



Design Document

Version 4.0

Tuesday May 7, 2013



Revision Sign-Off

By signing the following, the team member asserts that he has read the entire document and has, to the best of his knowledge, found the information contained herein to be accurate, relevant, and free of typographical error.

Name	Signature	Date
Alex Anduss		
Baer Bradford		
Greg Kolesar		

Revision History

The following is a history of document revisions.

Version	Date Revised	Comments
0.1	Oct. 28, 2012	Initial draft.
1.0	Dec. 4, 2012	
1.1	Jan. 17, 2013	Removed Daniel Ducic
2.0	Feb. 14, 2013	Updated document to reflect state of project at the end of iteration 2.
4.0	May 7, 2013	Updated the document with final information at the close of iteration 4

Table of Contents

Revision Sign-Off	i
Revision History	ii
Table of Contents	iii
1. Introduction	1
1.1 Purpose	1
1.2 Scope	1
1.3 Overview	1
Section 2 – Design Constraints	1
Section 3 – System Architecture	1
Section 4 – Mobile Application Design	1
Section 5 – Content Management System Design	1
Section 6 – Database Design	1
Section 7 – Glossary of Terms	1
2. Design Constraints	2
2.1 Assumptions and Dependencies	2
2.2 General Constraints	2
2.3 Goals and Guidelines	2
2.4 Development Methods	2
3. System Architecture	3
3.1 Mobile Application	3
3.2 Content Management System	3
4. Mobile Application Design	4
4.1 Class Diagrams	4
4.2 Sequence Diagrams	4
4.2.1 Login	4
4.2.2 Create Account	4
4.2.3 Daily Quote	5
4.3 State Diagram	6

5. Content Management System Design	8
5.1 Class Diagrams	8
5.2 CMS Application Programming Interface	8
6. Database Design	9
6.2 GENERAL.Address	10
6.3 GENERAL.DailyQuote	10
6.4 GENERAL.Overview	10
6.5 POLLING.Question	11
6.6 POLLING.Response	11
6.7 POLLING.Survey	11
6.8 POLLING.SurveyResult	12
6.9 POLLING.SurveyType	12
6.10 RESOURCES.FWCategory	13
6.11 RESOURCES.FWResource	13
6.12 RESOURCES.HECategory	13
6.13 RESOURCES.HEResource	14
6.14 RESOURCES.OperatingSchedule	14
6.15 USERDATA.UserAccount	15
7. Glossary of Terms	16
Appendix A. Use Case Models	17

1. Introduction

This document describes the GoodNEWS app and all related components, including the content management system and the Database.

1.1 Purpose

The purpose of this document is to describe the GoodNEWS System. It will define the app, content management system, and database design in depth via diagrams and written descriptions.

1.2 Scope

The GoodNEWS app will be released as an app for both Android and iOS devices. With support from a content management system owned and operated by the GoodNEWS team, as well as a database that stores both user information and GoodNEWS surveys.

1.3 Overview

Section 2 – Design Constraints

Describes the assumptions, dependencies, and constraints faced by the HealthyFROGS during development.

Section 3 – System Architecture

This section provides an overview of the architecture of the GoodNEWS app components using diagrams and written descriptions.

Section 4 – Mobile Application Design

This section describes how the components of the GoodNEWS app functions using text descriptions and sequence diagrams.

Section 5 – Content Management System Design

This section describes the structure of the content management system using text descriptions and sequence diagrams.

Section 6 – Database Design

This section describes the Database Schema.

Section 7 – Glossary of Terms

This section lists and defines any technical terms used in the document.

2. Design Constraints

2.1 Assumptions and Dependencies

The main assumptions made were how to make the view layouts look. The main dependency was obtaining information from the GoodNEWS team.

2.2 General Constraints

The main general constraint for HealthyFROGS is mostly time.

2.3 Goals and Guidelines

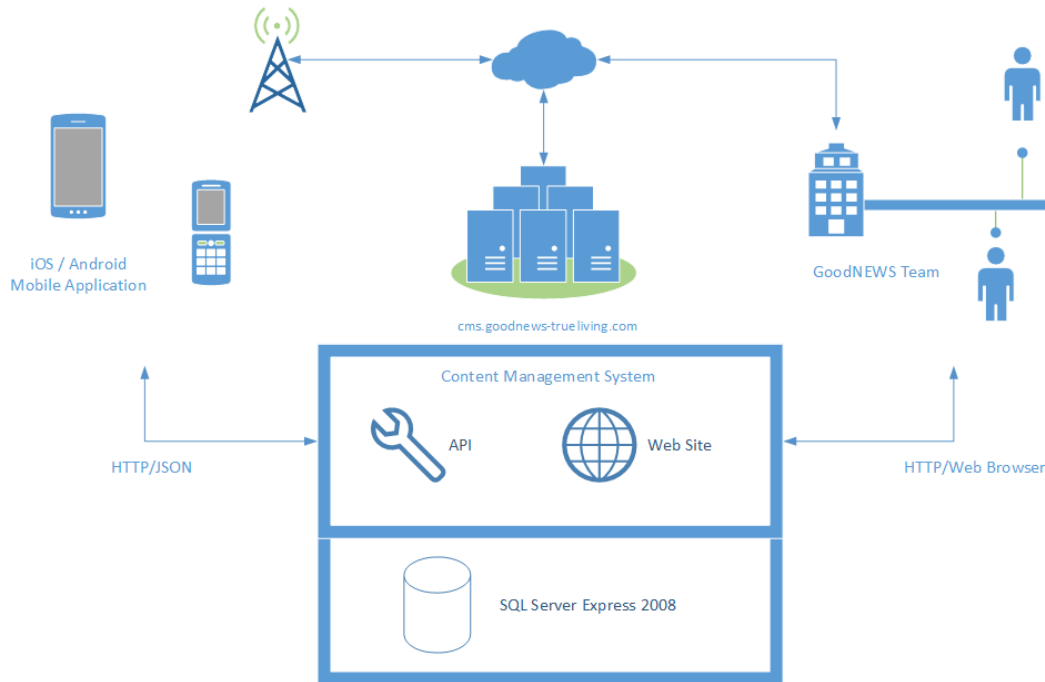
The goal is to provide the GoodNEWS initiative with a fully functioning multiplatform mobile application that meets their requirements.

The guidelines are that the application must be able to be able to stay current via updates from the GoodNEWS group and be functional and reliable.

2.4 Development Methods

HealthyFROGS development methods include iOS and Android platform development.

3. System Architecture



3.1 Mobile Application

The GoodNEWS app is a multiplatform mobile application uniquely designed for both the iOS and Android operating systems.

3.2 Content Management System

The content management system is a website designed to imitate the look and feel of a WordPress based website management system.

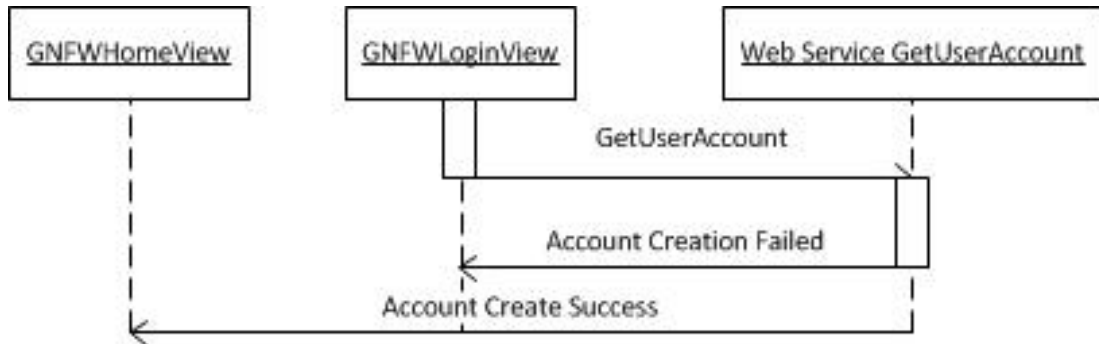
4. Mobile Application Design

4.1 Class Diagrams

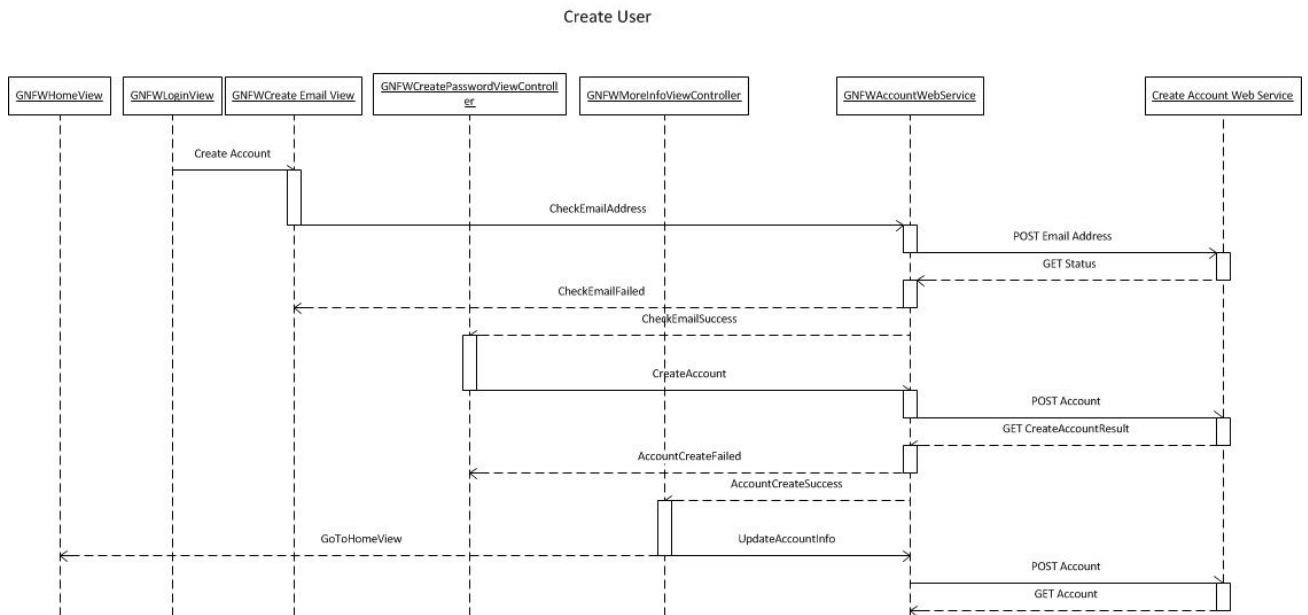
There is a separate PDF File, IOS Class Diagram.pdf, this contains the class diagram which is too large to fit in the document.

4.2 Sequence Diagrams

4.2.1 Login



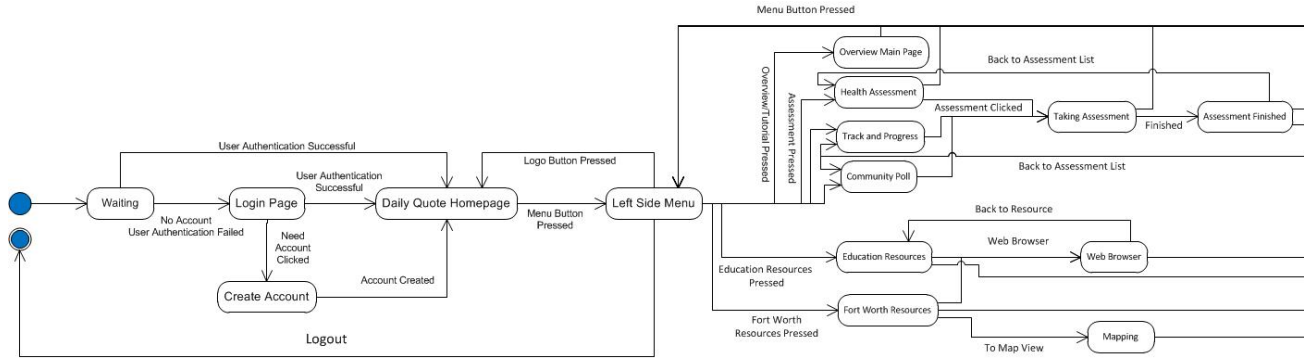
4.2.2 Create Account



4.2.3 Daily Quote



4.3 State Diagram



State	Description
Checking Authentication	Checks for existing credentials, if they exist, a login is attempted. If it is successful, then it goes to the Daily Quote Homepage. If it fails or credentials do not already exist, then the login page is brought up.
Login Page	User can login or create a new account here.
Create Account	Allows user to create account with username, password, and address.
Daily Quote Homepage	This is the homepage for the app, it will show the
Left Side Menu	This has the menu that will allow the user to choose what component of the app they would like to access.
Overview Main Page	This page contains the overview of the GoodNEWS Program.
Health Assessment	This page shows the user the Health Assessments and their Grades.
Track and Progress	This page shows the user the Daily Health Assessments and their Grades.
Community Poll	This page shows the user the available Community Polls from seminars.
Education Resources	This page shows the user resources to enhance their daily living.
Fort Worth Resources	This page shows the user resources in the City of Fort Worth and different things they can use to enhance their daily life style.

Taking Assessment	This shows the questions for the assessment the user is taking
Assessment Finished	This is where the assessment is graded for the user and the final grade is displayed
Web Browser	This is where the web browser is integrated into the App, it can display PDF Files, Word Documents, and normal websites
Mapping	This is where the map of the Fort Worth Resource will be displayed, also may take the user to the Maps App.

5. Content Management System Design

5.1 Class Diagrams

There is a separate PDF File, CMS Class Diagram.pdf, this file contains the class diagram which is too large to fit in the document.

5.2 CMS Application Programming Interface

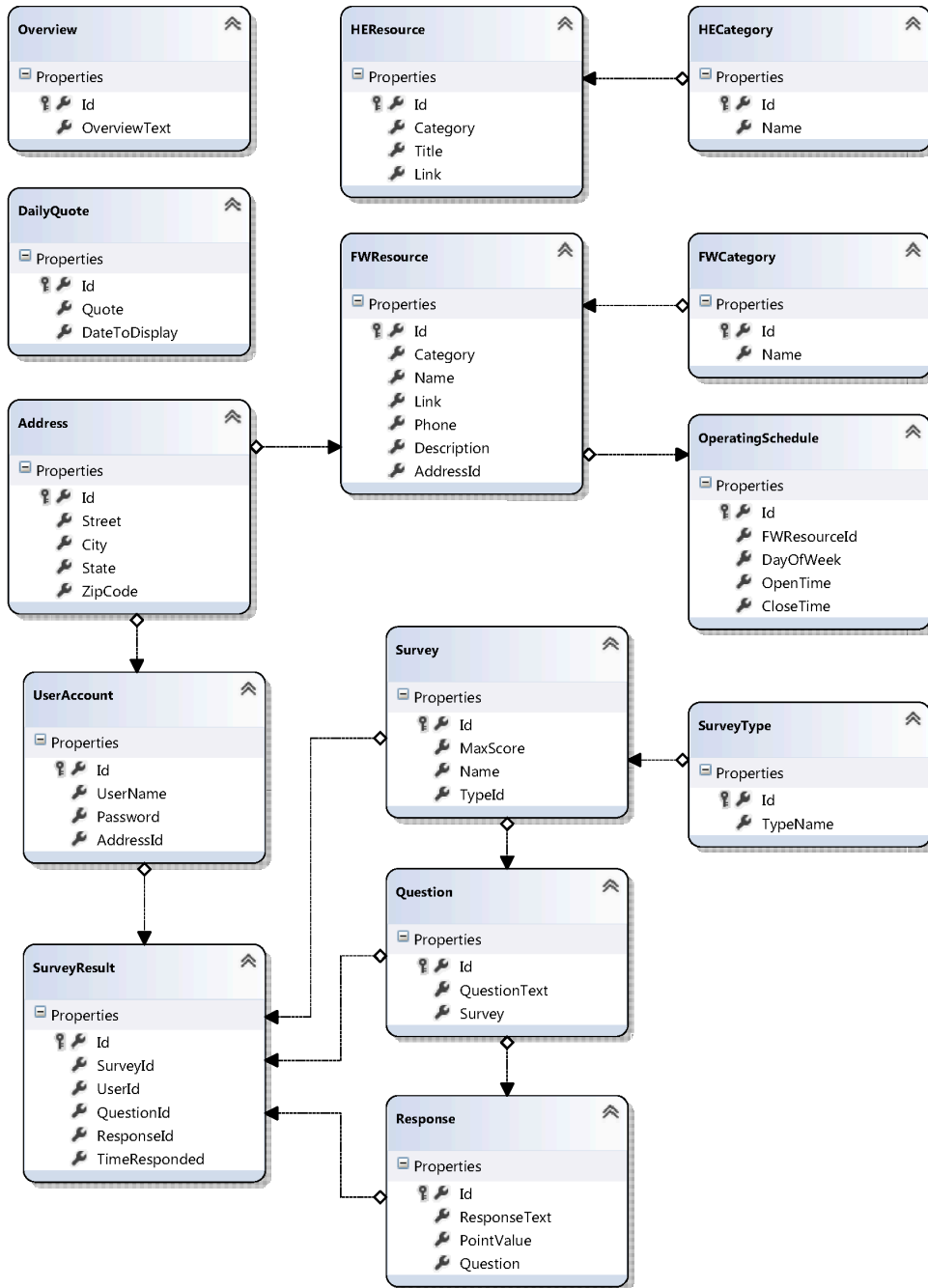
Below are the services and methods exposed by the CMS at the end of Iteration 4:

- Community Poll
- Education Resources
- Fort Worth Resources
- General
 - GetDailyQuote
- Health Assessment
- Track and Progress
- User
 - CreateUserAccount
 - GetUserAccount
 - UserAccountExists
 - UpdateUserAccount
 - WeighIn

A detailed overview of the methods and responses for the CMS are available on the team website at <http://brazos.cs.tcu.edu/1213goodnews/serviceAPI.html>.

6. Database Design

6.1 Database Diagram



6.2 GENERAL.Address

This table stores addresses and their associated geographic location. These addresses can be associated with users and businesses.

Column	Description
Id	Unique identifier of the address.
Street	The number and street portion of the address.
City	The city name portion of the address.
State	The state name portion of the address. State names are stored as their standardized two-letter United States Post Office abbreviation.
ZipCode	The ZIP code portion of the address. Only the five-digit portion of the ZIP code is stored.

6.3 GENERAL.DailyQuote

This table stores daily inspirational quotes which are to be displayed to the user on the mobile application.

Column	Description
Id	Unique identifier of the daily quote.
Quote	The text of the quote to be displayed.
DateToDisplay	The date on which the inspirational quote is to be displayed.

6.4 GENERAL.Overview

This table stores an overview of the GoodNEWS program, which is to be displayed on the starting page of the mobile application.

Column	Description
Id	Unique identifier of the overview.

OverviewText	Stores the paragraph description of the GoodNEWS program.
--------------	---

6.5 POLLING.Question

This table stores questions (which are part of surveys).

Column	Description
Id	Unique identifier of the question.
QuestionText	The text of the question to be presented to the user.
Survey	A reference to the survey this question is part of. Information about surveys is kept in the Survey table.

6.6 POLLING.Response

This table stores information about available responses to survey questions.

Column	Description
Id	Unique identifier of the response.
ResponseText	The text of the response to be displayed to the user.
PointValue	The number of points this response would contribute to the score of a graded survey if chosen.
Question	A reference to the question associated with this response. Information about questions is kept in the Question table.

6.7 POLLING.Survey

This table stores information about surveys.

Column	Description
Id	Unique identifier of the survey.
Name	The name of the survey. The name will only be displayed to

	mobile users if the survey is a poll. Assessment and baseline names will only be displayed on the content management system.
MaxScore	The maximum number of points possible on this survey. This value is only relevant for graded surveys (assessments and baselines).
TypeId	A reference to the type of survey. Survey type information is stored in the SurveyType table.

6.8 POLLING.SurveyResult

This table stores results of surveys. This includes user responses to daily “Track and Progress” assessments, “Health Assessment” baselines, and “Community Vote and Poll” polls.

Column	Description
Id	Unique identifier of the response.
SurveyId	Unique identifier of the assessment, baseline, or poll the user responded to.
UserId	Unique identifier of the user who responded to the survey.
ResponseId	Unique identifier of the response chosen by the user.
TimeResponded	A date and time value reflecting the time at which the responded to the survey.

6.9 POLLING.SurveyType

This table stores and uniquely identifies the different types of surveys such as an assessment, a baseline, or a poll.

Column	Description
Id	Unique identifier of the survey type.

TypeName	The name of the survey type.
----------	------------------------------

6.10 RESOURCES.FWCategory

This table stores available categories used to organize Fort Worth resources.

Column	Description
Id	Unique identifier of the Fort Worth resource category.
Name	The name of the category which is presented to the user.

6.11 RESOURCES.FWResource

This table stores information about the resources to be displayed in the “Fort Worth Resources” section of the mobile application. These are descriptions of businesses, parks, churches, and organizations in Fort Worth.

Column	Description
Id	Unique identifier of the Fort Worth resource.
Category	A reference to the Fort Worth resource category this resource is a part of.
Link	A link to an external website for the resource.
Phone	A phone number contact for the resource.
Description	A paragraph describing the resource.
AddressId	The reference to the address information associated with a resource. Address information is stored in the Address table.

6.12 RESOURCES.HECategory

This table stores available categories used to organize health education resources.

Column	Description
Id	Unique identifier of the health education resource category.

Name The name of the category which is presented to the user.

6.13 RESOURCES.HEResource

This table stores information about the resources to be displayed in the “Education Resources” section of the mobile application. These are external resources such as websites and PDFs.

Column	Description
Id	Unique identifier of the health education resource.
Category	A reference to the health education resource category this resource is a part of.
Title	The name of the resource which is to be displayed in the mobile application.
Link	A URL to the resource.

6.14 RESOURCES.OperatingSchedule

This table stores the business hours of Fort Worth resources.

Column	Description
Id	Unique identifier of the operating schedule.
FWResourceId	A reference to the Fort Worth resource this operating schedule describes. Information about Fort Worth resources is stored in the FWResource table.
DayOfWeek	The day of the week this operating schedule describes. This is stored as an integer ranging from 0 – 6 (Sunday – Monday).
OpenTime	The time this resource opens.
CloseTime	The time this resource closes.

6.15 USERDATA.UserAccount

This table stores user account information.

Column	Description
Id	Unique identifier of the user account.
UserName	The user name associated with the user account. User names are unique and will be used to login.
Password	The password associated with the user account. A correct user password is required for login and getting user account information.
AddressId	The reference to the address information associated with a user account. Address information is stored in the Address table.

7. Glossary of Terms

API – Application Programming Interface

CMS – Content Management System

HealthyFROGS – the team name for the 2012-2013 senior design team responsible for the GoodNEWS Fort Worth project

GoodNEWS – part of the TPI, a program which works to reduce chronic disease and improve quality of life for Dallas and Fort Worth communities through educating individuals and community leaders on preventative medicine

GoodNEWS Fort Worth – the name of the system to be developed by HealthyFROGS for GoodNEWS as a senior design project for the 2012-2013 academic year

NTASC – North Texas Student Area Conference, an annual event for students in the north Texas region to present projects hosted by Midwestern State University

SDK – Software Development Kit

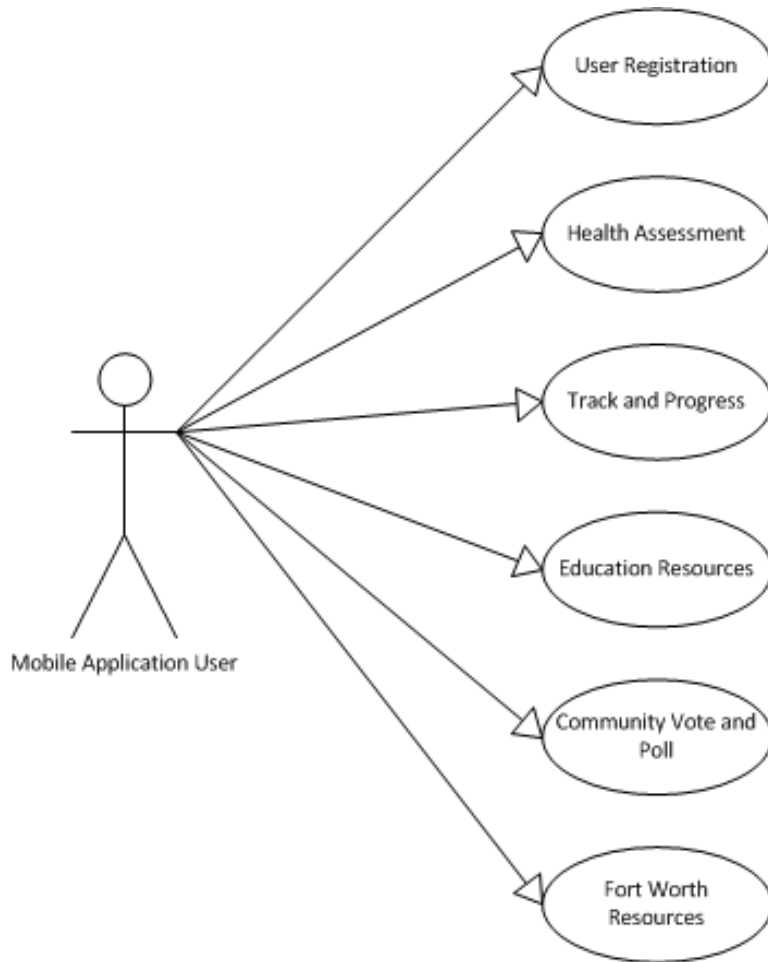
TCU – Texas Christian University

TPI – Texas Prevention Institute, part of UNTHSC

UNT – University of North Texas

UNTHSC – University of North Texas Health Science Center

Appendix A. Use Case Models



User Registration	Description
Actors	User
General Goals	For the user to create an account within the GoodNEWS Fort Worth system so that they can log in and use the app.
Pre-Conditions	The user must have the app installed on their mobile device.
Triggers	The User will activate the app for the first time.
Course of Events	<ol style="list-style-type: none">1. The user is asked to make a GoodNEWS Fort Worth account.2. The user account information is uploaded to the database.3. The user will be logged into the app.
Alternate Paths	If no connection to the database is present, an error message will be displayed.
Post Condition	The user will be prompted to take a health assessment screen, and the health assessment section will be displayed.

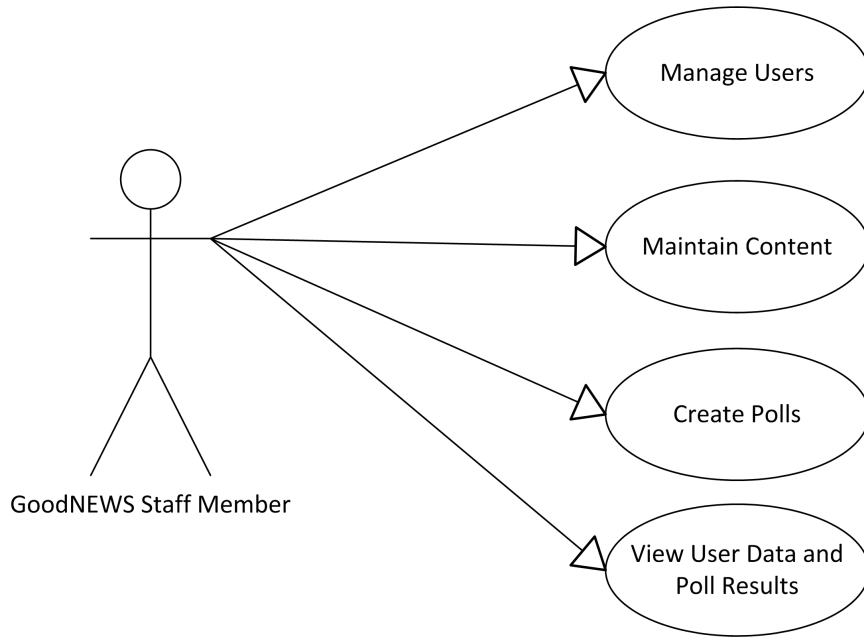
Health Assessment	Description
Actors	User
General Goals	To determine the user's health status and need and create a health 'score' based on analysis of the health assessment.
Pre-Conditions	The user must be logged in.
Triggers	a) The user will finish creating an account and be prompted to take their first health assessment. b) The user selects the health assessment button from the main menu to reestablish a baseline assessment.
Course of Events	1. The user is presented with a series of questions to answer. 2. The assessment is graded on the local device. 3. The health 'score' will be displayed to the user and uploaded to the CMS.
Alternate Paths	If no connection to the database is available, an error message will be displayed.
Post Condition	The user is informed of their score and then they are taken to the main screen.

Track and Progress	Description
Actors	User
General Goals	To keep track of the user's daily health information.
Pre-Conditions	The user must have the app and be logged in.
Triggers	The user will select the Health Tracker button from the main menu.
Course of Events	<ol style="list-style-type: none">1. The user is presented with a series of questions to answer.2. The daily assessment shall be graded on the local device.3. The app will upload the assessment score to the CMS.4. The application will display a line graph showing assessment results over time.
Alternate Paths	If no connection to the database is present, an error message will be displayed
Post Condition	Once the user is finished reviewing the presented, they will return to the main menu.

Education Resources	Description
Actors	User
General Goals	To provide health resources to the user.
Pre-Conditions	The user must have the app and be logged in.
Triggers	The user will click the Health Resources button.
Course of Events	<ol style="list-style-type: none"><li data-bbox="813 768 1458 837">1. The user will be presented with a list of categories of resources.<li data-bbox="813 848 1458 917">2. Following selection of a category, the user will be presented with a list of resources.<li data-bbox="813 928 1458 997">3. Following selection of a resource, the user will be directed to the resource in a new application.
Alternate Paths	Resources will be displayed in varying external applications based on the type of resource. For example, web sites will be opened with the mobile device's default web browser, a PDF resource will be opened with the mobile device's default PDF handler, etc.
Post Condition	If the user selects a resource they will be taken to the appropriate application. Otherwise they can exit to the main menu.

Community Vote and Poll	Description
Actors	User
General Goals	To give the GoodNEWS team a way to determine what is important to the community in relation to the seven dimensions of health.
Pre-Conditions	The user must have the app and be logged in.
Triggers	The user will select the Community Voting Poll button from the main menu.
Course of Events	<ol style="list-style-type: none">1. The user is presented with a list of available polls.2. Upon selecting a poll, the user will be presented a series of poll questions to answer.3. Their answers are uploaded to the CMS.
Alternate Paths	There are no alternate paths.
Post Condition	The user will be returned to the main page.

Fort Worth Resources	Description
Actors	User
General Goals	To give the user access to local Fort Worth Resources.
Pre-Conditions	The user must have the app and be logged in.
Triggers	The user will select the Fort Worth Resources button from the main menu.
Course of Events	<ol style="list-style-type: none">1. The user will be presented with a list of categories of resources.2. Following selection of a category, the user will be presented with a list of resources.3. Following selection of a resource, the user will be presented with the location, business hours, web site, and description of the resource.
Alternate Paths	There are no alternate paths.
Post Condition	<p>If the user selects the location information of a resource, they will be directed to the mobile device's default mapping application.</p> <p>If the user selects the contact information of a resource, they will be directed to the phone application of the mobile device.</p> <p>Otherwise, the user can return to the main menu.</p>



Manage Users	Description
Actors	GoodNEWS Staff Member
General Goals	To enable the user to create, remove, and modify user accounts associated with the GoodNEWS Fort Worth system.
Pre-Conditions	The user must be logged into the content management system.
Triggers	From the content management system home page, the user will click a link to navigate the user management page.
Course of Events	<ol style="list-style-type: none">1. The user will be presented with a list of user accounts.2. The user shall select an action (create, remove, or modify) for a particular user account.3. The user supplies necessary information based on the action being done (see alternate paths for possibilities).4. The user submits the user account change.
Alternate Paths	<p>Path may vary based on the action being performed on a user account.</p> <p>If a new user account is being created, the user must supply all information to be associated with the new user account.</p> <p>If a user account is being modified, the user will modify information in a form populated with user data.</p> <p>If a user account is being deleted, the user must confirm the delete.</p>
Post Condition	The modification made to the user account will be effective throughout the GoodNEWS Fort Worth system.

Maintain Content	Description
Actors	GoodNEWS Staff Member
General Goals	To allow the user to manage content to be distributed through the mobile application. Content includes questions to be asked in the “Self-Assessment” and “Track and Progress” sections. In addition, resources made available through the “Education Resources” and “Fort Worth Resources” sections will be managed.
Pre-Conditions	The user must be logged into the content management system.
Triggers	From the content management system home page, the user will click a link to navigate to the section to be updated.
Course of Events	<ol style="list-style-type: none">1. The user shall update the content through the web interface.2. The user shall submit the changes to be made.3. The CMS will update the database to reflect these changes.
Alternate Paths	The path may vary based on the section being updated.
Post Condition	The user shall be returned to the main page.

Create Polls	Description
Actors	GoodNEWS Staff Member
General Goals	To allow the staff member to create polls to be made available to users of the mobile application.
Pre-Conditions	The user must be logged into the content management system.
Triggers	From the content management system home page, the user will click a link to navigate to the polling section.
Course of Events	<ol style="list-style-type: none">1. The user will name the poll.2. The user will specify whether the poll is made available to the entire community or limited to attendees of a specific event or seminar.3. The user will enter a series of questions and responses to be included in the poll.4. The user will submit the poll.5. The CMS will update the database to include the new poll, which will be immediately available on the mobile applications.
Alternate Paths	There are no alternate paths.
Post Condition	The poll will be made available to users on the mobile application. The GoodNEWS staff member will be returned the main page.

View User Data and Poll Results	Description
Actors	GoodNEWS Staff Member
General Goals	To enable the GoodNEWS staff member to view data related to users, their activity, and poll results.
Pre-Conditions	The user must be logged in to the CMS.
Triggers	The user will navigate to the section he or she is interested in. For example, the "Health Assessment" section.
Course of Events	<ol style="list-style-type: none">1. The data will be visualized prominently with a graph or chart.2. The user can follow a link to see data behind the visualization.
Alternate Paths	The path can vary depending on the section the user chooses. Data for each section will be different, and therefore must be presented differently.
Post Condition	The user will be returned to the main page.