1 Introduction

1.1 Rationale and Structure

This report comprehensively presents the "Weather Project" Web application designed and implemented by Team 30, which is a group assignment for the Cloud computing course at Auckland University of Technology. The objective of this assignment is to show how to design and deploy a moderately complex cloud-based solution that integrates user authentication, data retrieval and storage functions, and utilizes modern Web and cloud technologies.

The rest of this report provides an overview of the complete development process of the application. First comes the requirements analysis, which elaborates in detail on the functional and non-functional goals guiding the design. Next comes business design and process modeling, which elaborates on how users interact with the system and how these interactions are transformed into back-end operations. The report also takes a closer look at how the system was built—from the front-end interface and back-end logic to the database structure and cloud deployment setup. It finishes with a user manual to help others understand how to use the application, followed by a team reflection that shares what we learned during the project, the challenges we encountered, and ideas for how the system could be improved or extended in the future.

1.2 Objective

Weather application allows users to search for a city and view related weather forecast details

• Weather Details: Display the current city name, real-time temperature, min/max

temperature, sunrise, sunset, humidity, pressure, “feels like” temperature, and a 7-day

forecast

• User Authentication: Provide users with 10 built-in avatars to choose from,

username, password, email verification, and Google reCAPTCHA

logged-in support sessions are kept for 180 days

• User Favorites: Allow users to favorite or unfavorite cities from the weather card, and give priority to the weather conditions of already collected cities

1.3 Approach

Figures 1 and 2 present the conceptual direction and intended outcomes identified during the team’s early planning discussions.

表格

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图形用户界面, 应用程序

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The team used a GitHub Project Board to manage and track the progress of all documentation and development tasks. The board was updated regularly to reflect the current task status, such as “To Do”, “In Progress”, and “Done”. Figure 3 shows a snapshot of the board during development, highlighting tasks that were actively being worked on.

图形用户界面, 文本, 应用程序, 电子邮件

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