Software Requirements Specification

for

Electronic Field Input System to a Fish Survey Database

Version 1.0

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Team 5

October 11, 2014

Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Stacy Carlson, Thomas Flores, and Ralph Parkison	10/11/14	Initial Draft	1.0 draft 1
Stacy Carlson, Thomas Flores, and Ralph Parkison	11/7/14	Revisions to Satisfy Senior Project Requirements	1.0 draft 2
Stacy Carlson, Thomas Flores, and Ralph Parkison	3/5/14	Revisions to Reflect Delivered Product	1.0 draft 3

1. Introduction

1.1 Purpose

This SRS describes the software functional and nonfunctional requirements for release 1.0 of the Electronic Field Input System to a Fish Survey Database, hereafter referred to as the Creel Input System. This document is intended to be used by the client and the current team of developers as formal documentation of the delivered system. It is also intended to be used by future developers to understand the system's current implementation.

1.2 Document Conventions

"" – GUI (Graphical User Interface) element

1.3 Intended Audience and Reading Suggestions

This document is intended for both the client and the developers. The rest of this SRS defines the features of the software. Both the client and the developers should read the SRS in the order provided with particular care being given to the System Features.

1.4 Project Scope

The Creel Input System is intended to replace the Franklin D. Roosevelt Lake Creel Survey Form that was filled out by hand by the creel clerks, mailed to the client, and then transcribed into Excel spreadsheets. The Creel Survey Form is used for both the access and bus route types of creel survey. The access type is where the Creel Clerk stays at one location all day and the bus route is where the Creel Clerk travels from location to location.

The goal of the electronic system is to minimize data entry errors. Since the system will be fully functional with the Fish Survey Database, the client will also benefit from user-friendly and time efficient data access.

1.5 References

1. Franklin D. Roosevelt Lake Creel Survey Form, LRFEP, 2/8/05
2. Lake Roosevelt Recreational Creel Survey 2014 Survey Design And Protocol, 7/27/14
3. Lake Roosevelt 2004 Recreational Survey Design, 2004
4. 2014 Lake Roosevelt Creel Survey Protocol Presentation, 6/23/14

2. Overall Description

2.1 Product Perspective

The Creel Input System is the electronic replacement of the paper Franklin D. Roosevelt Lake Creel Survey Form. (See Appendix G) The system provides a user interface to collect data and stores it internally. When an Internet connection is available the system can be connected with the Fish Survey Database for offsite data storage.
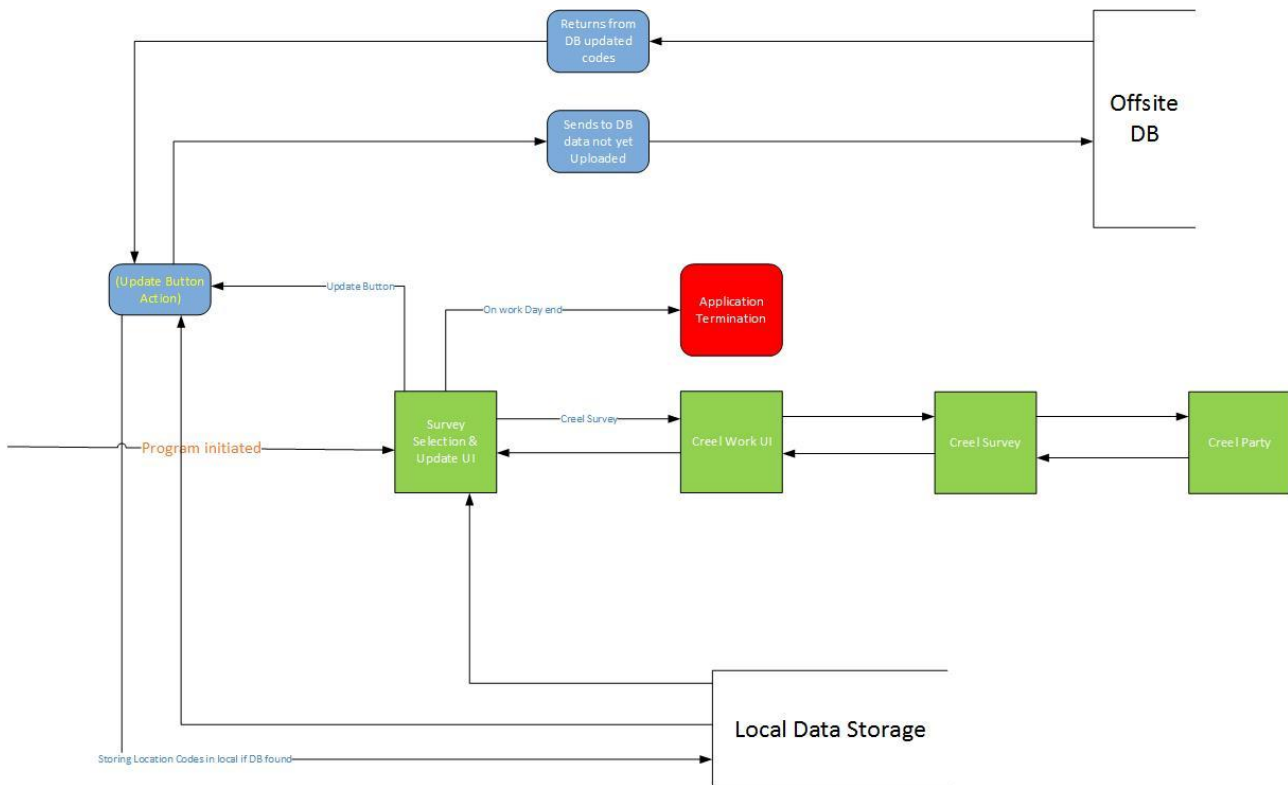
2.2 Product Features

The Creel Input System features all pertinent fields that appear on the paper Franklin D. Roosevelt Lake Creel Survey Form. Users can fill out the form by selecting the angler answer from drop down menus or entering the information via customized keypads.

[1] The application will sync with the database updating various codes i.e. [location, species…]

[2] The application will upload survey data to the database

2.3 User Classes and Characteristics

Creel Clerk (favored)

>A Creel Clerk is the user who interviews anglers and records the answers in the Creel Input System. All Creel Clerks have been trained how to do a creel survey. Creel Clerks possess a varying range of technical expertise, some may need basic computer skill training.

2.4 Operating Environment (OE)

>OE-1: The Creel Input System shall operate on the following operating system: Windows 7 Professional (64 bit).
>OE-2: The Creel Input System shall operate on the following hardware platform: Getac Tablet (Model F110).
>OE-3: The Creel Input System shall be fully compatible with the Fish Survey Database.

2.5 Design and Implementation Constraints (CO)

>CO-1: The Fish Survey Database must be used.
>CO-2: The Creel Input System must use JSON to communicate with the Fish Survey Database.
>CO-3: All code must be written in a language that allows for modification and upgrades.

2.6 User Documentation (UD)

>UD-1: The team will demonstrate the software to the client upon completion.
>UD-2: The team will create help files for the software for both the Creel Clerks and the biologists.
>UD-3: The client will be responsible for training the Creel Clerks on use of the system.

2.7 Assumptions and Dependencies (DE)

>DE-1: The Creel Input System depends on the Fish Survey Database being implemented in the manner described by Team 4.

3. System Features

3.1 Welcome Screen User Interface

3.1.1 Description and Priority
An options menu is displayed and the data storage folder structure is created if it doesn't already exist. (See Appendix E) Priority: High

3.1.2 Stimulus/Response Sequences

> Stimulus: A Creel Clerk launches the application.
> Response: The application creates the data storage folder structure if it doesn't already exist.
>
> Stimulus: A Creel Clerk selects the "Creel Survey".
> Response: The application launches the survey.
>
> Stimulus: A Creel Clerk selects "Upload/Update".
> Response: The application follows the upload/update procedures. (See 3.4 and 3.5)

3.1.3   Functional Requirements (REQ)

REQ-1: Creel Survey User Interface

3.2 General Work Information Entry User Interface

3.2.1   Description and Priority
A Creel Clerk enters general work information. Priority: High

3.2.2   Stimulus/Response Sequences

> Stimulus: A Creel Clerk selects their name, the survey type and the section. If the survey type is a bus route, the clerk must also select a route number. The clerk then presses "Start".
> Response: Data is saved in a Creel Work object. Creel Clerk is given the option to add a location.
>
> Stimulus: A Creel Clerk clicks "End" upon ending work.
> Response: Ending time is saved to the Creel Work object. Welcome screen is displayed.

3.2.3   Functional Requirements (REQ)

REQ-1: Welcome Screen User Interface
REQ-2: Creel Work Object

3.3 Angler Creel Survey Entry User Interface

3.3.1   Description and Priority
A Creel Clerk completes an angler creel survey. Priority: High

3.3.2   Stimulus/Response Sequences

> Stimulus: A Creel Clerk selects a location.
> Response: The "Loc. Pressure" button is enabled.
>
> Stimulus: A Creel Clerk clicks the "Loc. Pressure" button.
> Response: A control will appear for the clerk to enter counts for shore anglers and boat trailers. (See Appendix B, UI-3.6) A new Creel Survey object is created.

Stimulus: A Creel Clerk submits count information.
Response: A timer will start tracking the time spent at the location and the "End Location" button is enabled. Count data is saved to the Creel Survey object.

Stimulus: A Creel Clerk doesn't encounter any angler parties.
Response: The clerk clicks the "End Location" button.

Stimulus: A Creel Clerk encounters an angler party and clicks the "New Party" button. (See Appendix B, UI-3.1)
Response: The party size, complete trip, start time, and target species controls become visible.

Stimulus: A Creel Clerk marks "Y" for complete trip.
Response: The end time picker becomes visible.

Stimulus: A Creel Clerk completes the information for an angler party. All fields require a response, except end time which is only required if it's a complete trip.
Response: The "Add Fish" button is enabled.

Stimulus: A Creel Clerk clicks the "Add Fish" button.
Response: A new fish line is added to the screen with the field species caught visible. (See Appendix B, UI-3.2) The angler party information fields are disabled.

Stimulus: A Creel Clerk selects none as the species caught.
Response: The "End Location" and "New Party" buttons are enabled.

Stimulus: A Creel Clerk marks the fish as kept.
Response: The fish details fields are made visible on the fish line. (See Appendix B, UI-3.3 and UI-3.4)

Stimulus: A Creel Clerk marks the fish as released.
Response: The total field is made visible on the fish line. When the fish line is submitted a separate Creel Fish object is created for each fish released. For example if the total is 5, then 5 fish objects are created. (See Appendix B, UI-3.5)

Stimulus: A Creel Clerk clicks the "Delete" button.
Response: The fish line associated with the button is deleted. None of the data from that line is recorded.

Stimulus: A Creel Clerk edits a fish in the party.
Response: The fish is checked for completeness and the "Add Fish", "New Party", and "End Location" buttons are enabled/disabled as appropriate. (See Appendix D)

Stimulus: A Creel Clerk clicks the "New Party" button.
Response: A Creel Party object is created and added to the list of parties in the Creel Survey object. The party fields are saved in the Creel Party object. A Creel Angler object is created to hold the angler information and is added to the Creel Party list of anglers. Creel Fish objects are

created to hold the fish data and added to the list of fish in the Creel Party. The party fields are reset and the fish lines are cleared.

Stimulus: A Creel Clerk clicks the "End Location" button.
Response: A control appears for the clerk to enter counts for shore anglers and boat trailers. (See Appendix B, UI-3.6) Count data and the ending time is saved to the Creel Survey object. A Creel Party object is created and added to the list of parties in the Creel Survey object. The party fields are saved in the Creel Party object. A Creel Angler object is created to hold the angler information and is added to the Creel Party list of anglers. Creel Fish objects are created to hold the fish data and added to the list of fish in the Creel Party. The system returns to the general work information entry screen. A summary of the data collected at the location is displayed.

3.3.3   Functional Requirements (REQ)

REQ-1: Location Pressure Control
REQ-2: Movement between views
REQ-3: Creel Survey Object
REQ-4: Creel Party Object
REQ-5: Creel Angler Object
REQ-6: Creel Fish Object

3.4 Upload Data to the Fish Survey Database

3.4.1   Description and Priority

The Creel Clerk submits the data they collected via JSON object to the Fish Survey Database for approval by the biologists. Priority: High

3.4.2   Stimulus/Response Sequences

Stimulus: The Creel Clerk chooses to upload the data.
Response: The Creel Input System attempts to connect to the Fish Survey Database. If a connection is made the Creel Clerk is prompted for their username and password. Otherwise the Creel Clerk is informed there is no Internet.

Stimulus: Username or password fail validation by the Fish Survey Database.
Response: The Creel Clerk is informed of the error and prompted to try again.

Stimulus: Username and password are validated by the Fish Survey Database.
Response: Data transfer begins.

Stimulus: Data uploads to the Fish Survey Database.
Response: The number of unreported surveys is set to 0. Surveys are moved from C:\FishInputData\CreelData\JSONData\Incomplete to C:\FishInputData\CreelData\JSONData\Completed.

Stimulus: Data fails to upload to the Fish Survey Database.
Response: The number of unreported surveys remains what it was before attempting to upload. The Creel Clerk is informed of the error.

3.4.3   Functional Requirements (REQ)

REQ-1: Internet Connection
REQ-2: Fish Survey Database
REQ-3: Folder Structure

3.5   Download Data From the Fish Survey Database

3.5.1   Description and Priority
Updates from the Fish Survey Database are received in JSON object format and applied to the application's fields.

3.5.2   Stimulus/Response Sequences

Stimulus: The Creel Clerk chooses to update the system.
Response: The Creel Input System attempts to connect to the Fish Survey Database. If a connection is made the Creel Clerk is prompted for their username and password. Otherwise the Creel Clerk is informed there is no Internet.

Stimulus: Username or password fail validation by the Fish Survey Database.
Response: The Creel Clerk is informed of the error and prompted to try again.

Stimulus: Username and password are validated by the Fish Survey Database.
Response: Data transfer begins.

Stimulus: Data downloads from the Fish Survey Database and the updates are applied. Data is saved at C:\FishInputData\CreelData\JSONData\LUT.json.
Response: The Creel Clerk is informed of the success via the loading animation disappearing.

Stimulus: Data fails to download from the Fish Survey Database.
Response: The Creel Clerk is informed of the failure and is prompted to try again.

3.5.3   Functional Requirements (REQ)

REQ-1: Internet Connection
REQ-2: Fish Survey Database
REQ-3: Loading Animation
REQ-4: Folder Structure

4. External Interface Requirements

4.1 User Interfaces (UI)

The user interface will be split into 3 different views. Each will feature a menu bar that will allow the user to exit the application when the day is completed and access help.(See Appendix B and C)

UI-1: Initial view will be a welcome screen that will provide choices for surveys and updating/uploading. If updating/uploading is selected the user will be presented with a loading animation.

UI-2: The general work entry information view will collect information about the general workday. Users will be able to add a new location from this view. A summary of each location will appear on this screen as the day progresses. (See Appendix B, 2.1 and 2.2)

UI-3: The angler creel survey entry view will collect information about the angler party being interviewed. Users will be able to add fish, add another party, and end the location. This view also tracks the time spent at the location. (See Appendix B, 3.1)

4.2 Hardware Interfaces (HI)

HI-1: Getac Tablet running Windows 7 (64bit)
HI-2: Touch screen
HI-3: Stylus
HI-4: Web based SQL Server (ASP.NET) (Fish Survey Database)

4.3 Software Interfaces (SI)

SI-1: Windows 7 (64 bit) installed on Getac (Connected via Windows Libraries on C#)
SI-2: Offsite SQL Server (ASP.NET) where the database is stored (Connected via JSON Package Transfers)

4.4 Communications Interfaces (CI)

CI-1: Be able to package up data into a JSON object and send it to a web server
CI-2: Be able to unpack a JSON object to update local data from the web server
CI-3: Be able to reinitialize any unsuccessful data back into the application and attempt to repackage and retry upload

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Our system does essentially no heavy processing so the application should run at an extremely fast rate where once the user submits data they should be immediately greeted with the appropriate screen. The only exception would be when sending data to the DB, which is reliant on Internet connectivity.

5.2 Security Requirements (SR)

SR-1: Username and password will be entered on the client side
SR-2: Username and password will be verified on the server side
SR-3: Client side will display pass/fail of credentials and allow/deny upload

5.3 Software Quality Attributes

Reliability: The application must be extremely reliable, working 100% of the time, so unit and simulated field testing will have to be done to ensure this.

Correctness: Additionally the application must be able to interact appropriately with the Fish Survey Database and submit data correctly.

Maintainability: The software must be able to be updated as the list of fish species, locations, etc. changes.

Usability: The interface must be intuitive, easy, and quick to use.

6. Other Requirements (R)

R-1: Testing should be done to ensure the reliability of the product.
R-2: Additionally the client will need full documentation on how to run the application, upgrades and/or maintenance.

7. Final Deliverables (D)

D-1: A Creel Input System executable for use on Getac tablets.
D-2: A copy of all source code.
D-3: A demonstration of the system.
D-4: Email addresses for all team members to be used by maintenance/upgrade programmers.

Appendix A: Glossary

[Access Type] – Creel clerk conducts creel surveys in one location all day.

[Adipose Fin Clip] – Fin removed to indicate hatchery raised fish.

[Angler] – Fisherman

[Biologist] – Scientist employed by Lake Roosevelt Fisheries Evaluation Program (LRFEP) to study the data collected by the creel clerks. The biologist is responsible for the data integrity.
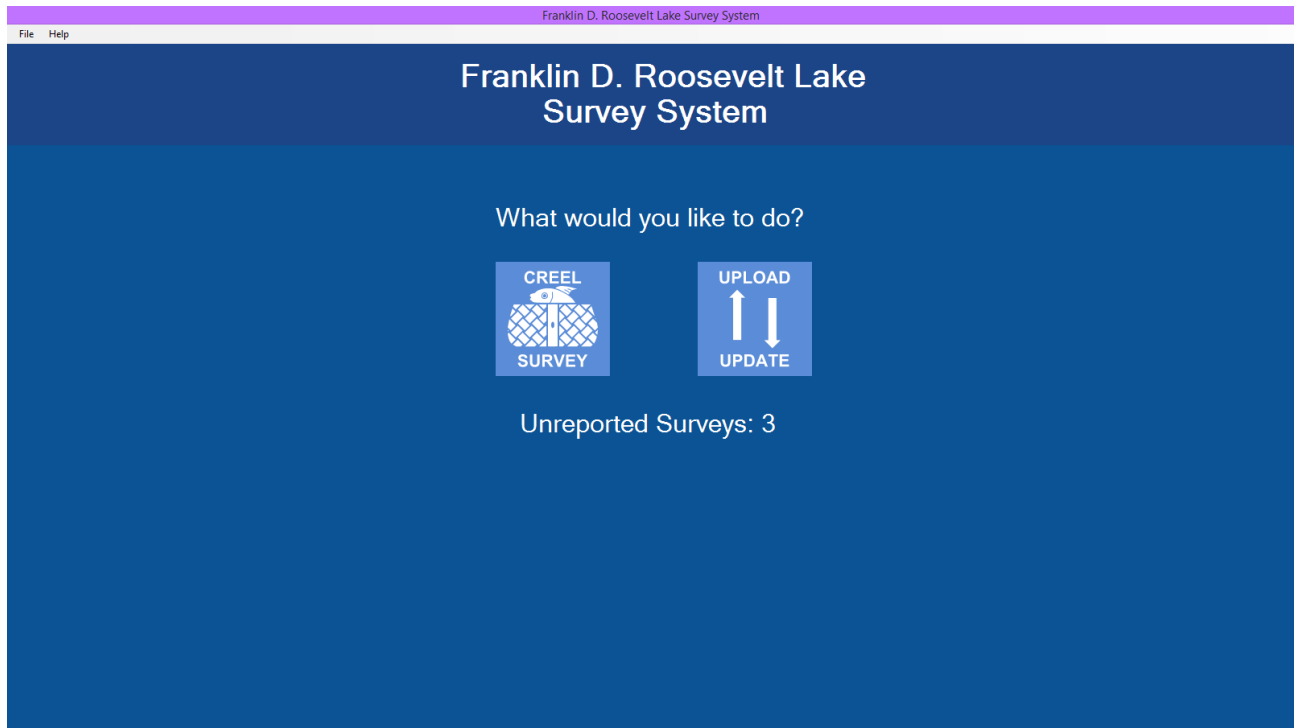
[Bus Route Type] – Creel clerk proceeds along a predefined route, arrives at each location on a precise schedule, conducts creel surveys at a site for a defined period of time, then proceeds to the next site along the route.

[Creel Clerk] – Person who conducts creel surveys. Often times they are fishermen themselves.

[Creel Survey] – An interview where the surveyor asks fishermen questions regarding their fishing activities and records their responses.

Appendix B: User Interfaces

UI-1:Welcome Screen

UI-2.1: General Work Information Screen

UI-2.2: General Work Information Screen with Day Summary

UI-3.1: Angler Creel Survey Entry Screen

UI-3.2: Fish Line with Species

Species Caught	Kept/ Released	Total	Length (mm)	Weight (g)	Mark	Tag Type	Tag Number	Notes	Delete Fish
									⊖

UI-3.3: Fish Line, Fish Kept with Tag Info

Species Caught	Kept/ Released	Total	Length (mm)	Weight (g)	Mark	Tag Type	Tag Number	Notes	Delete Fish
Yellow Perch	K R	1	45	80	None	PIT tag	1234567890 almcndefgh		⊖

UI-3.4: Fish Line, Fish Kept Without Tag

Species Caught	Kept/ Released	Total	Length (mm)	Weight (g)	Mark	Tag Type	Tag Number	Notes	Delete Fish
Yellow Perch	K R	1	45	80	None	None			⊖

UI-3.5: Fish Line, Fish Released

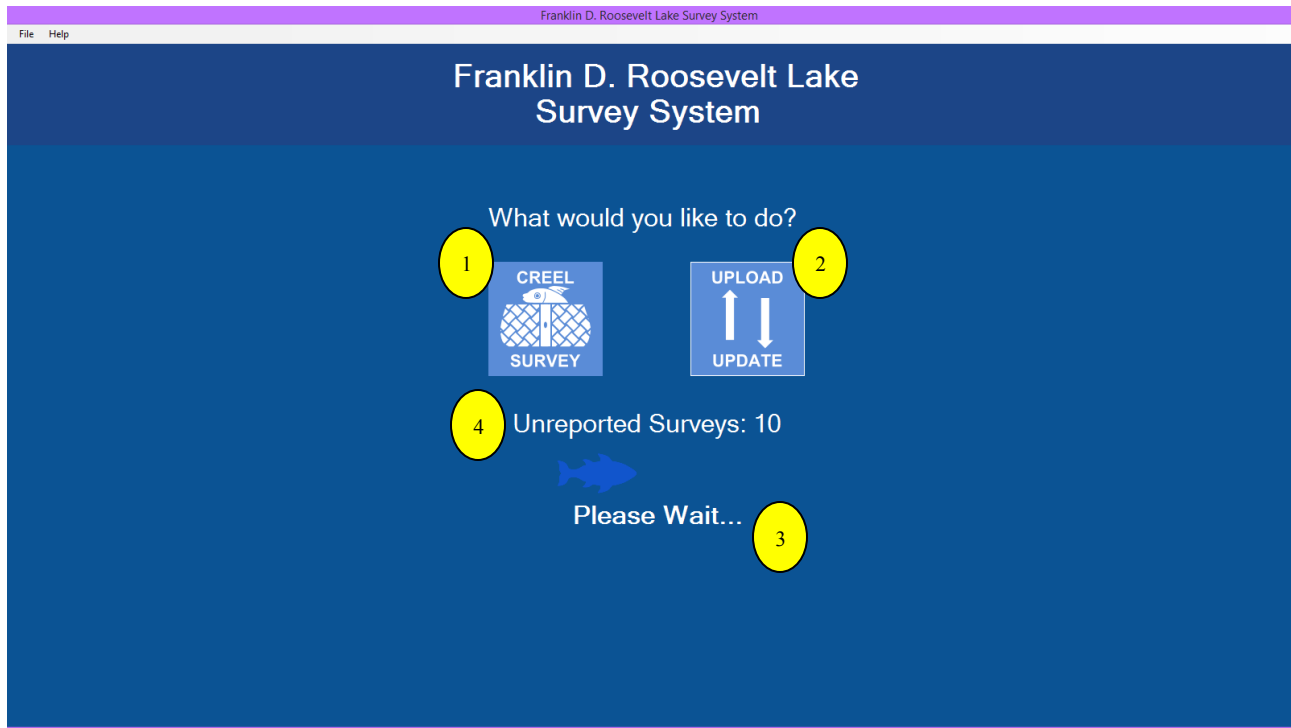| Species Caught	Kept/ Released	Total	Length (mm)	Weight (g)	Mark	Tag Type	Tag Number	Notes	Delete Fish
Yellow Perch	K R	8							⊖

UI-3.6: Shore Angler and Boat Angler Counts

Appendix C: User Stories

US-1: Welcome Screen User Stories

The user will begin the program exclusively with one of two goals. They will either be within a Wifi location with the intent to upload their surveys, or they will be on location with the intent to complete a day's survey.

The active controls and labels on the screen will work as follows:

1. The "CREEL SURVEY" button will exit the startup screen and launch the day summary page for the creel survey.
2. The "UPLOAD UPDATE" button will do the following when clicked:
    a. Attempt to make a connection with the database. Once a connection is made, the system will update location and fish variables to match the database, and it will upload each day's survey to the database.
    b. A waiting animation will be displayed while this process completes. (See 3)
    c. Disable all buttons on the screen while the process completes.
3. This waiting animation will be displayed while the upload and update process is going on.
4. The Unreported Surveys label will display the count of surveys that have not yet successfully been uploaded to the database. Thus the number on this label will be incremented with each new survey, and it will be reset to zero every time all surveys have been uploaded.

US-2: General Work Information Screen User Stories

Upper Portion - The first three controls from the left will be the only controls active on the page when the page is first loaded as a new survey. The controls in this section will work as follows:

1. Name - This dropdown contains all the names of the creel clerks. The clerk will select their name.
2. Survey Type - This will be a dropdown that allows either the choice of either a Bus-Route or Access type.
3. Section - Dropdown that allow the choice from Upper, Middle, and Lower sections.
4. Route - This dropdown menu will only be active if the user selected the Bus-Route type survey.
5. Work Day Start - Once the previous controls on this line have been entered, this green button will be made active. When the user clicks on the button, the following will happen:
   a. The button will turn into a time stamp on the UI that shows when the day started.
   b. The "End" button will be activated.
   c. The "Start New Location" button will also be activated.
6. Work Day End - This button will turn into a timestamp of when it was clicked

Lower Portion - This section will be inactive until the day has started.

7. Survey Summary Section - This area will print all locations the clerk has already surveyed.
8. Start New Location - This button will take you to the location survey screen when it is pressed. When the clerk confirms that the work day is over, this button will turn into an "Exit" button that will take you back to the main page.

US-3: Angler Creel Survey Entry Screen User Stories

Upper Portion - This section displays the metadata for the current survey location. This data includes:

- The current survey location index for the day.
- The start time for the location.
- The location name. This will be a drop down, the user must select a location before the lower portion is enabled.
- The time the clerk has been at the current location.

Lower Portion - This section will present all the controls for the angler party and fish data entry.

Angler Party Data Entry Line - The input methods of the controls fit into the following categories:

- Special - Party Size. Pressing the [+] button on this control will cause a small pop-up control to appear that will disable all other controls. The clerk will enter the number of anglers in the group, select the angler type from a drop down, and enter a zip code.
- Y | N Toggle Control (Yes/No) - Completed Trip.
- Time Picker - If the trip is complete, both the start time and end time with be displayed. Otherwise, only the start time will display. The clerk will click on the hours or the minutes and use the arrows to navigate to the correct time.
- Drop down - Target Species 1 and Target Species 2.

Fish Data Entry Lines - When a new fish line is created, the clerk will be presented with a drop down to select the fish species, the notes button, and the delete button.

> Notes
> - Regardless of the data, the clerk will have the opportunity to enter notes about the fish by clicking this button.
>
> Delete
> - Regardless of the data, the clerk will be able to delete the fish entry line by clicking the delete button associated with it.

If the species is not none, the K | R Toggle Control is displayed. The visibility of the rest of the controls depends on this decision.

> K. Kept Fish
> - The total number of fish will automatically be selected as a single kept fish. This number will not be editable by the clerk.
> - The clerk will be presented with fields for fish length and weight. If that data is available they will click on the field and enter the numerical data using a custom numerical keypad. The data is error checked for proper range.
> - The clerk will also have the option to select what type of mark the fish has. This data may not be available. None is automatically selected.
> - The clerk will have the opportunity to change the tag type in a drop down. None is automatically selected.
> - If the tag type is not none, a tag number is required. The clerk clicks on the field and uses a custom alpha-numerical keypad to enter the tag number. The data is error checked for the proper range of characters.
>
> R. Released Fish
> - The clerk must enter the total number of fish released. The clerk will click on the field and enter the numerical data using a custom numerical keypad. The data is error checked for proper range.
> - No other controls will be presented on this line.

Lower Buttons - These buttons will accomplish and be enabled as follows:

- "(+) Fish" Button
  - This button will first be enabled when the party information is complete. After the first fish is added to the party, this button will be enabled whenever all fish for the current party are complete. It will also be enabled if all fish for the current party are deleted.
  - When clicked, this button will add a new fish data entry line and disable itself until any of the above conditions are met.
- "New Party" Button
  - This button will first be enabled when a location is selected. After a party is added it will enable when the party information is complete and all the fish for that party are complete.

- o When clicked, all of the fish lines will be saved in relation to the party information in the location object. It will then clear the fish lines and reset the party information to defaults.
- "End Location" Button
  - o This button will first be enabled when the location is selected. After a party is added, it will be enabled whenever the party information and all the fish for that party are complete.
  - o When clicked, all of the fish lines will be saved in relation to the party information in the location object. The screen will return to the General Work Information Screen where a summary of the data collected will display.

Appendix D: Complete Fish

x = Required for a complete fish

	No Fish	Released Fish	Kept Fish No Tag	Kept Fish With Tag
Species	X	X	X	X
Kept/Released		X	X	X
Total		X	X	X
Length				
Weight				
Mark				
Tag Type			X	X
Tag Number				X
Notes				

Appendix E: Data Storage Folder Structure

Appendix F: JSON Output Format
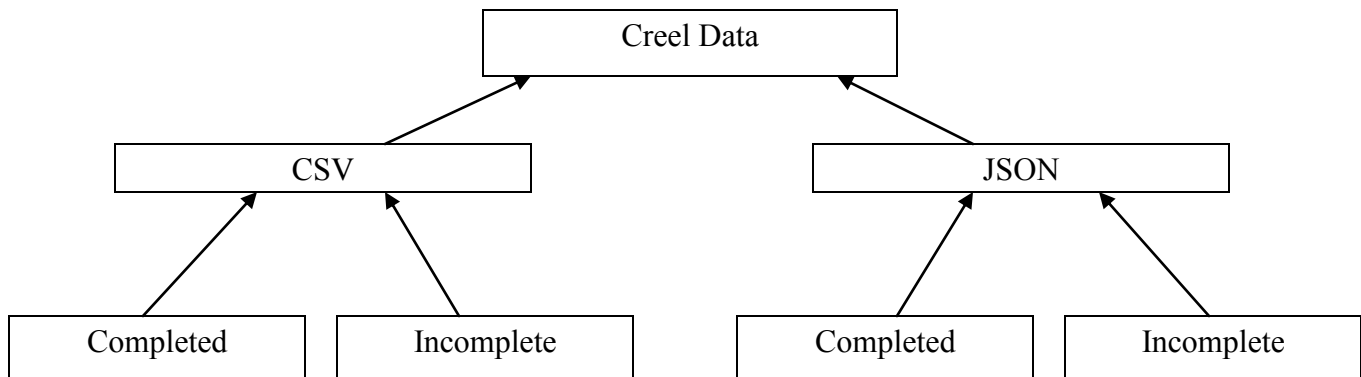
```
{

        'Username':'user1',
        'Password':'Mypassword123',
        'Survey':[
                {
                        'SrvyDt' : '2014-12-03',
                        'CRReachCD' : 2,
                        'CRSrvyMthCD' : 1,
                        'ClerkSTm' : '08:00',
                        'ClerkFTm' : '16:00',
                        'CreelSTm' : '08:30',
                        'CreelFTm' : '15:30',
                        'RecorderCD' : 4,
                        'ShoreAngCnt' : 15,
                        'BoatTrailerCnt' : 12,
                        'CRBusRouteCD' : 0,
                        'Comment' : "I'm a comment! Yay!!!",
                        'AngGrp' : [
                                {
                                        'AngGrpIndCnt' : 5,
                                        'AngChkTm' : '09:23',
                                        'AngSTm' : '05:00',
                                        'AngFTm' : null,
                                        'AngTypeCD' : 2,
                                        'AngGrpTotCnt' : 3,
                                        'AngSppTgt1CD' : 1,
                                        'AngSppTgt2CD' : 3,
                                        'AngZipcode' : '99206-1234',
                                        'BoatLaunchCD' : 3,
                                        'Entry' : [
                                                {
                                                        'AngSppHrvCD' : 1,
                                                        'AngHrvFlg' : true,
                                                        'TotLnMM' : 505,
                                                        'HatchFlg' : true,
                                                        'WtG' : 102,
                                                        'MarkCD' : 1,
                                                        'MarkColorCD' : 3,
                                                        'TagCD' : 2,
                                                        'TagColorCD' : 2,
                                                        'TagNo' : 'ABC123',
                                                        'Comment' : "test"
                                                },
```

```
                              {
                                      'AngSppHrvCD' : 1,
                                      'AngHrvFlg' : true,
                                      'TotLnMM' : 505,
                                      'HatchFlg' : true,
                                      'WtG' : 102,
                                      'MarkCD' : 1,
                                      'MarkColorCD' : 3,
                                      'TagCD' : 2,
                                      'TagColorCD' : 2,
                                      'TagNo' : 'ABC123',
                                      'Comment' : "test"
                              }
                      ]

              },
          ]
      },
  ]
}
```
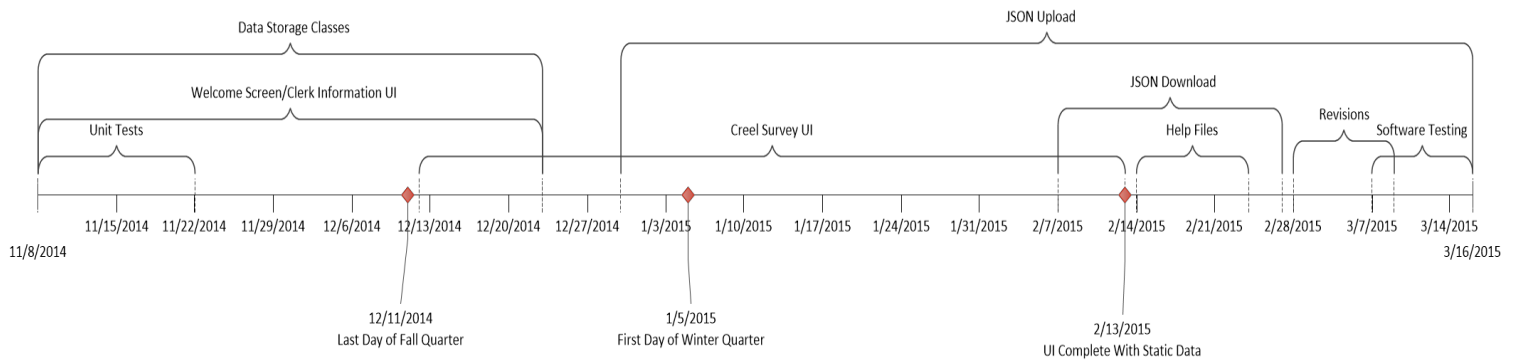
Appendix G: Legacy Forms

Franklin D. Roosevelt Lake Creel Survey Form

Date (mm/dd/yy)

Weekday

Section

Survey Type

Start Work
Finish Work

Start Creel
Finish Creel

Creel Clerk Initials

Page ___ of ___

Total hours Creeled

Column headers (rotated): Tag Number, Tag Color, Fin Clip, Mark, Species Origin, Weight (g), Total Length (mm), Released / Kept, Species Caught, Target Species 2, Target Species 1, Zipcode, Complete Trip, End Time, Start Time, Angler Type, No. of Anglers, Time Checked, Party Size, Party #, Location, Comment #

2/8/05

Notes:

Appendix H: Actual Timeline and Distribution of Work

December 14						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
November 30	December 1	2	3	4	5	6
Diagrams (Ralph)						Finals
3.1, 3.2, 3.3 UI (Thomas)						3.1, 3.2 to panels (Thomas)
Briefing Materials (Stacy)						
7	8	9	10	11	12	13
Finals						
3.1, 3.2 to panels (Thomas)					3.3 UI (Stacy)	
14	15	16	17	18	19	20
				3.1, 3.2 to panels (Thomas)		
3.3 UI (Stacy)						
21	22	23	24	25	26	27
3.4 and 3.1, 3.2, 3.3 objects (Ralph)						
	3.2 UI (Thomas)					
3.3 UI (Stacy)						
28	29	30	31	January 1	2	3
		3.4 (Ralph)				
3.3 UI (Stacy)						

January 15						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
December 28	29	30	31	January 1	2	3
				3.3 UI (Stacy)		
4	5	6	7	8	9	10
	3.4 (Ralph)					3.4 (Ralph)
	3.3 UI (Thomas)					3.3 UI (Thomas)
3.3 UI (Stacy)	3.3 UI (Stacy)					3.3 UI (Stacy)
11	12	13	14	15	16	17
3.4 (Ralph)						3.4/3.5 (Ralph)
3.3 UI (Thomas)						3.3 UI (Thomas)
3.3 UI (Stacy)						3.3 UI (Stacy)
18	19	20	21	22	23	24
3.4/3.5 (Ralph)						3.4 (Ralph)
3.3 UI (Thomas)						3.3 UI (Thomas)
3.3 UI (Stacy)						3.3 UI (Stacy)
25	26	27	28	29	30	31
3.4 (Ralph)						3.4 (Ralph)
3.3 UI (Thomas)						3.3 UI (Thomas)
3.3 UI (Stacy)						3.3 UI (Stacy)

February 15						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
February 1	2	3	4	5	6	7
3.4 (Ralph)						3.4/3.5 (Ralph)
3.3 UI (Thomas)						3.3 UI (Thomas)
3.3 UI (Stacy)						3.3 UI (Stacy)
8	9	10	11	12	13	14
3.4/3.5 (Ralph)						3.5 (Ralph)
3.3 UI (Thomas)					Static UI Finished	3.3 UI (Thomas)
3.3 UI (Stacy)						3.3/R-2 (Stacy)
15	16	17	18	19	20	21
3.5 (Ralph)						3.5 (Ralph)
3.3 UI (Thomas)						3.3 UI (Thomas)
3.3/R-2 (Stacy)						3.3 UI and objects/R-2 (Stacy)
22	23	24	25	26	27	28
3.5 (Ralph)						3.4 (Ralph)
3.3 UI (Thomas)						3.4 UI elements (Thomas)
3.3 UI and objects/R-2 (Stacy)						3.3 (Stacy)
March 1	2	3	4	5	6	7

March 15						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
March 1	2	3	4	5	6	7
3.4 (Ralph) [spanning Mar 1–6]						3.4 (Ralph)
3.4 UI elements (Thomas) [spanning]						UI Revisions (Thomas)
3.3/Documentation (Stacy) [spanning]						Code Cleanup, Documentation, Testing (Stacy)
8	9	10	11	12	13	14
3.4 (Ralph) [spanning 8–14]						
UI Revisions (Thomas) [spanning]						
Code Cleanup, Documentation, Testing (Stacy) [spanning]						
15	16	17	18	19	20	21
3.4 (Ralph)	End of Project					
UI Revisions (Thomas)						
Code Cleanup, Documentation, Testing (Stacy)						
22	23	24	25	26	27	28
29	30	31	April 1	2	3	4