**, which involves trying out the app looking for errors and confirming that documented requirements are met.
- **Implementation**, which involves making the app available for people to use.
- **Support**, which involves monitoring the user experience. Sometimes recommendations for revisions arise. If those recommendations are pursued, they'll go through the lifecycle also.

The objective of designing a app is to ensure that when the users open up the app they see the information in a format that is easy to read and relevant. This is further complicated by the fact that users now use a large variety of devices with varying screen sizes and resolutions thus forcing the designer to take into consideration these aspects when designing the app. They need to ensure that their app comes up correctly in different browsers (cross-browser), different operating systems (crossplatform) and different devices (cross-device), which requires careful planning on the side of the developer.

Pre-requisite

Hands-on knowledge of Javascript, Visual Studio Code, Expo-io and Expo-go is essential before workingon the concepts for making of application.

Technologies Used

Visual Studio Code

Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).

Features of Visual Studio Code

- Collaborate and Code remotely
- It helps us in easily identifying coding patterns and learn faster
- Visual Studio has a consolidated environment where we can develop for all Android devices.
- It has "Fix errors as you code policy"
- Helps comparing the changes in your code by splitting windows.

Our Code contains folders and subfolders for designing and deploying the code by expo start. It contains the following files and folders:

- **assets:** It contains the all the images and required data of the project for designing.
- **components:** It contains the source code of search bar and weather app screen.
- **App.js :** It contains the main code of the live weather app project application.
- **Package.json/app.json :** It contains the required dependencies version, expo version, app icon location, package name etc of the project.

Expo CLI

Expo is an open-source platform for making universal native apps for Android, iOS, and the web with JavaScript and React.

Expo CLI is a command line app that is the main interface between a developer and Expo tools. Expo CLI also has a web-based GUI that pops up in your web browser when you start your project — you can use the GUI instead of the command line interface if you're not yet comfortable using a terminal or prefer GUIs, both have similar capabilities.

React Native

React Native is a JavaScript framework created by Facebook for writing real mobile applications especially for iOS and Android. It comes out of React, Facebook's JavaScript library used for building user interfaces but it mainly focuses on Mobile Platforms. Now the web developers can write mobile applications all from the comfort of a JavaScript library that they already know. Most of the codes now can be shared between platforms, React Native makes it easy to develop for both Android and iOS simultaneously. Its applications are written with a combination of JavaScript and JSX. This calls the native rendering APIs in Objective-C (for iOS) or Java (for Android). Now, the applications will use real mobile UI components, unlike the review. It also supports JavaScript interfaces for platform APIs, so the apps can access platform features like the phone camera, or the user's location.

Advantages of React Native:

- Better Performance as compared to other Native.
- Reusability of codes
- Cost Efficiency
- Support for Third-Party Plugins
- Strong support from the Community
- More stable apps creation than competitors
- Simple and Easy User Interface to work on
- The libraries are more handy to use.

As we can see, React Native being a more popular framework as compared to the other Native frameworks has been a hype in the Mobile App Development Market which can help in simplifying and making this industry flourish. It has been a great help in saving time and money by minimizing the efforts and team scaling. With time we have seen that the Apps built on React Native works far more efficient and agile. Apps run more smoothly and fast loading speed can be attained with less memory usage. For worst-case scenarios, we can always trust the support of the community. For the time being, it is going to stay in the market and help the developers ease their work and develop faster, interactive apps.

React Native vs React JS

All ReactJS and React Native are essential factors in mobile and web app creation, and they are getting amazing traction with every passing day because of their flexible features and a changing environment of library services. As ReactJS is essentially a JavaScript library and React Native is a concise pathway, the former works as the latter's core complement.

If ReactJS is perfect for creating and more efficient and performing complex apps, then React Native is an amazing factor for giving your mobile apps a native vibe. Let's compare React JS vs React Native to get their key differences.

1. ReactJS is a web based platform foundation variant of React DOM. In contrast, React Native is a dilutive base, which indicates that the coding and business process kept the same due to the element's nature.
2. Finally, the development team can use the JS library to design an interactive and efficient UI Surface. In contrast, React Native is a full solution for developing cross-platform web applications either iOS, or Android.
3. In ReactJS, digital DOM represents browsing the program element, whereas, in React Native, native APIs work to describe its elements.
4. ReactJS apps deliver HTML to its UI, whereas React Native utilizes JSX that will render the interface. In addition, it's usually JavaScript.
5. In ReactJS, we need CSS to build styling, whereas in React Native, a stylesheet is needed to add styling.
6. You can perform animations through CSS in Applications based on ReactJS. However, an interactive API is required throughout various React Native applications.
7. ReactJSis an amazing alternative for creating a robust, dynamic, and receptive UI for web UI. In contrast, React Native is a great alternative for giving mobile applications a truly native vibe.

React Native and ReactJS are considered essential sources for application development. ReactJS is suitable for building efficient apps and performing tricky operations, and then React Native is optimal for your mobile app's native vibe.

As we have many dissimilarities between ReactJS and React Native, a few of the similarities also exist. People generally agree that the main thing that is common in both is a lack of information on both. Conversely, since the launch of React 16, there has been excellent information online on its official website.

React Native uses ReactJS as a core library when using React Native for cross-platform applications. It only needs a basic understanding of JS and the coding style of React.

In the React Native framework, you could use most development tools devoted entirely to ReactJS, such as Chrome Dev Tools for exhibiting console logs and examining network requests or Redux DevTools to investigate the redux store's condition.

Both ReactJS and React Native are excellent for rapid and challenging UI development, and switching from React Native to ReactJS is basic for the developers who appreciate trying out new JavaScript frameworks.

Each technology or structure in the software industry has some weaknesses, and ReactJS and React Native are no exception. Consequently, it is amazing to track the characteristics of these technologies before any expected outcomes.

OpenWeather Map API

OpenWeatherMap is an online service, owned by OpenWeather Ltd, that provides global weather data via API, including current weather data, forecasts, nowcasts and historical weather data for any geographical location. The company provides a minute-by-minute hyperlocal precipitation forecast for any location. The convolutional machine learning model is used to utilise meteorological broadcast services and data from airport weather stations, on-ground radar stations, weather satellites, remote sensing satellites, METAR and automated weather stations.

The company has more than 2 million customers, ranging from independent developers to Fortune 500 companies.

The variety of weather APIs provided by OpenWeatherMap have found a significant popularity among the software developers, which resulted in the growing multitude of repositories on GitHub. The APIs support multiple languages, units of measurement and industry standard data formats like JSON and XML.

In 2021, OpenWeatherMap launched a number of initiatives to support students, researchers and developers across the world.

We have fetched our API from OpenWeatherMap itself in this project.

Requirements

a). Software Requirements:

- Technology Implemented: React Native.
- Tools used: Visual Studio Code, Expo io online,Expo go.
- Languages/Technologies Used: Jsx,React..
- IDE Used: Visual Studio Code
- Device: Android

- GitHub: GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere. GitHub Repository: A GitHub repository can be used to store a development project. It can contain folders and any type of files (HTML, CSS, JavaScript, Documents, Data, Images). A GitHub repository should also include a license file and a README file about the project. A GitHub repository can also be used to store ideas, or any resources that you want to share.

b). Hardware Requirements:

- Processor Required: Intel i5
- Operating System: Windows 10
- RAM: 4GB
- Hardware Devices: Computer System
- Hard Disk: 256GB

User Interface

Main Screen:

Desired Screens:

Incorrect City in Search's Screen :

IMPLEMENTATION AND USER INTERFACE

Creating an Application with screen sketches is the best way to communicate your vision to the App. Making the concept clear to the developer is probably the most important factor in successful App development. Yet it is one of the most common problems or obstacles in a App development outsourcing project. No matter what the marketing and profit goals are or if you are outsourcing an app for your personal use, you need to fully design and document the app concept if you expect a programmer to make your vision a reality. Developers are not mind readers and even descriptions given during conversations can be very fleeting or interpreted differently. Fully documenting your concept, therefore, leaves little to chance.

The two most important things to do are:

A) make a comprehensive description of how the Application works and what it does

(functionality) and

B) create a comprehensive description of what the user sees and does (look and feel).

Implementation of the WeatherApp

Implementation of WeatherApp was carried out in fragments.

First of all we designed a Default Screen :

- Default Screen:
- A navbar positioned at the top with input for search city
- On screen there is live weather forecast of our by default city, New Delhi.
- Below New Delhi Weather in Celsius, There is wind speed and Humidity acknowledgement as well.

2.After that we search for ny city a screen will appear along with basic information such as live weather forecast,wind speend and humidity of that respective serached city.

3.If the searched city name is incorrect, then there will be a screen appears which consists,"wrong city, try another city name" error.

4.Our app is beautifully designed for live weather forecast aling with gifs in background to make it look attractive.

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Conclusion

We have completed our project within time limit with the coordination of our team members under the supervision of our mentor Mr. Abhishek Tiwari

My project repository is available at:

https://github.com/719711711497118/weatherapp

Bibliography

www.google.com

www.expo.dev

www.stackoverflow.in

CERTIFICATE

MTA-INDIA

Project Completion Certificate

This is to certify that Gaurav Srivastava

has successfully completed the Industry Oriented Summer Training Internship

Course Name Web Development with ASP.NET

Project Name Yoga Educational Website

Training Date 1st June 2021 To 30th June 2021

Training Location NOIDA

ade awarded A

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Microdot Tech Aspire Solutions (P) Ltd.
(An ISO 9001:2015 Certified Company)

Signature

udemy

Certificate no: UC-68022605-ce65-40c0-8d8b-820a46601856
Certificate url: ude.my/UC-68022605-ce65-40c0-8d8b-820a46601856
Reference Number: 0004

CERTIFICATE OF COMPLETION

Become a Certified HTML, CSS, JavaScript Web Developer

Instructors **Framework Tech Media, Mark Lassoff**

Siddharth Singh

Date **Nov. 21, 2021**
Length **46 total hours**

Thank You