Software Test Plan
Alesandro Jankovic
Uriel Cerro

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<u>Summary</u>

<u>The Problem We Are Trying to Solve:</u>

How can we develop a decision support information system for caregivers that are providing for patients with dementia, memory problems, or other health/mental conditions, allowing the caregiver to make the best possible decision to evacuate or shelter in place, create a plan for either decision, or use the site as a central information hub for disaster preparation.

<u>Motivation:</u>

Patients suffering from these health and mental conditions often have difficulty making clear decisions and recalling important information. Managing these symptoms in an emergency can be difficult. Implementing a clear and detailed disaster plan will ensure that you as a caregiver are prepared for what could happen.

User Categories

There are two categories of users for this web application: caregivers and information seekers. Caregivers are users who have a patient suffering from health and mental conditions similar to dementia under their care. Information seekers are users who may or may not have someone under their care but are simply wanting to use the web application as a resource of information and preparation.

Requirements

Although there are two categories of users, both categories have the same business requirements.

1) Evaluating whether the USER should stay at home or evacuate.

2) Determine what to do if the USER plans to stay home.

3) Developing an evacuation plan, as a backup, if USER plans to stay home.

4) Provide a central resource of information for USER.

Features and Functions

Requirement 1: Evaluating whether the USER should stay at home or evacuate.

- Personal information of the caregiver or information seeker
- Patient information
- Zone identification
- Does the user live in a mobile home, flood zone, area that experiences serious flooding, have a room with hurricane-proof windows/shutters, and/or a garage?

Requirement 2: Determining what to do if the USER plans to stay home.

- Checklist for shelter in place plan
- Tips for emergency situations
- Important information for developing an escape plan
- Send confirmation email to user

Requirement 3: Developing an evacuation plan, as a backup, if USER plans to stay home.

- Location to evacuate to
- Transportation method
- Transportation logistics
- Maintaining comfort for patient
- Important items for evacuation kit
- Tips for emergency situations
- Important information for developing an escape plan
- Send confirmation email to user

Requirement 4: Provide a central resource of information of USER.

- F.A.Q
- Evacuation checklist
- Shelter in Place Checklist

Use Cases, User Stories, User Journeys

Requirement 1 Use Case:

The user chooses either caregiver or information seeker then selects My Disaster Preparation. The user enters their personal information, patient information, zone identification, and a couple questions about their home. The program determines whether the user should evacuate or stay at home based on the information the user has entered.

   User Stories:

   My name is Bill and I use the My Disaster Prep website to find out if the person I care for and I should evacuate or shelter in place.

      User Journeys:

- Left a required field blank
- Inputted an age out of the valid range
- Inputted a decimal number for age
- Inputted a negative number for age
- Inputted a special character for age
- Left health/mental conditions and special needs blank
- Selected a health/mental condition and special need
- Selected other for health/mental condition and special need
- Selected zone as same as profile address
- Home address is different than profile address
- Selected yes I live in a mobile home
- Selected no I do not live in a mobile home
- Selected yes I live in a flood zone
- Selected no I do not live in a flood zone
- Selected yes I live in an area that experiences serious flooding
- Selected no I do not live in an area that experiences serious flooding
- Selected yes I live in an area that experiences serious flooding, even during a rain storm
- Selected no I do not live in an area that experiences serious flooding, even during a rain storm
- Selected yes I do have a room with hurricane-proof windows/shutters
- Selected no I do not have a room with hurricane-proof windows/shutters
- Selected yes I do have a garage
- Selected no I do not have a garage
- Selected yes I can secure my garage door from the inside
- Selected no I cannot secure my garage door from the inside

Requirement 2 Use Case:

The user checks items for their shelter in place plan. The program provides tips for traveling with a person with dementia, important information for developing an escape plan, and sends a confirmation email to the user's email.

User Stories:

My name is Mary and I use the My Disaster Prep website to create a shelter in place plan for me and the person I care for.

User Journeys:

- Checked some options
- Checked none of the options
- Checked all of the options
- Clicked acknowledge and continue

Requirement 3 Use Case:

The user enters a location to evacuate to, transportation method to get there, logistics of transportation (time to get there, gallons of gas needed, tickets bought, etc.), items needed to maintain comfort for the person under their care, checklist of items for an evacuation kit. The program provides tips for traveling with a person with dementia, important information for developing an escape plan, and sends a confirmation email to the user's email.

User Stories:

My name is John and I use the My Disaster Prep website to create an evacuation plan for me and the person I care for.

User Journeys:

- Clicked public shelter as evacuation location
- Clicked other as evacuation location
  - Entered text in the entry box
  - Entered numbers in entry box
  - Entered special characters in entry box
  - Entered nothing in entry box
  - Entered information in entry box
    - Selected another option then reselected other
- Selected by car
  - Selected yes I know the route

- Selected no I do not know the route
- Inputted numbers in the how long to location entry box
- Inputted text in the how long to location entry box
- Inputted special characters in the how long to location entry box
- Inputted nothing in the how long to location entry box
- Inputted numbers in the fuel entry box
- Inputted text in the fuel entry box
- Inputted special characters in the fuel entry box
- Inputted nothing in the fuel entry box
- Inputted numbers in the how long can person in care sit for entry box
- Inputted text in the how long can person in care sit for entry box
- Inputted special characters in the how long can person in care sit for entry box
- Inputted nothing in the how long can person in care sit for entry box
- Selected by bus
  - Selected yes I have purchased bus tickets
  - Selected no I have not purchased bus tickets
  - Inputted numbers in the how long to location entry box
  - Inputted text in the how long to location entry box
  - Inputted special characters in the how long to location entry box
  - Inputted nothing in the how long to location entry box
  - Inputted numbers in the how long can person in care sit for entry box
  - Inputted text in the how long can person in care sit for entry box
  - Inputted special characters in the how long can person in care sit for entry box
  - Inputted nothing in the how long can person in care sit for entry box
- Selected by air
  - Selected yes I have purchased flight tickets
  - Selected no I have not purchased flight tickets
  - Inputted numbers in the how long to location entry box
  - Inputted text in the how long to location entry box
  - Inputted special characters in the how long to location entry box
  - Inputted nothing in the how long to location entry box
  - Inputted numbers in the how long can person in care sit for entry box
  - Inputted text in the how long can person in care sit for entry box

  - ○ Inputted special characters in the how long can person in care sit for entry box
  - ○ Inputted nothing in the how long can person in care sit for entry box
- Inputted text in the favorite foods entry box
- Inputted numbers in the favorite foods entry box
- Inputted special characters in the favorite foods entry box
- Inputted nothing in the favorite foods entry box
- Inputted text in the toys and games entry box
- Inputted numbers in the toys and games entry box
- Inputted special characters in the toys and games entry box
- Inputted nothing in the toys and games entry box
- Inputted text in the favorite objects entry box
- Inputted numbers in the favorite objects entry box
- Inputted special characters in the favorite objects entry box
- Inputted nothing in the favorite objects entry box
- Checked some of the options
- Checked none of the options
- Checked all of the options
- Inputted text in the other items entry box
- Inputted numbers in the other items entry box
- Inputted special characters in the other items entry box
- Inputted nothing in the other items entry box
- Clicked acknowledge and continue

Requirement 4 Use Case:

The user chooses either caregiver or information seeker then selects General Info. The user can click the drop down menu options. The program provides answers to frequently asked questions, a checklist for evacuation items, and a checklist for shelter in place items.

User Stories:

My name is Alex and I use the My Disaster Prep website to learn more about…(FAQs)

My name is Jane and I use the My Disaster Prep website checklist to help me get prepared for what I need.

<u>User Journeys</u>

- Clicked F.A.Q drop down menus
    - Visited Know Your Zone website
    - Visited Plan & Prepare link
    - Visited My Safe FL Home link
    - Visited weather.gov link
    - Visited Florida Disaster Shelter Info link
    - Visited National-Preparedness link
    - Checked some of the options of evacuation checklist
    - Checked all of the options of evacuation checklist
    - Checked none of the options of evacuation checklist
    - Visited Medicalert.org
    - Checked some of the options of shelter in place checklist
    - Checked all of the options of shelter in place checklist
    - Checked none of the options of shelter in place checklist
    - Selected back to return to previous page

Decision Tables

Input Category	Type	Range	Valid	Not Valid
Age	Whole Number	1 to 110	Any whole number in this range	Anything not a whole number
First Name	Text	1 to 50 characters	Any character	No characters
Last Name	Text	1 to 50 characters	Any character	No characters
Gender	Radio Button	Male, Female, Other	Any selection	No selection
Email	Text	1 to 50 characters	Needs @	No characters/No @
Street	Text	1 to 50 characters	Any character	No characters
City	Text	1 to 20 characters	Any character	No characters
State	DDL	States and Territories	Any selection	Blank selection
Zip Code	Text	5 characters	Any character	No characters

Conditions	DDL	6 conditions and other	Any selection	No selection
Special Needs	DDL	3 special needs and other	Any selection	No selection
Other	Text	1 to 50 characters	Any character	No characters
Address	Slider Button	Same As/Not Same As	On/Off	N/A
Home Address	Text	1 to 150 characters	Any character	No characters
Yes/No	Button	Yes/No	Yes/No	N/A
Yes/No	Radio Button	Yes/No	Any selection	No selection
Evacuation Location	Radio Button	Friend's house, hotel, public shelter, other	Any selection	No selection
Other Location	Text	1 to 150 characters	Any character	No characters
Transportation	Radio Button	By car, by bus, by air	Any selection	No selection
How Long to Get There	Text	Infinite	Any character	No characters

Able to Sit	Text	1 to 150 characters	Any character	No characters
Gallons	Text	1 to 150 characters	Any character	No characters
Maintain Comfort	Text	1 to 150 characters	Any character	No characters
Evacuation Items	Checkbox	6 items	Check/No check	N/A
Other	Text	1 to 150 characters	Any character/No characters	N/A
Shelter Items	Checkbox	11 items	Check/No check	N/A

Output Category	Type
Plan	Path
Confirmation Email	Path
Information	Text

Input Case	Output
Personal/Patient Information, Zone Identification, Plan Logistics	Confirmation Email
Yes, Live in Mobile Home	Evacuation
Yes, Live in Flood Zone	Evacuation

Yes, Live in Serious Flooding	Evacuation
Yes, Live in Serious Flooding during Storm	Evacuation
No Hurrican-Proof Windows	Evacuation
Yes, Have a Garage. No, Can't Secure	Evacuation
No to Living Questions. Yes to Windows. No to Garage	Shelter
No to Living Questions. Yes to Windows. Yes, Can Secure Garage	Shelter
General Info	Information

DD - Path Chart

WBS of User Journeys

My Disaster Planner
School of Aging Studies at College of Behavioral and Community Sciences

Start

Tell us about yourself

Caregiver

Information Seeker

Plan Your Disaster

General Info

My Disaster Preparation

My Disaster Planner
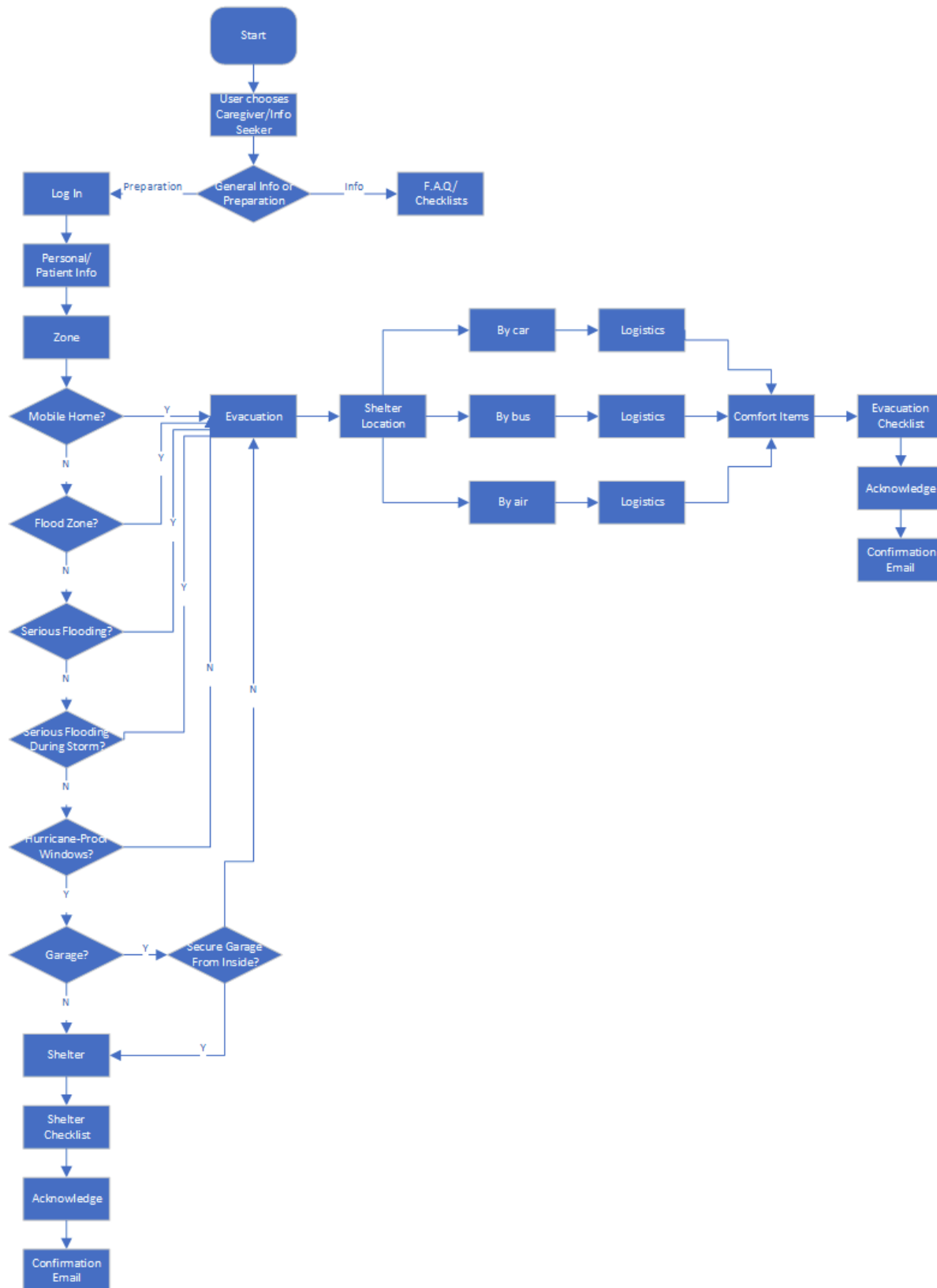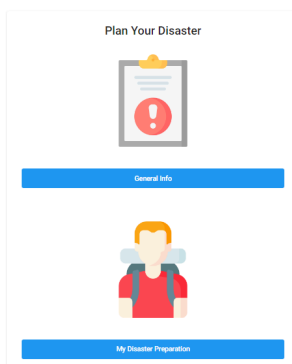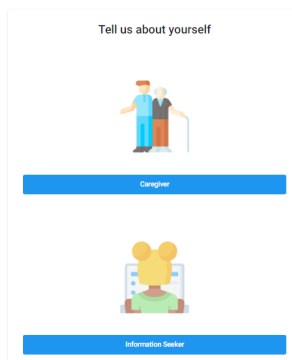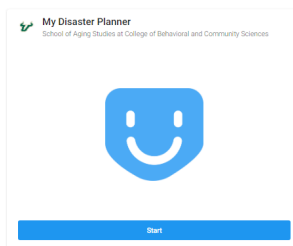
General Information

The information below will guide you through the process of shelter-in-place and evacuation situations.

F.A.Q.

Why does disaster preparedness matter for an caregivers?	⌄
How do I know whether to evacuate or shelter in place in a disaster	⌄
How do I know if my house is safe enough to shelter in?	⌄
What is the best source of emergency or disaster information?	⌄
How do I find out about going to a public or special needs shelter?	⌄
Where can I find information about how to make a disaster plan?	⌄

Evacuation checklist

As with your shelter at home plan, think about both your loved one's needs and yours and what you will not have access to at your destination.

Evacuation Items	⌄

Shelter in Place Checklist

Think about the day-to-day needs and habits of the person you care for and how to get along for at least 7 days after a disaster ccurs. Remember, what you or your loved one needs may be different from what others need.

Shelter in Place Items	⌄

Back

My Disaster Planner

Log in now

Login

Don't have an account? Sign up

Continue as a guest

My Disaster Planner

Stay or Evacuate

Personal Info

First name *   Last name *

Age *

Gender
○ Male   ○ Female   ○ Other

Email *

Street *

City *

State *   Zip Code *

Next

Stay or Evacuate

Patient Info

First name *

Last name *

Age *

Gender

◯ Male   ◯ Female   ◯ Other

Health or mental conditions   ▾

Special needs   ▾

Next

Stay or Evacuate

What is your zone?

Provide your home address to identify the zone

Same as profile address

Continue

Stay or Evacuate

Do you live in a mobile home?

Yes

No

Stay or Evacuate

Are you in a flood zone?

Yes

No

Stay or Evacuate

Are you in the area that experiences serious flooding?

Flooding is the greatest threat of many weather disasters. Are you are in a location that is vulnerable to flooding? To learn more, contact your county or state emergency management office.

In Florida, you can go here to find out what flood zone you are in and the risks you face in that zone, go to floridadisaster.org/knowyourzone. On this site, go to the "Know Your Zone" map, type your address in the blue box at the top left of the page then use buttons on the left to zoom in to your location, which will be identified on the map. The color of your location will tell you what zone you are in.

More information about your property's flood risk is available here: floodsmart.gov/all-about-flood-maps

Yes
No

Stay or Evacuate

Are you in the area that experiences serious flooding, even during a rain storm?

○ Yes   ○ No

Do you have a room with hurricane-proof windows or shutters to cover the windows?

○ Yes   ○ No

Do you have a garage?

○ Yes   ○ No

Continue

Evacuation Plan

Evacuation needed

Based on the information provided, we recommend to evacuate from your zone this time. To start evacuation preparation, please click on the button below.

Continue

Evacuation Plan

Evacuation needed

Note: we provide more information about finding a public shelter and getting registered if you choose public shelter.

Where will you go?

○ Friend's house

○ Hotel

○ Public shelter

○ Other

Continue

Evacuation Plan

Evacuation needed

How will you get to your evacuation destination?

○ By car

○ By bus

○ By air

Continue

Evacuation Plan

Evacuation needed

Getting by car

Do you know the route?

◯ Yes   ◯ No

How long will it take you to get there? (minutes) *
_____

How much fuel will it take? (gallons) *
_____

how long is the person you care for able to sit? (minutes) *
_____

Continue

Evacuation Plan

Evacuation needed

Getting by bus

Have you purchased bus tickets?

○ Yes   ○ No

How long will it take you to get there? (minutes) *
_____

how long is the person you care for able to sit? (minutes) *
_____

Continue

Evacuation Plan

Evacuation needed

Getting by air

Have you purchased flight tickets?

◯ Yes   ◯ No

How long will it take you to get to get there by plane (minutes) *
_____

how long is the person you care for able to sit? (minutes) *
_____

Continue

Evacuation Plan

Evacuation needed

Consider how to maintain comfort for the person you provide care for.

What are their favorite foods? *

What toys, games will keep them occupied? *

What are their favorite objects such as favorite items of clothing or pillows? *

Continue

Evacuation Plan

Evacuation needed

Important items for your evacuation kit.

Medication for you and the person you care for	☐
First-aid and hygiene supplies	☐
Cash for what you will need to buy along the way	☐
Cellphone and charger	☐
Flashlight and batteries	☐
Important documents stored in a waterproof container	☐

List anything you consider important.

Other important items (optional)

Continue

Shelter In Place Plan

Prepare your house

Based on the information provided, we recommend to evacuate from your zone this time. To start evacuation preparation, please click on the button below.

Continue

Shelter In Place Plan

Check List

Note: we provide more information about how you can turn your house into a shelter.

Cash (in case of power outages)	☐
Medications for at least 2 weeks	☐
Water (at least 7 gallons per person)	☐
Food for at least 7 days with a large supply of items	☐
Manual can opener	☐
Coolers and frozen ice packs	☐
Manual can opener	☐
Extra first aid, hygiene, and home cleaning supplies	☐
Calming, diverting activities (puzzles, coloring books)	☐
Multiple flashlights or battery-powered lanterns	☐
If you have a pet, pet food and supplies	☐

Don't forget extra batteries in the size your devices and equipment require power sources to charge your phone, laptop or tablet.

Continue

Tips for Emergency Situations

Tips for traveling with a person with dementia.

Tips for traveling with a person with dementia

Share your loved one's diagnosis. It helps to have an Alzheimer's Association Companion Card, which will explain your companion needs extra help and patience. You can order one at bit.ly/CompanionCard.

Assess your loved one's response to new surroundings and reassure them. You may hear "I want to go home." Respond with statements like, "I know you want to go home. But for now, we need to stay here. We are safe." Or, "The doctor (or other trusted person) wants you to stay."

Consider reducing liquids up to two hours before bedtime, so the person you care for does not need to get up at night to find a bathroom.

In all your communication, use direct, simple statements. Remain flexible and calm - a person with dementia will respond to the tone you set. Don't argue with or correct the person. Instead, affirm, reassure and redirect. For example, "It's noisy here. Let's find a quieter space to look at your photo book."

It is essential to identify people to share your plan with and to have a way to reach them, such as by phone call or text. Plan to be in contact immediately before and after the event. Consider choosing a place and time to meet after the event.

Maintain your routines as much as possible, especially eating, medication, and sleeping routines.

Acknowledge and continue

Almost There!

Important Information for developing an Escape Plan

Getting you and your family members safely outside is the most important action in a fire emergency. Develop an escape plan and have someone assigned to help your Veteran.

If they are in a wheelchair or have mobility issues, decide in advance the best procedure/route for getting out of the house.

Include two ways out of every room. Even if available, the escape plan should not include elevators. Use stairs.

Select a meeting place where everyone can gather far away from danger and outside of the home.

Know your children's school facility (place of employment, day centers) emergency plan.

Practice the escape plan with all family members at least once a year.

Acknowledge and continue

All good to go!

You are good to go now! We just sent you the confirmation to your email fwafwA@f with the summary of your preparation and evacuation details.

Okay

Test Cases

Test Case 1: Test invalid input of email entry box.
      Expected Result: Invalid entry, user cannot continue.

Test Case 2: Test valid inputs for age entry box.
      Expected Result: Age only accepts whole numbers.

Test Case 3: Test valid input range for age.
      Expected Result: Age must be greater than 0 and less than 111.

Test Case 4: Test blank selection for state.
      Expected Result: Invalid entry, user cannot continue.

Test Case 5: Test blank entries for health/mental conditions and special needs.
      Expected Result: Invalid entry, user cannot continue.

Test Case 6: Test blank input entries when the user selects other for conditions and special needs.
      Expected Result: Invalid entry, user cannot continue.

Test Case 7: Test maximum range for home address when the user selects zone address is different from profile address.
      Expected Result: Maximum of range is 150 characters.

Test Case 8: Test output mapped when user selects yes they live in a mobile home.
      Expected Result: Program output is evacuation.

Test Case 9: Test output mapped when user selects yes they live in a flood zone.
      Expected Result: Program output is evacuation.

Test Case 10: Test output mapped when user selects yes they experience serious flooding.
      Expected Result: Program output is evacuation.

Test Case 11: Test output mapped when user selects yes they experience serious flooding even during rain storms.
      Expected Result: Program output is evacuation.

Test Case 12: Test output mapped when user selects no they do not have hurricane-proof windows or shutters.
      Expected Result: Program output is evacuation.

Test Case 13: Test output mapped when user selects yes they have hurricane-proof windows or shutters and no they do not have a garage.
      Expected Result: Program output is shelter.

<u>Test Case 14</u>: Test output mapped when user selects yes they have hurricane-proof windows or shutters, yes they have a garage, and no they cannot secure it from the inside.

<u>Expected Result:</u> Program output is evacuation.

<u>Test Case 15</u>: Test output mapped when user selects yes they have hurricane-proof windows or shutters, yes they have a garage, and yes they can secure it from the inside.

<u>Expected Result:</u> Program output is shelter.

<u>Test Case 16:</u> Test character range for other evacuation location.

<u>Expected Result:</u> Character range is 1 to 150 characters.

Test Results

Test Case 1:

Test Case 2:

Stay or Evacuate

Personal Info

First name *
fnoinoiesnfoeisnfoisefneosinfoisenfoies

Last name *
fieonfoiesnfeoisfnoisfnoisfnoisfnsoifno

Age *
40.55555555

Gender

(●) Male   ( ) Female   ( ) Other

Email *
foepfmespof

Please enter a valid email address
Street *
fefsefes

City *
fesfesfes

State *
American Samoa   ▾

Zip Code *
fesfs

Next

Test Case 3:

Stay or Evacuate

Patient Info

First name *
fwaefwafwaiofnwaiofnwaoifnwaoifnwa

Last name *
fnoinawoifwnafoiwanfoiwanfoiwnaoifna

Age *
111   ⇕

Please enter patient's age
Gender

◉ Male   ◯ Female   ◯ Other

Health or mental conditions   ▼

Special needs   ▼

Next

Test Case 4:

Stay or Evacuate

Personal Info

First name *
fnoinoiesnfoeisnfoisefneosinfoisenfoies

Last name *
fieonfoiesnfeoisfnoisfnoisfnoisfnsoifno

Age *
40.55555555

Gender

◉ Male   ◯ Female   ◯ Other

Email *
foepfmespofg@gmail

Street *
fefsefes

City *
fesfesfes

State *   ▼

Please enter your state

Zip Code *
fesfs

Next

Test Case 5:

Test Case 6:

Test Case 7:

Test Case 8:

Test Case 9:

Test Case 10:

Test Case 11:

Stay or Evacuate

Are you in the area that experiences serious flooding, even during a rain storm?

● Yes   ○ No

Do you have a room with hurricane-proof windows or shutters to cover the windows?

● Yes   ○ No

Do you have a garage?

● Yes   ○ No

If yes, can you secure your garage door from the inside?

● Yes   ○ No

Continue

Evacuation Plan

Evacuation needed

Based on the information provided, we recommend to evacuate from your zone this time. To start evacuation preparation, please click on the button below.

Continue

Test Case 12:

Stay or Evacuate

Are you in the area that experiences serious flooding, even during a rain storm?

○ Yes   ◉ No

Do you have a room with hurricane-proof windows or shutters to cover the windows?

○ Yes   ◉ No

Do you have a garage?

◉ Yes   ○ No

If yes, can you secure your garage door from the inside?

◉ Yes   ○ No

Continue

Evacuation Plan

Evacuation needed

Based on the information provided, we recommend to evacuate from your zone this time. To start evacuation preparation, please click on the button below.

Continue

Test Case 13:

Stay or Evacuate

Are you in the area that experiences serious flooding, even during a rain storm?

○ Yes   ⦿ No

Do you have a room with hurricane-proof windows or shutters to cover the windows?

⦿ Yes   ○ No

Do you have a garage?

○ Yes   ⦿ No

Continue

Shelter In Place Plan

Prepare your house

Based on the information provided, we recommend to evacuate from your zone this time. To start evacuation preparation, please click on the button below.

Continue

Test Case 14:

Stay or Evacuate

Are you in the area that experiences serious flooding, even during a rain storm?

○ Yes ● No

Do you have a room with hurricane-proof windows or shutters to cover the windows?

● Yes ○ No

Do you have a garage?

● Yes ○ No

If yes, can you secure your garage door from the inside?

○ Yes ● No

Continue

Evacuation Plan

Evacuation needed

Based on the information provided, we recommend to evacuate from your zone this time. To start evacuation preparation, please click on the button below.

Continue

Test Case 15:

Stay or Evacuate

Are you in the area that experiences serious flooding, even during a rain storm?

○ Yes ● No

Do you have a room with hurricane-proof windows or shutters to cover the windows?

● Yes ○ No

Do you have a garage?

● Yes ○ No

If yes, can you secure your garage door from the inside?

● Yes ○ No

Continue

Shelter In Place Plan

Prepare your house

Based on the information provided, we recommend to evacuate from your zone this time. To start evacuation preparation, please click on the button below.

Continue

Test Case 16:

Evacuation Plan

Evacuation needed

Note: we provide more information about finding a public shelter and getting registered if you choose public shelter.

Where will you go?

○ Friend's house

○ Hotel

○ Public shelter

◉ Other

If other, provide details *

nfoienfoiesnfoisnfoisnfoisnfoisnfoisnfoisnfoisnfoisnfoisnfoisnfoisnfoisnfoisnfoisnf

Continue

Code Coverage

When testing the boundaries, invalid inputs, none inputs, out of range inputs, and path mapping, our group was able to test approximately 65% of the code. To avoid redundant testing, we avoided testing the code for similar inputs such as text entries. We believe there are more aspects that need to be tested; however, our primary focus was testing if the outputs of whether a user should evacuate or shelter were correctly mapped.