Wentworth INSTITUTE OF TECHNOLOGY

COMP 4960: Software Engineering
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Software Requirements Specification

Weather Prediction & Clothing Recommendation Application

Revision B
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1 Revision History

Date	Revision	Description	Author(s)
2/12/2023	A	Initial requirements. First draft.	Eric Banach, Sarah Sollauer, George Powell
2/26/2023	B	Fixes for SMART requirements	Eric Banach, Sarah Sollauer, George Powell

2 Introduction

2.1 General Description

The system our team is planning to develop is a weather app designed for mobile devices that focuses on a clean GUI and outfit recommendations for users based on the weather. The program will recommend an outfit choice for the given weather. Based on a user's location and that location's weather, it will display a list of recommended articles of clothing such as "t-shirt, long pants, sunglasses" or "winter coat, heavy pants, thermal layers, boots." This will aid people who struggle with decision making early in the morning and will use technology to create a frictionless and accurate morning routine.

2.2 Major Features

2.2.1 Feature I: Weather Overview Display

The Weather Overview Display (WOD) is the default screen that clearly displays the weather in the selected location. The display only shows the basic information for the day about weather conditions such as hourly temperatures, current conditions, etc.

2.2.2 Feature II: Forecast Detail Display

The Forecast Detail Display (FDD) is a more in depth version of the WOD, which includes more data about the weather for the week including wind chill, UV index, etc. The user will be able to select which day in the next week they wish to view.

2.2.3 Feature III: Clothing Preparation Display

The Clothing Preparation Display (CPD) will recommend clothing choices based on the current weather at a user-specified location to optimize user comfort when going out. The display will show a printed list of recommended articles of clothing such as “t-shirt, long pants, sunglasses” or perhaps “winter coat, heavy pants, thermal layers, boots.” This will aid people who struggle with decision making early in the morning and will use technology to create a frictionless and accurate morning routine.

2.3 Acronyms

WOD - Weather Overview Display

FDD - Forecast Detail Display

CPD - Clothing Preparation Display

3 Requirements

3.1 Functional Requirements

Req. Number	Requirement
3.1.1 Graphical User Interface	
3.1.1.1 Weather Overview Display	
3.1.1.1.1	The WOD shall display the current temperature at a user-selected location.
3.1.1.1.2	The WOD shall display the current conditions (rain, snow, cloud, etc) at a user-selected location.
3.1.1.1.3	The WOD shall display the current time at a user-selected location.
3.1.1.1.4	The WOD shall display hourly temperatures for at least the next 24 hours at a user-selected location.
3.1.1.1.5	The WOD shall display hourly conditions for at least the next 24 hours at a user-selected location.
3.1.1.1.6	The WOD shall display a background image that reflects the current conditions at a user-selected location.
3.1.1.1.7	The WOD shall display the times of sunrise and sunset at a user-selected location.
3.1.1.1.8	The WOD shall display the currently user-selected location.
3.1.1.2 Forecast Detail Display	
3.1.1.2.1	The FDD shall display a forecast for the next 7 days at a user-selected location.
3.1.1.2.2	The display shall allow the user to select a day within the next 7 days to view the forecast for that day in detail.
3.1.1.2.3	A detail view for a day shall include hourly temperatures, wind chill, sky cover, UV index, humidity, precipitation chance, air quality, rain accumulation, snow accumulation, and sleet accumulation.

3.1.1.2.4	The FDD shall display a detail view for the current day as a default.
3.1.1.2.5	The FDD shall display the currently selected location.
3.1.1.3 Clothing Preparation Display	
3.1.1.3.1	The CPD shall display a recommendation for a jacket layer, shirt layer, pants layer, shoes layer, and accessories layer based on the weather of the currently selected location.
3.1.1.3.2	The CPD shall display the currently selected location.
3.1.1.3.3	The CPD shall display the current temperature at the user-selected location.
3.1.1.3.4	The CPD shall display an indication of the trend of the temperature for the rest of the day.
3.1.2 Clothing Preparation Database	
3.1.2.1 Database Initialization	
3.1.2.1.1	The system shall use SQL language for the database management system.
3.1.2.1.2	The database shall contain at least one table.
3.1.2.1.3	The database shall store at least one article of clothing for each layer described in 3.1.1.3.1.
3.1.2.1.4	The database shall store weather conditions.
3.1.2.1.5	The database shall store temperatures.
3.1.2.2 Linking Clothes to Weather Conditions	
3.1.2.2.1	Each clothing item shall have at least one paired weather condition.
3.1.2.2.2	Each clothing item shall have at least one paired temperature range.
3.1.2.3 Adding User Clothing	

3.1.2.3.1	The database shall be updated with the users choices of clothing.
3.1.3 Weather API	
3.1.3.1 Retrieving Data	
3.1.3.1.1	The application shall retrieve the forecast at a user-selected location for the next 7 days from a weather API.
3.1.3.1.2	The application shall retrieve the current weather conditions at a user-selected location from a weather API.
3.1.3.1.3	The application shall retrieve the current temperature at a user-selected location from a weather API.
3.1.4 Hardware Compatibility	
3.1.4.1 Mobile Devices	
3.1.4.1.1	The application shall be developed for Android mobile devices.
3.1.4.1.2	The application will be supported on IOS mobile devices.

3.2 Non-Functional Requirements

Req. Number	Requirement
3.2.1 Graphical User Interface	
3.1.1.1 General UI	
3.2.1.1.1	All weather displays (WOD, FDD) shall contain a hamburger menu to select the location for which the weather data is displayed.
3.2.1.1.2	The CPD shall contain a hamburger menu to select what clothes the user owns to be used for clothing recommendations.
3.2.1.1.3	The CPD hamburger menu shall only save user choices when a jacket layer, shirt layer, pants layer, shoes layer, and accessories layer have been chosen.
3.2.1.1.4	All displays shall have a menu bar that allows the user to switch between the WOD, FDD, and CPD.
3.2.1.1.5	All main displays (WOD, FDD, CPD) shall allow the user to swipe to change the currently shown display.
3.2.2 Data Updating	
3.2.2.1 Database Updates	
3.2.2.1.1	All updates to the clothing database shall be completed in less than 5 seconds.
3.2.2.2 Weather API	
3.2.2.2.1	All calls to the weather API shall be returned within 5 seconds.
3.2.2.2.2	All calls to the weather API shall return the most recent forecast data.
3.2.2.2.3	All calls to the weather API shall return the most recent temperature data.
3.2.2.2.4	All calls to the weather API shall return the most recent conditions data.

3.2.3 Availability	
3.2.3.1 Availability due to API	
3.2.3.1.1	The application shall be available as long as the weather API is available.

3.3 Other Requirements

Req. Number	Requirement
3.3.1 Configuration Management	
3.3.1.1 GitHub Repository	
3.3.1.1.1	The system shall log all changes to application software in a GitHub repository.
3.3.2 Software Tools & Frameworks	
3.3.2.1 GUI Framework	
3.3.2.1.1	The GUI framework shall allow the developers to develop for Android mobile devices.
3.3.2.1.2	The GUI framework shall allow the developer to visually place GUI elements (drag and drop).