Electronic Field Input System

Team 5
Stacy Carlson, Thomas Flores, and Ralph Parkison

Background

- Data is collected on paper forms submitted via mail
  - Potential for loss
  - Errors during the collection of the data
  - Errors during transcription to Excel
  - Long time to access the data

2/8/05

Franklin D. Roosevelt Lake Creel Survey Form

Date (mm/dd/yy): 0 5 2 4 1 4

Weekday: 6

Section: 1

Survey Type: 1

Start Work: 0700
Finish Work: 2100

Start Creel: 1000
Finish Creel: 2000

Creel Clerk Initials: JE RM

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Total hours Creeled: 10.0

Comment #	Location	Party #	Party Size	Time Checked	No. of Anglers	Angler Type	Start Time	End Time	Complete Trip	Zipcode	Target Species 1	Target Species 2	Species Caught	Released / Kept	Total Length (mm)	Weight (g)	Species Origin	Mark	Fin Clip	Tag Color	Tag Number
	KP		4	1330	3	1	0630	1315	1	99206	3	0	3	1/15	EST 388 mm		2	0	0	0	
						1	0630	1315	1	99206	3	0	3	1/15	EST. 395 mm		2	0	0	0	
						1	0630	1315	1	99206	3	0	3	1/10	EST. 350 mm		2	0	0	0	
	5		3	1340	3	1	0700	1320	1	99206	3	0	3	1/3	EST. 370 mm		2	0	0	0	
						1	0700	1320	1	99206	3	0	3	1/3	EST. 380 mm		2	0	0	0	
						1	0700	1320	1	99206	3	0	3	1/4	EST 395 mm		2	0	0	0	
													7	0			2	0	0	0	No. Pike 24"
	5		2	1410	2	1	0700	1350	1	99141	3	0	3	0/7			0	0	0	0	
						1	0700	1350	1	99141	3	0	3	0/12			0	0	0	0	
			3	1520		1	0800	1510	1	99109	3	0	3	1/3	EST. 296		2	0	0	0	
						1	0800	1510	1	99109	3	0	3	1/3	EST. 385		2	0	0	0	
						1	0800	1510	1	99109	3	0	3	1/2	EST. 370		2	0	0	0	
	6		2	1650	2	1	0700	1510	1	99141	3	0	3	1	395	505	2	0	0	0	
						1	0700	1510	1	99141	3	0	3	1	395	465	2	0	0	0	
													3	1	422	640	2	0	0	0	
													3	1	382	465	2	0	0	0	
													3	1	425	570	2	0	0	0	
													3	1	412	545	2	0	0	0	
	5		2	1640	2	1	0800	1620	1	99206	3	0	3	1	395	500	2	0	0	0	
						1	0800	1620	1	99206	3	0	3	1	390	490	2	0	0	0	
													3	1	380	435	2	0	0	0	
													3	1	390	485	2	0	0	0	
													3	1/10	EST. 387mm		2	0	0	0	

Notes:

est. mile 122

Requirements

- Electronic Input System
  - Creel (Top priority)
  - Raw Fish
  - FWIN
- Easily updatable/maintainable
  - Study needs change over time
- Fully functional with Team 4's database
- Solution can't depend on an Internet connection

End User

- Creel Clerk
  - Two Types
    - Access
    - Bus Route
  - Trained how to do a Creel Survey
  - Varying computer skills

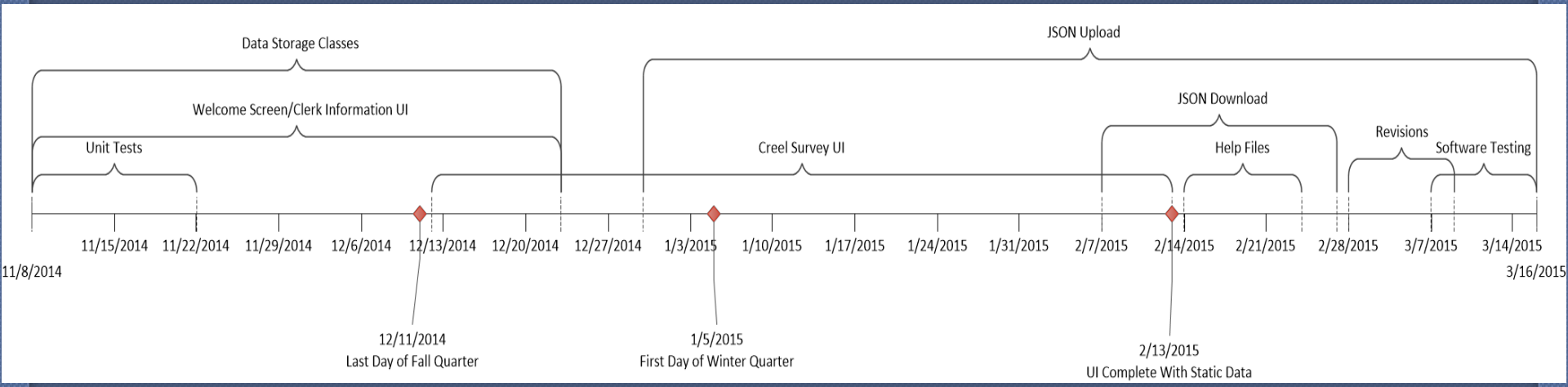
Operating Environment

- Getac Tablet
  - Windows 7 Professional (64 bit)

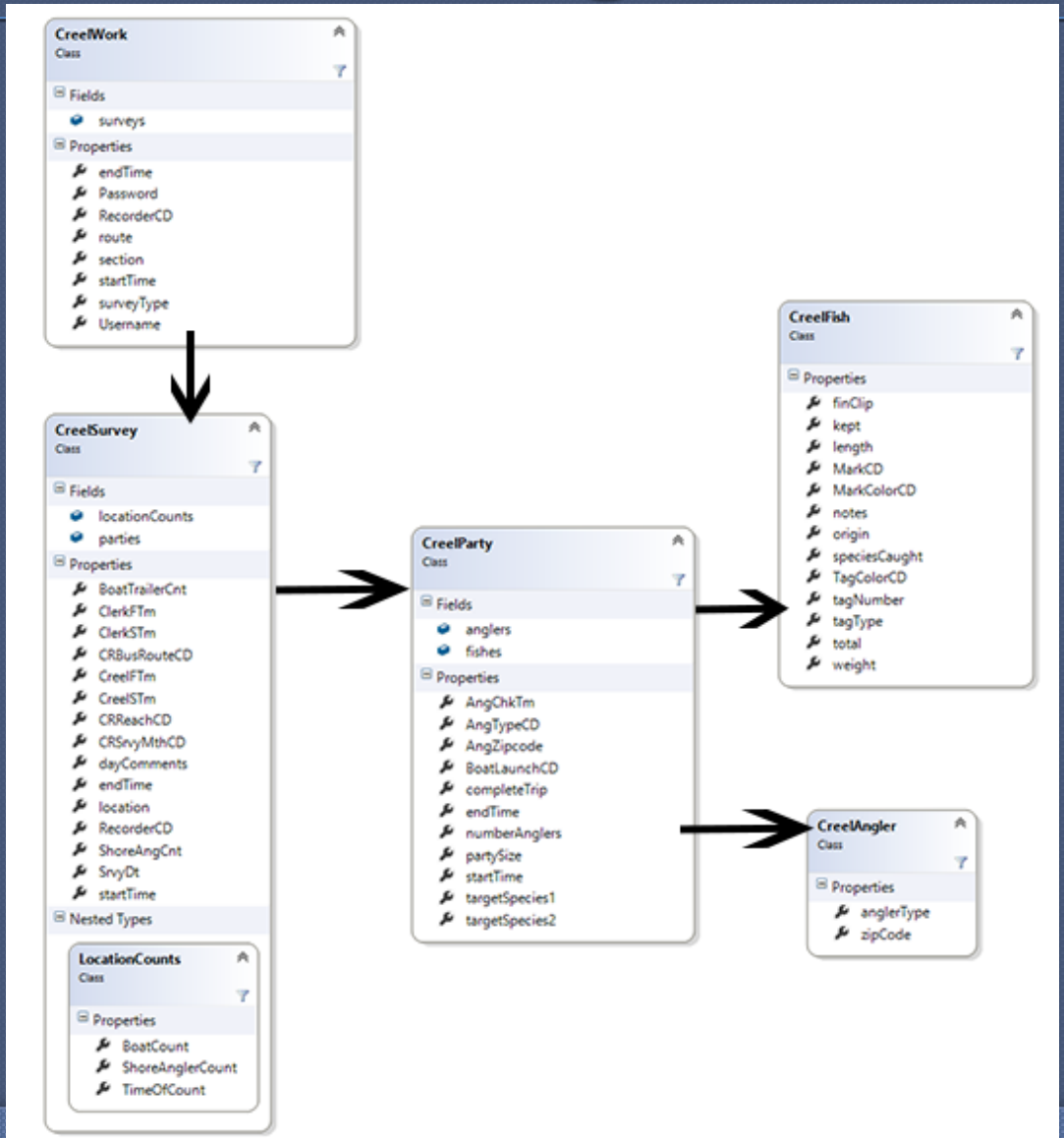
Our Basic Idea

- C# Winforms
- Local data storage
  - Codes
  - Data collected
- Some means of communicating with the database

Development Process

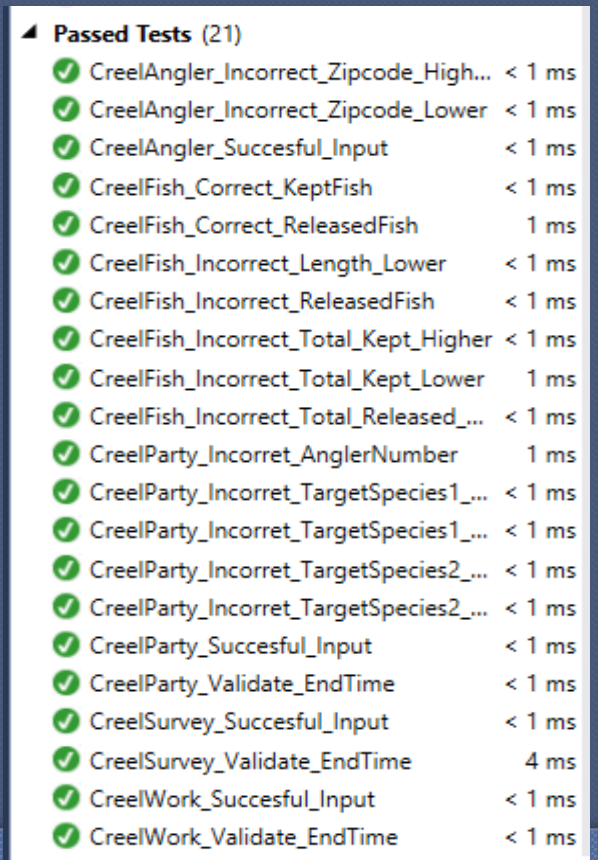


Data Storage Classes



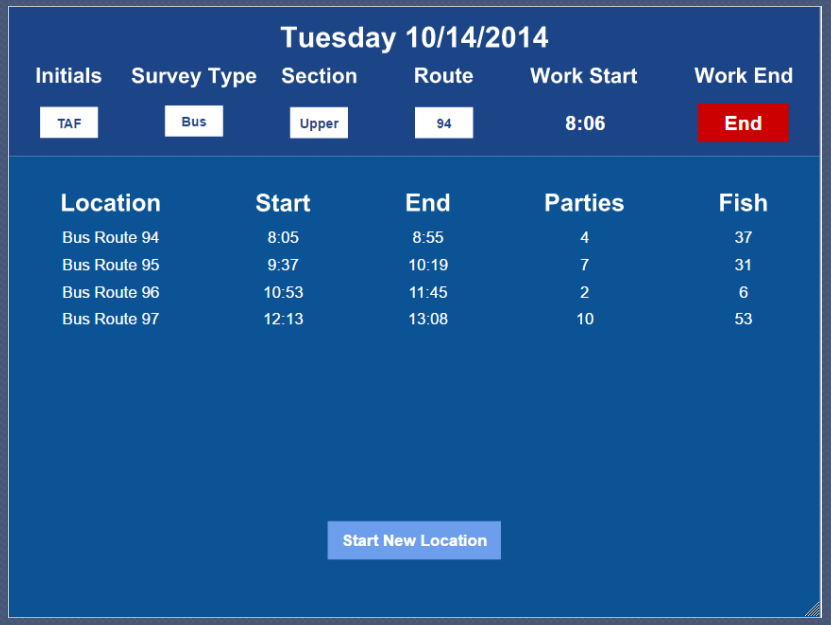
Unit Testing

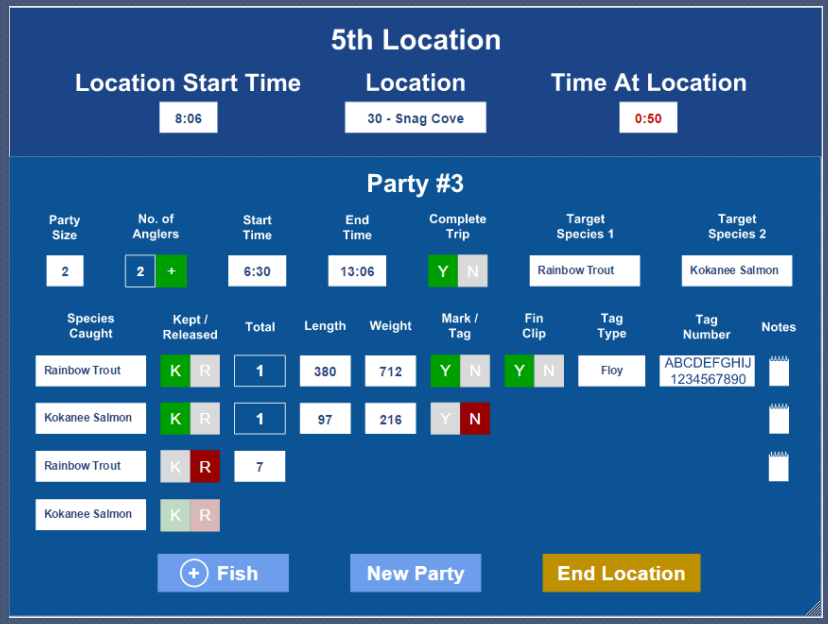
- Used throughout development to ensure proper functionality of data storage objects



User Interface Mocks

- Presented to the client for approval before beginning work
- Referred to throughout development





User Interface

- Single form
  - Table layout panels swapped at runtime
- Custom controls
  - Ease of use
  - Make up for what Winforms was lacking
- Custom keypads
  - Ease of use
  - Not as much error checking
  - Aesthetics

JSON Download

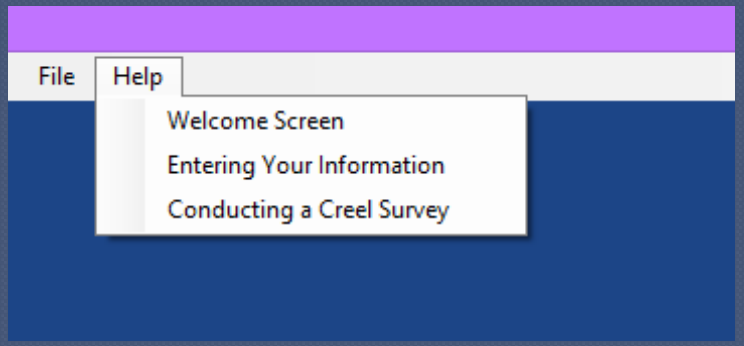
- We download the look up table from db team using the upload/update button
- Data comes in as json which is then deserialized using newtonsoft json package
- Placed in objects which are then used for dynamic data
  - Changes on db side will be reflected on our side(For example adding a new fish species etc…)
- Saved on local tablet file system in case Internet connection is not available

JSON Upload

- Data is sent to the db via json
- Data is serialized using the newtonsoft package
- Data is also stored on the tablets local file system in case Internet access is not available at time of upload.
- On successful upload to the db json is moved from incomplete folder to complete where it is stored permanently on tablet

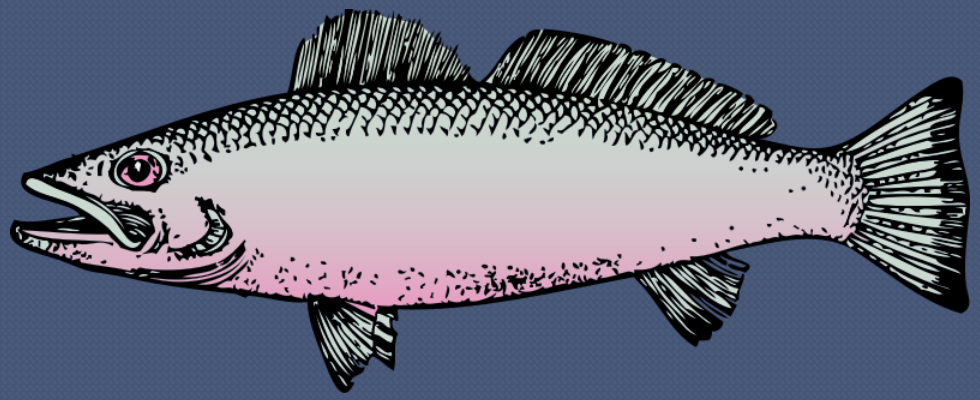
Help Files

- Built into the application via a menu bar
- Pdf version for in office use

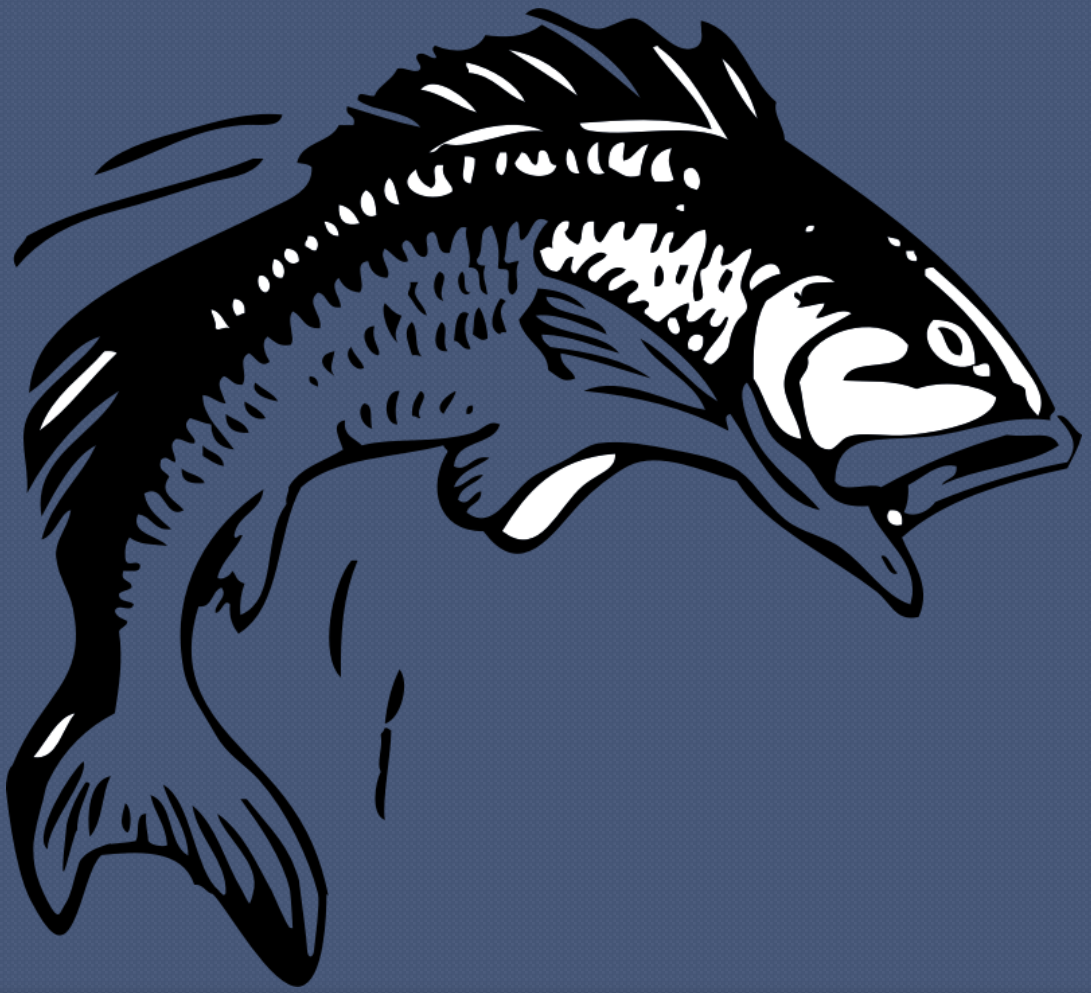


Simulated Field Tests

- Testing for
  - Overall functionality
  - Performance with large amounts of data



Demonstration



What We Learned

- Stacy
  - C#
  - Implementing the Software Development Lifecycle
- Thomas
  - Dealing with feature creep
- Ralph
  - C#: Creating User Interface controls
  - How to work with another team
  - Read documentation thoroughly

Questions