# Team Stroustrup Project

*Personal Software Process Summary*

## Project Essentials

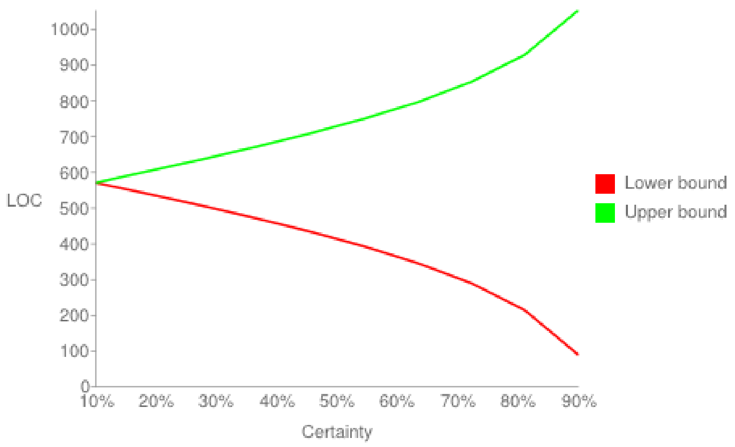
| | |
|---|---|
| **Name:** | Team Stroustrup |
| **Instructor:** | Dr. Page |
| **Date:** | April 16, 2013 |
| **Language:** | ACL2 |

## Lines of Code

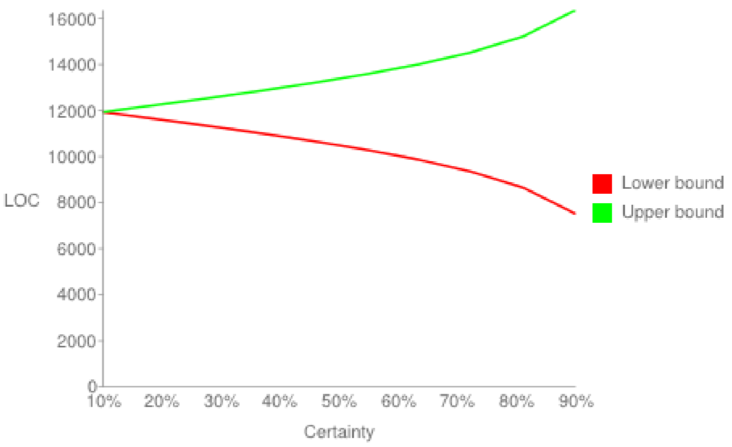
| Type | Prediction by user | Actual |
|---|---|---|
| Added | 1304 | 1858 |
| Base | 0 | 0 |
| Modified | 0 | 0 |
| Removed | 0 | 0 |

## PSP Projection

*LoC Certainty*

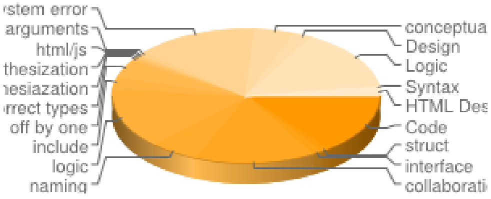


*Time Certainty*

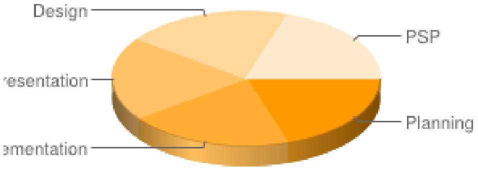


## Project Data

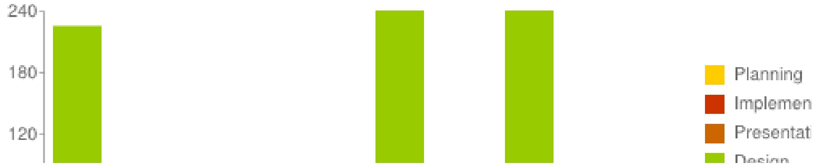
*Time Per Defect Type*

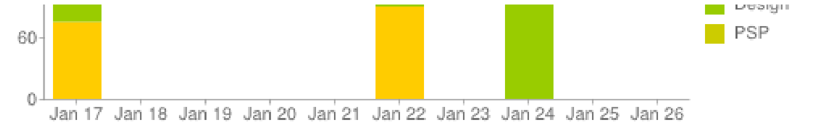


*Time Per Phase*



*Time by Day*

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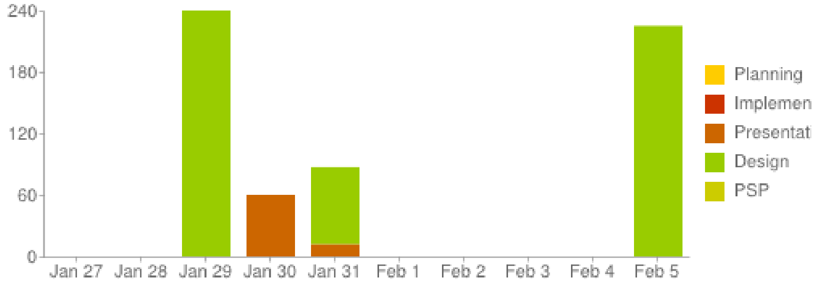
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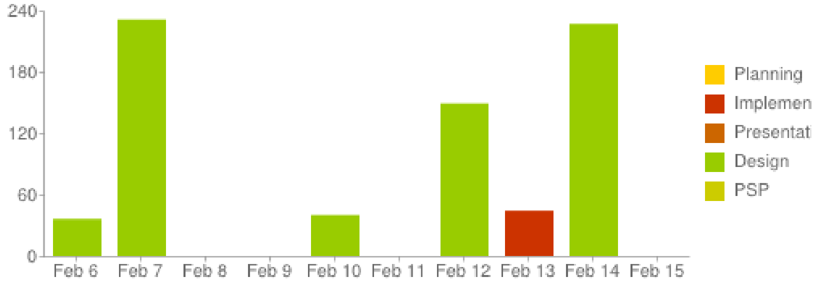
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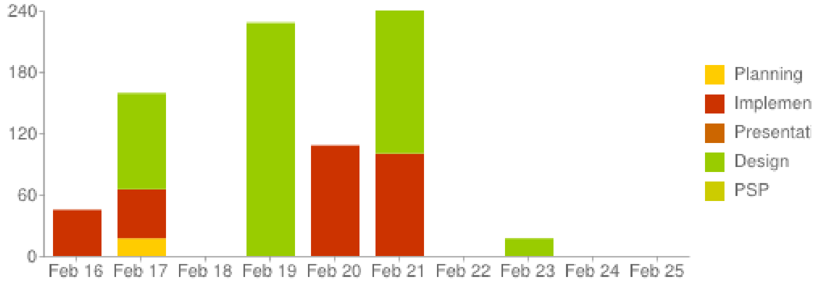
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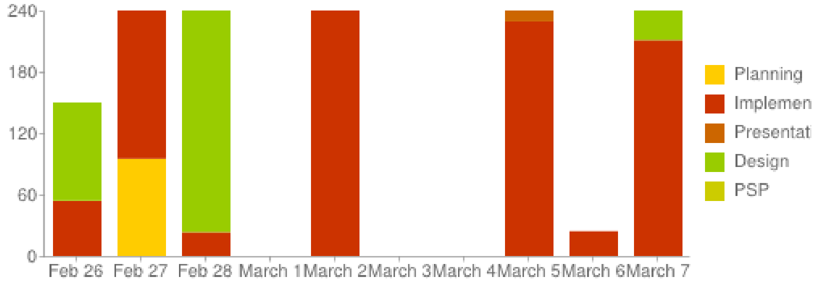
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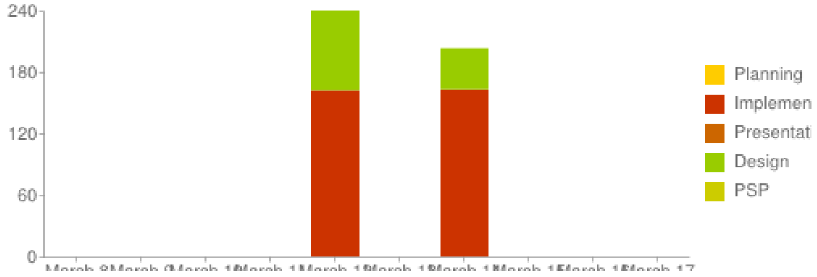
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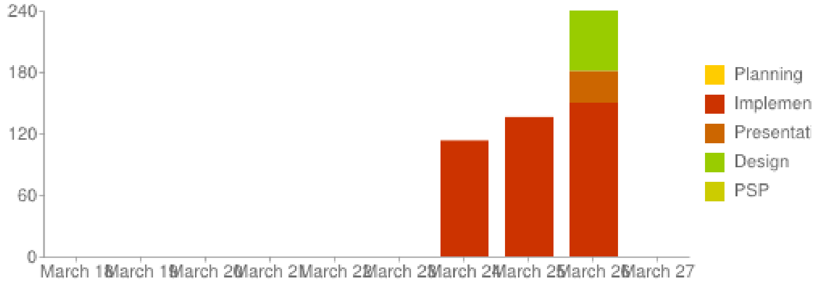
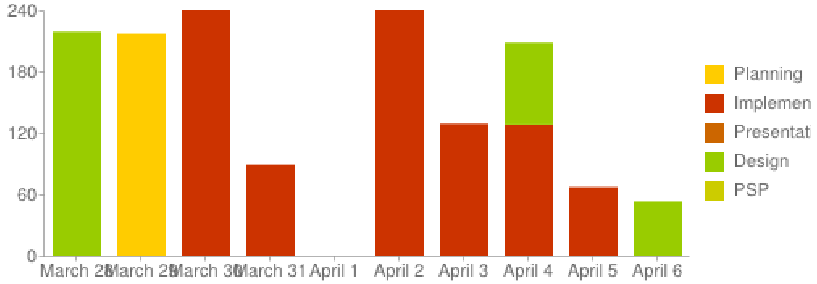
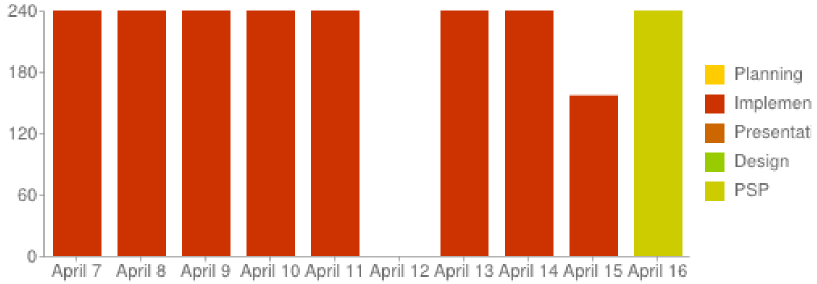
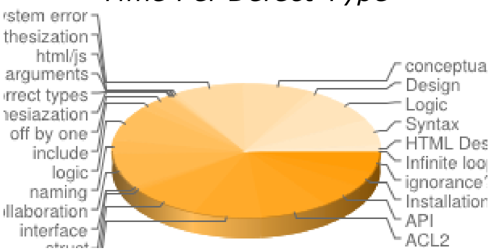




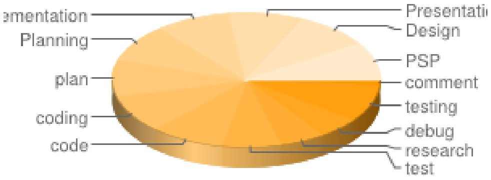


# Cumulative Data

*Time Per Defect Type*



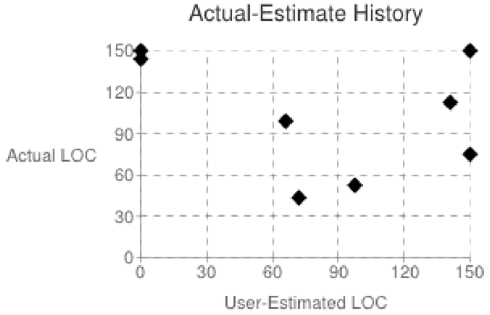
*Time Per Phase*



*Actual vs Estimated LoC*

*Actual vs Estimated LoC*

| | **Project** | **Estimate** | **Actual** |
|---|---|---|---|
| tImpl | | 301 | 212 |
| iEx5 | | 94 | 75 |



| | | |
|---|---|---|
| iEx4 | 48 | 29 |
| iEx3 | 65 | 35 |
| iEx2 | 0 | 130 |
| iEx1 | 0 | 96 |
| iEx0 Property-based Testing | 44 | 66 |
| iEx0 | 105 | 50 |

## Time Log

| Date | Type | Int. Time | Description |
|---|---|---|---|
| April 16, 2013, 1:47 AM - 1:48 AM | PSP | 0 | **This is a formatting break for PSP. The below logs represent the contributions of team member: THOMAS LINDLEY.** |
| Jan 17, 2013, 10:30 AM - 11:45 AM | Design | 0 | Bounced around ideas about what to work on for the semester project. |
| Jan 22, 2013, 10:30 AM - 11:45 AM | Design | 0 | Decided to focus on the poker application idea. Began fleshing out a project schedule and design. |
| Jan 24, 2013, 10:30 AM - 11:45 AM | Design | 0 | Began working on the t2 and t3 deliverables. Focused primarily on the one level design and laid out a basic list of our engineering standards and procedures. |
| Jan 29, 2013, 10:30 AM - 12:30 PM | Design | 0 | Worked on t2 and t3 deliverables. Thoroughly analyzed structure of project and made PROBE estimates. |
| Jan 31, 2013, 11:00 AM - 11:12 AM | Presentation | 0 | Presented topic to class. |
| Feb 5, 2013, 10:30 AM - 11:45 AM | Design | 0 | Worked on second level design. |
| Feb 7, 2013, 10:30 AM - 11:45 AM | Design | 0 | Worked on the multi-level design deliverable. Also worked out a few new estimations on the PROBE estimate as we had some new functions to assess. |
| Feb 12, 2013, 10:30 AM - 11:45 AM | Design | 0 | We worked on the design review and allocated responsibilities. I will be working on the take turn module as well as the join game module. |
| Feb 14, 2013, 10:30 AM - 11:45 AM | Design | 0 | Worked on the revised design deliverable. Michael created a UML while the rest of us added in helper functions and formalized our naming convention. It was decided that I would update the PROBE estimate to reflect changes in the design. |
| Feb 17, 2013, 2:34 PM - 4:08 PM | Design | 0 | Revised the probe estimate to reflect the newly revised design. This included updating function names and adding in new functions with the group's estimations. |
| Feb 19, 2013, 10:30 AM - 11:45 AM | Design | 0 | Had a progress report with Dr. Page. Talked about GitHub, our newly developed interface, and the revised plan for our JSON to defstructure transformation. |
| Feb 20, 2013, 7:05 PM - 8:53 PM | Implementation | 0 | Began writing out test cases for poker game logic. This included writing tests to check the strength of a hand and the winner out of several hands. |
| Feb 21, 2013, 10:30 AM - | | | Started to look at a formal defect database design |

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| 11:45 AM | Design | 0 | document. Also added some test cases to test suite. |
| Feb 26, 2013, 10:30 AM - 11:45 AM | Design | 0 | Created a preliminary defect database design document, and updated the design document to include the most recent changes. |
| Feb 28, 2013, 7:12 AM - 9:43 AM | Design | 0 | Added new section to the defect database design. Updated the PROBE document to include the most recent changes. Also finished designing test suite for hand ranking portion of the project. |
| Feb 28, 2013, 10:30 AM - 11:45 AM | Design | 0 | Modified the design document to include the File Output format and submitted changes in the defect database for review from other team members. |
| March 5, 2013, 8:07 AM - 9:50 AM | Implementation | 0 | Worked on my Quick Sort algorithm for sorting the cards in a hand. |
| March 5, 2013, 10:30 AM - 11:45 AM | Design | 0 | Had a progress report with Dr. Page. Talked about the interfacing of our project, and demoed a new prototype of the project. Also talked about the advantages and disadvantages of using Quick Sort to sort the cards in a hand. He suggested I implement both Quick Sort and Bubble Sort and compare the performance. |
| March 7, 2013, 10:30 AM - 11:45 AM | Implementation | 0 | Worked on implementing Bubble Sort. Also began to modify Quick Sort algorithm to work with Card defstructures (previously, it only worked with integers). |
| March 12, 2013, 10:31 AM - 11:42 AM | Implementation | 0 | Finished implementing Quick Sort for defstructures. Got stuck trying to implement Bubble Sort. I couldn't find an easy way to swap two items without having to write a function myself, so I tabled the item for now. I will likely return to it after I complete the rest of my responsibilities for the project. |
| March 14, 2013, 10:35 AM - 11:15 AM | Design | 0 | Planned out my structure for card rank. I needed to spend quite a bit of time on it because without having the correct values, I could not accurately assess a cards rank compared to another similar hand (e.g. two full houses). I decided that each hand rank should have an integer value for the type of hand, and the important cards that define that hand. |
| March 14, 2013, 11:20 AM - 11:47 AM | Implementation | 0 | Worked on the first couple of hand rank helper functions. No problems yet. |
| March 24, 2013, 4:20 PM - 6:13 PM | Implementation | 0 | Finished up isHighCard, isPair, isThreeKind, and isFourKind. Decided that I should write these functions first as they could possibly be used to find some other hands. |
| March 25, 2013, 8:46 PM - 11:02 PM | Implementation | 0 | Finished up isTwoPair and isFullHouse. Also modified my Quick Sort function to sort by suit or rank. This is handy because I can now use this to sort cards to easily check for a Flush. |
| March 26, 2013, 4:10 AM - 5:56 AM | Implementation | 0 | Finished up isFlush, isStraight, and isStraightFlush. Didn't take too long, and I was surprised at how short the functions turned out. |
| March 26, 2013, 10:52 AM - 11:05 AM | Design | 0 | Had a meeting with Dr. Page. We showed him the new front end for our project and again went over how that bit works. I explained to him my card ranking functions that I implemented, as well as how I adjusted my sorting algorithm to sort by suit or rank. |
|  |  |  | Basically had a scrum meeting discussing what we |

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| March 26, 2013, 11:06 AM - 11:45 AM | Design | 0 | need to have done by when. Commented on the need of an official timeline for when we should have things done. |
| March 28, 2013, 10:36 AM - 11:41 AM | Design | 0 | Talked about the upcoming presentation, primarily about how we could fill up the time with good content. Decided on a thorough explanation of the structure of our program as well as demo of an actual game. We also worked on a timeline for when our things should be due. It was decided that something like this timeline would be included in our presentation. |
| April 7, 2013, 11:22 AM - 1:45 PM | Implementation | 0 | Fixed a couple of issues in my hand ranking helpers. Also, added the gamestate check functions (isRoundOver and isHandOver). |
| April 7, 2013, 3:15 PM - 1:45 PM | Implementation | 0 | Modified QuickSort function to sort players instead of player hands. |
| April 8, 2013, 10:15 AM - 12:16 PM | Implementation | 0 | Merged the common cards with the players hand. This was necessary for hand ranking. |
| April 8, 2013, 12:29 PM - 1:24 PM | Implementation | 0 | Got afterTurn() to modify and return the correct gamestate. Now ready to link to other parts of the project. |
| April 8, 2013, 1:42 PM - 2:13 PM | Implementation | 0 | Commented AfterTurn module. Wanted to finish commenting before anyone else had to use my code. |
| April 10, 2013, 5:33 PM - 6:24 PM | Implementation | 0 | Met with group to see where we were with the integration process. Left briefly to get food. |
| April 10, 2013, 6:30 PM - 11:45 PM | Implementation | 0 | Tried to help Michael debug the project. We kept running into bugs with writing the gamestate. I suspect it has something to do with the encoding or the parser. |
| April 11, 2013, 12:16 AM - 1:33 AM | Implementation | 0 | Tried to look for the bug myself at home. Basically a last-ditch effort. It could be messing up because we're didn't design to add multiple users from the same window. |
| April 11, 2013, 8:19 AM - 10:30 AM | Presentation | 0 | Prepared for presentation. Created the slides for defect prevention and project schedule. Helped order the final presentation and participated in a walkthrough. |
| April 11, 2013, 11:10 PM - 11:35 PM | Presentation | 0 | Presented project to class, Dr. Page, and special guests. Went okay for a failed project, I think. |
| April 11, 2013, 9:46 PM - 11:58 PM | Implementation | 0 | Tried to fix the project again. No luck so far. I've learned a lot about the parts of the project I didn't implement, though. |
| April 13, 2013, 11:06 AM - 4:53 PM | Implementation | 0 | Looked for the encoding bug. Found a bug in encoding, but it didn't help solve the current problem. Stopped when I received an email from Tom explaining that Dr. Page intends for the next group to fix our project. |
| April 14, 2013, 12:03 AM - 1:05 AM | Implementation | 0 | Started looking into changing the values in the rankings to 14 for ace-high hands. Kept running into different problems. Ended up changing the value for the ace constant to 14 to narrow down my issue to only ace-low straights. |
| April 14, 2013, 8:42 AM - 9:26 AM | Implementation | 0 | Fixed a bug in my isStraightFlush helper function. The function was always returning false. Had to change the sorting of the cards to make it work. |
| April 14, 2013, 3:47 PM - 4:43 PM | Implementation | 0 | Decided to add kicker cards to the handRank to allow for multiple hands of the same integer rank to |

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| | | | be evaluated. |
| April 14, 2013, 5:53 PM - 6:45 PM | Implementation | 0 | Started outlining a determineWinner function. This will be called by the main function and will return the list of winners. |
| April 15, 2013, 5:15 AM - 7:52 AM | Implementation | 0 | Finished the determineWinner function. Took awhile to work out the structure. Packaged the code and sent it off to Team Morris. |
| April 16, 2013, 12:33 AM - 3:02 PM | PSP | 0 | Worked on getting everybody's PSP logs together in the same file for the PSP report. The logs contain many syntax and structural errors, so the integration has been a bit tedious. |
| April 16, 2013, 1:44 AM - 1:45 AM | PSP | 0 | **This is a formatting break for PSP. The below logs represent the contributions of team member: RICK O'HARA.** |
| Jan 17, 2013, 10:30 AM - 11:45 AM | Planning | 0 | Brainstormed with group about possible project ideas |
| Jan 22, 2013, 10:30 AM - 12:00 PM | Planning | 0 | Brainstormed with group about possible project ideas, decided on actual project. Will be implementing a poker game in ACL2. |
| Jan 24, 2013, 10:30 AM - 12:00 PM | Design | 0 | Worked on top-level design. |
| Jan 29, 2013, 10:30 AM - 12:00 PM | Design | 0 | Worked on top-level design. |
| Jan 30, 2013, 3:00 PM - 4:00 PM | Presentation | 0 | Met with team to plan project presentation and work on slides. |
| Feb 5, 2013, 10:30 AM - 11:45 AM | Design | 0 | Began working on first-level design of the lisp program. |
| Feb 7, 2013, 10:30 AM - 11:45 AM | Design | 0 | Finished second-level design. |
| Feb 14, 2013, 10:30 AM - 11:45 AM | Design | 0 | Second-level design revision team discussion. |
| Feb 19, 2013, 10:30 AM - 11:45 AM | Design | 0 | Met with Dr. page. Discussed I/O file formatting as a team. |
| Feb 21, 2013, 10:30 AM - 11:45 AM | Design | 0 | Worked on defining I/O file format. |
| Feb 28, 2013, 10:30 AM - 11:45 AM | Design | 0 | Team project implementation. |
| March 5, 2013, 10:30 AM - 11:45 AM | Design | 0 | Progress discussion with Dr. Page. |
| March 7, 2013, 10:30 AM - 11:45 AM | Design | 0 | Team project implementation. |
| March 12, 2013, 10:30 AM - 11:45 AM | Design | 0 | Team project implementation. |
| March 26, 2013, 10:30 AM - 11:45 AM | Design | 0 | Met with Dr. Page. Began working on project timeline. |
| March 28, 2013, 10:30 AM - 11:45 AM | Design | 0 | Began discussing plans for project presentation. Worked on creating timeline for project completion. |
| March 29, 2013, 12:43 PM - 2:22 PM | Planning | 0 | Researched pseudo-random number generation methods. Specifically looked at middle squares method and linear congruential method. Decided to use linear congruential method for generating random numbers for card shuffling function. |
| | | | Experimented with using sys-call function to create a |

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| March 29, 2013, 4:20 PM - 6:18 PM | Planning | 0 | random number seed generator function. Couldn't get sys-call to work with DrRacket, but could with proof pad. Decided against using sys-call for random number seed. Will use seed generated by python script instead. |
| March 30, 2013, 9:12 AM - 10:23 AM | Implementation | 0 | Designed and coded rand-helper and generate-random functions. |
| March 30, 2013, 10:30 AM - 12:08 PM | Implementation | 0 | Experimented with using git. Cloned repo from github. Worked on the swap-cards function and defined the *newdeck* constant. |
| March 30, 2013, 12:11 PM - 1:25 PM | Implementation | 0 | Designed & coded the fisher-yates-shuffle function. Ran into & fixed a bug. |
| March 30, 2013, 1:26 PM - 2:35 PM | Implementation | 0 | Modified the shuffle function to work with the entire gamestate, instead of just a deck. Ran into & fixed a bug. |
| March 30, 2013, 2:36 PM - 3:10 PM | Design | 0 | Documented the code in the utils.lisp file. Split the until helper functions into a new file. Pushed the day's code to the shared github repo. |
| March 30, 2013, 4:45 PM - 5:52 PM | Design | 0 | Updated time log document with time notes from the past two days. Created development journal document. |
| March 31, 2013, 6:43 PM - 8:12 PM | Implementation | 0 | Tried to get proof pad to compile ACL2 code. Running into problems. I think that I might have a version of ACL2 that is causing problems with proof pad. I am also getting an error saying that shuffle-helpers.lisp does not have a valid certificate. It looks like the Design is saying that this is due to the ACL2 version I am using. Still need to figure out solution. |
| April 2, 2013, 4:55 PM - 6:03 PM | Implementation | 0 | Wrote function on paper for dealing cards to players. Need to put into code once I get proof pad working again. |
| April 2, 2013, 7:33 PM - 7:57 PM | Implementation | 0 | Figured out problem I was having with proof pad. Issue was caused by a bad git commit. |
| April 2, 2013, 8:01 PM - 9:47 PM | Implementation | 0 | Finished dealPlayerCards, dealFlop, dealTurn, and dealRiver functions. Pushed changed to the git repository. Emailed teammates about changes. |
| April 3, 2013, 5:53 AM - 8:02 AM | Implementation | 0 | Created updateResponseStructForPlayer function to be used by refresh request. |
| April 4, 2013, 10:40 AM - 12:00 PM | Design | 0 | Planned through flow of the ACL2 program and made final design decisions. Assigned tasks to complete project. |
| April 5, 2013, 6:02 PM - 7:09 PM | Implementation | 0 | Made changes to utility.lisp to reelect newest changes to structs.lisp. Refactored code from uitlities.lisp and put helper functions into util_helpers.lisp. Committed changes to repo. |
| April 6, 2013, 11:22 AM - 12:15 PM | Design | 0 | Updated design with modifications discussed in Thursday's meeting. Updated structs.lisp to reflect changes. |
| April 7, 2013, 3:00 PM - 3:55 PM | Implementation | 0 | Worked on implementing refresh request. Added refresh_helpers.lisp and moved the refresh helpers to the file. Committed changes to the repo. |
| April 7, 2013, 3:56 PM - 4:44 PM | Implementation | 0 | Studied code base to prepare for integrating modules into main function. |
| April 7, 2013, 4:45 PM - 6:23 PM | Implementation | 0 | Worked on modifying app.html. |

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| April 8, 2013, 6:26 PM - 9:02 PM | Implementation | 0 | Created tests for takeTurn. Ran into bug in takeTurn. Found several problems, which are described in the bug for Apr 8. |
| April 9, 2013, 6:48 AM - 8:52 PM | Implementation | 0 | Continued debugging takeTurn. Problems are described in defect for Apr 8. |
| April 9, 2013, 1:45 PM - 2:41 PM | Implementation | 0 | Moved on to testing afterTurn (still need to finish debugging makeBet? waiting on Michael to finish debugging his code). Added implemented readyGamestateForNextTurn. |
| April 9, 2013, 4:13 PM - 8:02 PM | Implementation | 0 | Continued debugging and testing takeTurn. Got case working for base bet that does not end a round. Moved on to testing a case where the betting round should be ended. |
| April 9, 2013, 4:47 PM - 9:54 PM | Implementation | 0 | Worked on output functions. |
| April 10, 2013, 4:32 PM - 11:14 PM | Implementation | 0 | Team implementation session to complete project integration. |
| April 14, 2013, 6:36 PM - 7:26 PM | Implementation | 0 | Worked on creating test suit for utilities.lisp. Was unable to due to a problem. Acl2 will not allow testing data within structures. Tests are failing the EQLABLEP guard and never return true, which is a bug. |
| April 16, 2013, 1:52 AM - 1:53 AM | PSP | 0 | **This is a formatting break for PSP. The below logs represent the contributions of team member: THOMAS SHEHAN.** |
| Feb 16, 2013, 9:30 PM - 9:42 PM | Implementation | 0 | Created the write_request_file() function |
| Feb 16, 2013, 9:46 PM - 9:47 PM | Implementation | 0 | Created the remove_request_file() function |
| Feb 16, 2013, 9:47 PM - 9:53 PM | Implementation | 0 | Created the app() function |
| Feb 16, 2013, 9:55 PM - 10:07 PM | Implementation | 0 | Created the interface() function, partially from existing code |
| Feb 16, 2013, 10:08 PM - 10:13 PM | Implementation | 0 | Created the (toFile) function from existing code |
| Feb 16, 2013, 10:13 PM - 10:16 PM | Implementation | 0 | Created the (fromFile) function |
| Feb 16, 2013, 10:16 PM - 10:22 PM | Implementation | 0 | Modified the (main) function |
| Feb 17, 2013, 10:28 AM - 10:33 AM | Implementation | 0 | Created the knockout() function, outputs a javascript file |
| Feb 17, 2013, 10:33 AM - 10:35 AM | Implementation | 0 | Created the jquery() function, outputs a javascript file |
| Feb 17, 2013, 10:35 AM - 10:52 AM | Planning | 0 | Followed Knockout.js tutorials to learn how the library works |
| Feb 17, 2013, 10:53 AM - 11:02 AM | Implementation | 0 | Created the Knockout ViewModel and supporting code |
| Feb 17, 2013, 11:02 AM - 11:15 AM | Implementation | 0 | Created the jQuery AJAX request functions |
| Feb 17, 2013, 11:17 AM - 11:23 AM | Implementation | 0 | Created the the HTML portion of the frontend |
| Feb 17, 2013, 11:24 AM - 11:25 AM | Implementation | 0 | Created the (requestType) function, to be changed later |

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| Feb 17, 2013, 11:25 AM - 11:37 AM | Implementation | 0 | Modified the (main) function to determine the request type and behave accordingly |
| Feb 23, 2013, 2:47 PM - 3:04 PM | Design | 0 | Created the JSON output format |
| Feb 27, 2013, 9:53 PM - 10:20 PM | Planning | 0 | Attempted to come up with a clever strategy for parsing |
| Feb 27, 2013, 12:09 PM - 1:17 PM | Planning | 0 | Continued thinking about the parser and realized a simple solution was not possible |
| Feb 27, 2013, 3:02 PM - 4:15 PM | Implementation | 0 | Started implementing the tokenize and getStringToken functions |
| Feb 27, 2013, 8:27 PM - 9:04 PM | Implementation | 0 | Finished implementing the tokenize and getStringToken functions |
| Feb 28, 2013, 11:12 PM - 11:35 PM | Implementation | 0 | Began the implementation of the parser function |
| March 2, 2013, 9:00 AM - 12:42 PM | Implementation | 0 | Implemented the parser function |
| March 2, 2013, 12:55 PM - 1:02 PM | Implementation | 0 | Implemented the makeNameContentPairs function |
| March 2, 2013, 1:12 PM - 1:34 PM | Implementation | 0 | Modified the parser function to work with dictionaries |
| March 2, 2013, 1:37 PM - 1:53 PM | Implementation | 0 | Implemented the JSON->request function |
| March 2, 2013, 6:40 PM - 6:48 PM | Implementation | 0 | Refactored to include a JSON->tree function. This changes some function signatures |
| March 2, 2013, 7:26 PM - 8:02 PM | Implementation | 0 | Modified the python interface to work with the new parser |
| March 5, 2013, 4:19 PM - 5:34 PM | Implementation | 0 | Rewrote the tree->request function for efficiency |
| March 7, 2013, 10:37 PM - 10:49 PM | Implementation | 0 | Wrote the card->JSON function to turn a card structure into a JSON string |
| March 7, 2013, 10:50 PM - 11:13 PM | Implementation | 0 | Wrote the helper_hand->JSON function to turn a list of card structures into a partial JSON string |
| March 7, 2013, 10:50 PM - 11:13 PM | Implementation | 0 | Wrote the hand->JSON function to turn a hand structure into a JSON string |
| March 12, 2013, 10:50 AM - 11:35 AM | Implementation | 0 | Attempted to modify the HTML/JS frontend |
| March 14, 2013, 10:40 AM - 11:35 AM | Implementation | 0 | Got the HTML/JS frontend in place |
| March 30, 2013, 8:57 PM - 11:12 PM | Implementation | 0 | Attempted to modify our main file to actually output a response structure, ran out of time working on a bug |
| April 2, 2013, 10:38 AM - 11:02 AM | Implementation | 0 | Created the tree->hand function |
| April 2, 2013, 11:07 AM - 11:22 AM | Implementation | 0 | Created the cardListList->cardStructList function |
| April 2, 2013, 11:02 AM - 11:16 AM | Implementation | 0 | Created the JSON->hand function |
| April 4, 2013, 10:35 AM - 11:09 AM | Implementation | 0 | Created the tree->player function |
| April 4, 2013, 11:12 AM - 11:13 AM | Implementation | 0 | Created the JSON->player function |

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| April 4, 2013, 11:17 AM - 11:32 AM | Implementation | 0 | Created the player->JSON function |
| April 7, 2013, 3:19 PM - 3:25 PM | Implementation | 0 | Created the tree->deck function |
| April 7, 2013, 3:31 PM - 3:34 PM | Implementation | 0 | Created the JSON->deck function |
| April 7, 2013, 3:38 PM - 4:45 PM | Implementation | 0 | Created the deck->JSON function |
| April 7, 2013, 4:46 PM - 5:50 PM | Implementation | 0 | Created the tree->gamestate function |
| April 7, 2013, 5:56 PM - 5:57 PM | Implementation | 0 | Created the JSON->gamestate function |
| April 7, 2013, 6:03 PM - 6:14 PM | Implementation | 0 | Created the playerList->playerStructList function |
| April 7, 2013, 6:03 PM - 6:14 PM | Implementation | 0 | Created the others->JSON function |
| April 16, 2013, 8:25 AM - 8:26 AM | PSP | 0 | **This is a formatting break for PSP. The below logs represent the contributions of team member: Michael Short.** |
| Jan 17, 2013, 10:30 AM - 11:45 AM | Design | 0 | Discussed ideas for a final and estimated complexity of each to know what would be feasible. |
| Jan 22, 2013, 10:30 AM - 11:45 AM | Design | 0 | Narrowed our project search and branched out possible features of each, such as different types of poker games in one executable. |
| Jan 24, 2013, 10:30 AM - 11:45 AM | Design | 0 | Created top level design for the poker program and started formulating possible functions for the PROBE. |
| Jan 29, 2013, 10:30 AM - 11:45 AM | Design | 0 | Created proposal from our design and based the presentation off of it. Discussed engineering standards we would adhere to this semester. |
| Jan 31, 2013, 10:30 AM - 11:45 AM | Design | 0 | Presented our proposal to the class and listened to other teams' ideas for their projects. |
| Feb 5, 2013, 10:30 AM - 11:45 AM | Design | 0 | Began second level design in which top level functions were fleshed out, and gave first project report to Dr. Page. |
| Feb 6, 2013, 5:37 PM - 6:13 PM | Design | 0 | Created card images consisting of an entire deck and uploaded to the project Google drive. |
| Feb 7, 2013, 10:24 AM - 11:45 AM | Design | 0 | Expanded on the multi-level design, and created a UML diagram of how our modules worked together. |
| Feb 10, 2013, 2:13 PM - 2:53 PM | Design | 0 | Went more in depth on the PROBE estimate and refined what the overall function list required. |
| Feb 12, 2013, 10:33 AM - 11:47 AM | Design | 0 | Discussed and assigned modules to each team member to implement, and contributed to reviewing our second level design. |
| Feb 13, 2013, 6:43 PM - 7:27 PM | Implementation | 0 | Defined global structures that all the modules will use to transfer data between each other. |
| Feb 14, 2013, 10:30 AM - 11:47 AM | Design | 0 | Wrote out in detail the things we discussed were missing from our design, such as extra helper functions we had discussed. |
| Feb 19, 2013, 10:26 AM - 11:44 AM | Design | 0 | Discussed with Dr. Page our progress so far and how our Python script will interact with the ACL2 executable. Started implementation of our individual modules. |

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| Feb 21, 2013, 10:30 AM - 10:55 AM | Design | 0 | Formalized how the I/O files would be interpreted in our JSON parsing functions. Each file will have its own method for reading the data in. |
| Feb 21, 2013, 10:55 AM - 11:45 AM | Implementation | 0 | Continued individual implementation of the Bet Validation module. Laying down the framework and method headers to know what I need to accomplish later. |
| Feb 21, 2013, 10:55 AM - 11:45 AM | Implementation | 0 | Continued individual implementation of the Bet Validation module. Laying down the framework and method headers to know what I need to accomplish later. |
| Feb 26, 2013, 10:26 AM - 10:47 AM | Design | 0 | Revised the design based on current implementation of the betting module |
| Feb 26, 2013, 10:48 AM - 11:42 AM | Implementation | 0 | Implemented helper functions for the main Bet method call (isBetValid,isBetSufficient) |
| Feb 27, 2013, 5:35 PM - 6:55 PM | Implementation | 0 | Developed a test suite of check-expects and defproperties for the currently implemented functions (that all passed) |
| March 2, 2013, 3:08 PM - 3:32 PM | Implementation | 0 | Created request defstruct for passing to the bet function, which contains the player and amount of chips |
| March 5, 2013, 10:22 AM - 11:13 AM | Implementation | 0 | Implemented main Bet function to tie in helper functions and remove chips from the gamestate |
| March 5, 2013, 11:18 AM - 11:40 AM | Presentation | 0 | Discussed with Dr. Page the current state of the project and our progress so far (JSON utilities) |
| March 6, 2013, 7:35 PM - 7:59 PM | Implementation | 0 | Developed more test suites for the newly implemented functions and confirmed their correctness |
| March 7, 2013, 10:27 AM - 11:45 AM | Implementation | 0 | Started implementation on JoinGame module, creating the framework of the helper functions. |
| March 12, 2013, 10:30 AM - 11:01 AM | Design | 0 | Reworked the initial design of JoinGame, and the necessary parameters that need to be passed. |
| March 12, 2013, 11:02 AM - 11:48 AM | Implementation | 0 | Continued implementing JoinGame and created header comments |
| March 14, 2013, 10:25 AM - 11:46 AM | Implementation | 0 | Finalized JoinGame and created main methods to tie in helper functionality |
| March 26, 2013, 10:25 AM - 10:56 AM | Presentation | 0 | Progress report with Dr. Page on state of project. Demoed server functionality and JSON scripts. |
| March 26, 2013, 11:01 AM - 11:45 AM | Implementation | 0 | Helped Thomas integrate other modules to work with eachtoher. |
| March 28, 2013, 10:25 AM - 11:44 AM | Design | 0 | Designed the main module and how we would integrate the individuals modules to the front end |
| April 2, 2013, 10:27 AM - 11:46 AM | Implementation | 0 | Created helper functions for the main module that will parse specific client requests |
| April 4, 2013, 10:27 AM - 10:52 AM | Implementation | 0 | Added fields to the gamestate structure required for sending status messages to the client |
| April 4, 2013, 10:53 AM - 11:13 AM | Implementation | 0 | Updated existing modules to be compatible with structure changes |
| April 4, 2013, 11:14 AM - 11:47 AM | Implementation | 0 | Continued working on main worker function that will be called by the python server to generate a proper response |
| April 7, 2013, 1:50 PM - 3:40 PM | Implementation | 0 | Created TakeTurn main function to incorperate the BetValidation, MakeBet, and AfterTurn sub modules |

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| April 7, 2013, 3:44 PM - 6:28 PM | Design | 0 | Discussed remaining code implementation and any design flaws that still existed, and potential fixes to incorperate |
| April 9, 2013, 8:15 PM - 9:35 PM | Implementation | 0 | Debugged MakeBet module based on information from Rick that the gamestate was not returning the proper values |
| April 9, 2013, 10:05 PM - 10:53 PM | Implementation | 0 | Unit tested the BetValidation module to make it consistent with the gamestate being passed in |
| April 11, 2013, 6:32 PM - 11:13 PM | Implementation | 0 | Attempted integrating Python and ACL2 in the main module. Consistent unknown errors prevented the game from fulling working |

## Defect Log

| Date | Phase | Fix Time | Description |
|---|---|---|---|
| Jan 30, 2013 | HTML Design | 15 | Arrow picture was not rotating correctly. Fixed by inserting more pictures with arrow already rotated. |
| Feb 20, 2013 | Syntax | 1 | Referred to a field in one of my defstructures by the wrong name. |
| March 5, 2013 | Logic | 10 | My quick sort algorithm was not sorting correctly if the pivot point was duplicated in the list. Solved by taking the pivot point out of the list after chosen and appending it in between the below and above lists. |
| March 7, 2013 | Logic | 30 | I could not for the life of me figure out why my Quick Sort function was angry with me when I started using defstructures. I ended up rewriting it from scratch with defstructures in mind. |
| March 12, 2013 | Design | 15 | Went looking for an easy way to swap two values in a list in ACL2. Was trying to avoid creating my own function. Ended up getting sucked down the Wikipedia rabbit hole after awhile. |
| March 12, 2013 | Logic | 21 | My Quick Sort function was chocking on the defstructures. Finally remembered the debugging option and found out that it was trying to access the card-value of an empty list. |
| March 24, 2013 | Logic | 5 | isThreeKind was breaking because I had originally copied over the Code from isPair which only needed to check two cards. Since isThreeKind needed to check 3 cards, it was trying to access cards outside of the hand. |
| March 24, 2013 | Logic | 1 | Didn't learn from my mistake. isFourKind did the same thing as isThreeKind. I facepalmed and moved on. |
| March 25, 2013 | Logic | 10 | isFullHouse was returning the extra cards out of order. It would always return the higher value card first even if the set of three was of a lower value than the set of two. |
| March 25, 2013 | Logic | 2 | My Quick Sort function was returning the suits backwards for some weird reason. Quick-fixed by reversing the list returned. Needed to move on. |
| March 26, 2013 | Logic | 20 | I could not figure out how to get isFlush to return the high value of the flush without just sending the max of the five flush cards. Decided to table this issue for now and try to modify my sorting algorithm to sort by rank inside suit (e.g. Club 8, Club 7, Club 2, Heart King, Heart 5) |

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| March 26, 2013 | Logic | 11 | isStraight was not working for Ace-high straights. Spent enough time on it to realize that I could not find a trivial fix. Decided to table it as I needed to move on. |
| March 26, 2013 | Logic | 5 | I tried to set up isSraightFlush to call isStraight and isFlush. I messed this up originally because I sent an empty hand to isFlush after it found the straight. |
| April 7, 2013 | Logic | 15 | My isStraight function assumed that it was given a mathematical set i.e. it was only checking that the first and last cards of a five-card hand were four units apart. I fixed this by adding all of the cards to a set and checking that the difference between the high card and low card is five and that the length of the set is five. |
| April 7, 2013 | Logic | 8 | My isFlush function was not returning the values necessary for tie-breaking. I sorted the cards that make up the flush by value and returned the entire hand for use in tie-breaking. |
| April 8, 2013 | Logic | 45 | The program crashed when updating the player hands to include the common cards. Kind of tricky to find. |
| April 8, 2013 | Logic | 15 | Tried using the Proofpad debugger to find the previous bug. Could not get it to work and gave up. |
| April 8, 2013 | Logic | 2 | Tried to fix the hand bug above using DrRacket. DrRacket has a bug where it doesn't allow the make-struct macro. This is unfortunate because almost all of our testing constants use make-struct. |
| April 8, 2013 | Logic | 5 | Ace-high hands lose. This is a problem. Not sure what I'll do to fix this one just yet. UPDATE: changed the value of ace to 14. |
| April 10, 2013 | Logic | 0 | Gamestate is not being written correctly from the front end. Not sure where the bug is. Probably somewhere in the encoding/parsing. Bug proved fatal. |
| April 14, 2013 | Logic | 44 | isStraightFlush was returning nil no matter what. Fixed by changing the order of the sorted cards being passed into both isStraight and isFlush. |
| April 14, 2013 | Logic | 8 | addKickers function was returning the ranking as well as the kickers. Easy fix. |
| April 15, 2013 | Logic | 0 | determineWinner will break if more than one hand has the exact same ranking (kicker cards and all). Even though this kind of thing is rare, this is a problem, because we can not deal with split pots effectively. |
| April 16, 2013 | Logic | 0 | A isStraight returns false for hands that have multiples of the same number included in the straight. |
| March 30, 2013 | conceptual | 20 | Ran into bug where the shuffle function was returning Nil instead of doing useful work. I discovered that I was passing arguments to the fisher-gates-shuffle function in the wrong order, which was causing the input predicates to return false, therefore causing the function to return Nil. |
| March 30, 2013 | conceptual | 13 | The shuffle method was not actually shuffling cards. I discovered that I had been calling the generate-randoms function with a bad input. I was using (len *newdeck*) instead of (len (deck-cards *newdeck*)). |

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| April 2, 2013 | system error | 113 | Proofpad said there was an error with the certificate for the shuffle-helpers.lisp file. Issue was keeping the shuffleDeck function from working. Issue ended up being caused by a bad git commit from a teammate that overwrote my last push. |
| April 8, 2013 | system error | 114 | Found error in takeTurn for the bet-1-request test. The current player was not being updated in makeBet. To fix this I created a new function updateCurrentPlayer. Ran into several smaller bugs in getting this to work? including: structure returned by makeBet was not passing gamestate-p test which caused the check in updatePlayer to fail (makeBet structure was incorrect? initially returned a nested gamestate, also added Nil to the head of gamestate-players, also returned an extra level of list nesting on the players list of gamestate). |
| April 8, 2013 | system error | 56 | Found error in afterTurn. The gamestate was not being returned correctly after the end of a round of betting. Added the readyGamestateForNextTurn to correct this problem. |
| April 9, 2013 | system error | 15 | Found error in makeBet. Having a player call a bet causes amount-to-call to be increased for all players. It shouldn't affect other players. |
| April 10, 2013 | system error | 25 | JSONEcode was not working. It did not have the (in-package "ACL2") directive to certify it. |
| Feb 16, 2013 | arguments | 2 | used the wrong arguments for file->string, looked in old file to find fix |
| Feb 16, 2013 | arguments | 4 | when refactoring main to toFile, used wrong argument types. |
| Feb 17, 2013 | html/js | 2 | misspelled the data-bind attribute, Knockout didn't work. |
| Feb 17, 2013 | parenthesization | 2 | forgot the correct parenthesization of let*, got errors. |
| Feb 17, 2013 | parenthesiazation | 3 | messed up the parenthesization of the nested if statements. |
| Feb 27, 2013 | incorrect types | 3 | tried to pass char lists where chars were expected |
| Feb 27, 2013 | off by one | 30 | forgot to add one to the length of the tokens when determining how many characters were consumed. This caused the tokenizer to fail in a very confusing way. |
| March 2, 2013 | include | 20 | included the wrong book, didn't realize this was the problem because I was working in drracket today. ProofPad includes all books by default. |
| March 2, 2013 | logic | 25 | incorrectly counted the length of consumed tokens. needed to count the length of the child element plus the recursively gotten rest of the current level. Instead only added 1 to the recursive value. |
| March 2, 2013 | logic | 15 | took the cdr of several lists when I needed the cadr. |
| March 2, 2013 | naming | 2 | used the wrong function names for update-struct. |
| March 7, 2013 | naming | 8 | wrapped a list in extra parenthesis. Got an eror message that I did not understand, which took a while to track down. |
| March 12, 2013 | naming | 30 | recieving lots of error messages that I do not understand. When I try reverting mostly back to the old code I get no error message but the Javascript is not executing. I am probably missing something |

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| | | | stupid. |
| March 30, 2013 | collaboration | 135 | I did not modify my tree->request function to reflect michaels changes to the request structure |
| April 2, 2013 | interface | 3 | forgot to use the str->rat function to get the correct type |
| April 4, 2013 | interface | 3 | forgot to use the str->rat function to get the correct type |
| April 4, 2013 | interface | 2 | forgot to use the rat->str function to get the correct type |
| April 4, 2013 | interface | 1 | forgot to include the decimal precision argument to rat->str |
| April 4, 2013 | struct | 6 | misspelled the call-amount field as call_amount causing the parser to fail |
| Feb 13, 2013 | Code | 15 | Including a defstruct in another defstruct required the (struct-name)-p method for assertion |
| Feb 27, 2013 | Code | 10 | Was using natp to check for non negative but tests included rational numbers |
| March 1, 2013 | Code | 10 | Request structure was giving a string for the player (name) instead of the player struct itself |
| March 12, 2013 | Code | 10 | ProofPad throws error in defstructs when calling fields, even though it will compile. |
| March 14, 2013 | Code | 10 | Iterator needed when editing list of players, because the updated list needs to be returned to the gamestate. |
| April 4, 2013 | Code | 15 | Inconsistent gamestate struct due to fields being added to it. Updated code to include the changes |
| April 9, 2013 | Code | 15 | Cons does not work for adding an element at the end of the list. Reversing was requied to keep the player list in the right order |
| April 9, 2013 | Code | 10 | There was an extra nil in the player list when returning from making a bet, causing other modules to fail |
| April 9, 2013 | Code | 10 | BetValidation also contained an improper player list ordering. Fixed by building the list backwards |
| April 9, 2013 | Code | 10 | MakeBet did not include the amount to call when subtracting the chips from the player |
| April 11, 2013 | Code | 5 | Calling a struct function on a string (and not the object), when it should just return the string |
| April 11, 2013 | Code | 20 | A gamestate struct with nils as fields will not pass the struct-p predicate, but a struct that is a valid gamestate will not pass through the modules properly |
| April 11, 2013 | Code | 20 | Cannot get rid of a mv variable (the state), so had to rework main module to pass the state of ACL2 along with the gamestate through the request functions. |