SOFTWARE REQUIREMENTS SPECIFICATION

for

Webble, the Weather App

CES4020

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1 Introduction

1.1 Purpose

The purpose of this project is to design and build a fully functional weather desktop application called Webble. Webble's primary objective is to provide weather forecast data to users based on geographic location in a simple and intuitive manner.

1.2 Project Scope

Webble's objective is to provide an easy and straightforward manner in which users can obtain weather forecasts for their city. New users will register accounts with the application, and the application's database will be able to support up to 20 user accounts. Moreover, Webble will include two tiers of user accounts, Free Users and Premium Users, and offer different features based on users' account type. The application's focus will be on users in the United States, and the goal is to provide weather forecasts for every city within the country.

1.3 Acronyms, Abbreviations, and Definitions

- Free Users(Free memberships) - users that have not purchased a Webble subscription. App functions and features will be limited for Free Users.
- Premium Users(Paid memberships) - users that have purchased a Webble subscription. Premium Users will have access to all app features.
- Weather calls - sent Dark Sky API requests. Requests are used to update current weather or to get the projected forecast for a future date.
- Graphic Depicting - small icons that correspond to the weather. For instance, on sunny days, the app would display a small sun icon, on cloudy days, there will be a cloud etc.

2 Application Description

2.1 Application Functionality

Webble's main function is to show weather information for a given US city. Users can search by city names. The app can show the weather for of the next seven days. In the free membership, users are able to search and store one location only. On the other hand, the paid membership allows users to store up to five locations.

2.2 Operating Environment

Webble will be compatible on desktop or laptop computers running Windows 10. The application will utilize Dark Sky API to receive weather forecasts.

2.3 Design and Implementation Constraints

Webble is constrained by the Dark Sky API as it allows the application to retrieve updated weather forecasts. Any changes to the Dark Sky API will directly affect the capacity for Webble provide users with current forecasts, whether in a positive or negative aspect. For example, the Dark Sky API currently allows 1,000 free calls per day, so any increase or decrease in that amount would affect all users. If the Dark Sky API was ever temporarily down or stopped functioning indefinitely, Webble would not be able to retrieve weather updates during those instances.

The Dark Sky API requires the use of an internet connection, making an internet connection a necessary element for Webble to operate effectively. The speed and availability of a user's internet connection will affect how quickly Webble is able to make a call to the Dark Sky API.

Because Webble is part of a semester long software engineering project by a team of 4 students, that only offers 15 weeks for the application to be completed. Due to the short time frame, number of developers, and experience of developers, Webble will be restricted compared to weather applications currently on the market.

2.4 User Characteristics

Webble users will be limited to persons within the United States. Users must also have access to a computer that operates on Windows 10. There are no age or class restrictions

on the application.

2.5 Assumptions and Dependencies

The Dark Sky API will be a dependency for the project as Webble will pull weather data using this API. Requirements relating to the number of API calls are based on the assumption that constraints around the Dark Sky API will not change. If the Dark Sky API changes their limitations on the number of calls that can be made each day, this could affect these requirements.

3 Requirements

3.1 Functional Requirements

3.1.1 New Accounts

Users that do not have an account will directed to make an account and choose to become a Free User or a Premium User.

3.1.2 Sign In Feature

Weeble will prompt registered users to sign in to access their accounts.

3.1.3 Sign Out and Switch Accounts Feature

Users can sign out of their accounts or switch accounts when using any feature of Weeble.

3.1.4 Total Call Numbers

Webble will support up to 1000 calls per day. Total calls is the summation of all calls made by all accounts.

3.1.5 Search by City Name

When searching for a location to display its weather, the app allows users to search using city names. This will make it easy for most users to use the app quickly enough when looking for a desired location.

3.1.6 US Locations Only

The app is limited to be used for cities and locations in the US. No other countries will be available for users.

3.1.7 User Location Storage

Webble will store only 1 location for Free Users. Webble will store up to 5 locations for Premium Users.

3.1.8 Location Changes

Both Free and Premium Users will be able to remove saved locations.

3.1.9 Advance Weather Prediction

While users can monitor the current weather, they will also have access to a 7-day in advance weather prediction for their searched and stored cities.

3.2 Preformance Requirements

3.2.1 Loading Time

Weeble will take less than 20 seconds to load 90% of the time.

3.3 Security Requirements

3.3.1 Password Hashing

User passwords will be hashed with a simple but well-designed key stretching algorithm before being stored in the application's database. This will reduce the likelihood of passwords being cracked and protect user data from security threats such as brute-force and dictionary attacks.

3.4 Quality Requirements

3.4.1 Database Capacity

Webble database will be able to reliably support up to 20 different user accounts and all data associated with those accounts.

3.4.2 Premium User Accounts

Webble will have a maximum of 10 Premium Users, each with access to all functions and features.

3.4.3 Free User Accounts

Webble will have a maximum of 10 Free Users, each with limited access to functions and features.

3.4.4 Premium User Call Numbers

Premium Users will be able to make up to 66 calls per day. After the call limit has been reached, the app will not respond to call requests.

3.4.5 Free User Call Numbers

Free Users will be able to make up to 33 calls per day. After the call limit has been reached, Webble will not respond to call requests.

3.4.6 Graphic Depicting

In addition to having weather information displayed for searched cities, Webble will provide graphic depicting through icons corresponding to the current weather.

3.4.7 FAQ Page

Webble will include an FAQ or similar page that describes the application's terms, its functionality, and any other information deemed relevant to users.

3.4.8 Design Simplicity

The application will be designed in such a way that after training, at least 90% of users will be able to successfully navigate and understand the application.

3.5 External Interface Requirements

3.5.1 Navigation via Tabs

The application's current-day and 7-weather displays will use a tab design for navigation. The user will be able to navigate through the weather forecasts using tabs.

3.5.2 Hardware and Software Compatibility

Webble will be compatible with desktop or laptop computers operating on Windows 10.