Team 2 Goofy Lights Editor
CS-383

Nick Krenowicz
Program Flow Leader

Paul Martin
GUI Leader

Tim Sonnen
File Master

Kevin Dorscher
Linked List / Developer

Joe Carter
Developer

Lise Welch
Developer

Emma Bateman
Developer

Bruce Bolden
Inspirational Teacher

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Contents

1 About this Project

This project is a alteration of the Tower Lights Project done in previous semesters for Cs 383 at the University of Idaho. The end goal of this project is to create an editor for the Goofy Glasses. goofy glasses are a creation of the University of Idaho computer science department, goofy glasses are normal sun glasses, with RGB LED lighting, and a transmitter to send and receive data to turn the LED's on each pair of glasses on or off, as well as change the color the glasses are currently displaying. The editor we (team 2) are creating will be able to set specific coloring patterns for all of the goofy glasses at once. The general idea behind this is to create a grid with individual squares, where each square represents a single pair of goofy glasses. The user will then be able to create frames, and make a slide show of frames, and transmit the data from the slide show to the goofy glasses to create a scene.

1.1 Design process

The general outline of the development process can be simplified into three basic steps. Our first order of business was to start developing back-end functionality for the use cases specified (see appendix). Secondly, we created a basic GUI template to visualize layout, and speculate where extra functionality may be needed. Lastly, our focus was placed on integrating the back-end functionality we created with the GUI to bring everything together.

2 Sprint 1 & 2

2.0.1 Problems encountered

Some of the issues we have encountered as a team are presented below. Originally we created a set of global variables, that almost every function would need access to such as, row#, col#, and RGB data. This worked great for testing purposes, but has created scoping issues for future updates. We are currently working on changing all of the global variables previously mentioned into local variables. We are currently working on altering our existing functions to deal with this scope change from global to local. We also originally created a RGB type, and are now altering this to an already existing Qt RGB type called Qcolor. Lastly, we are currently considering data flow, and how data will be used be in our goofy lights editor, we have discussed creating some data flow diagrams to help visualize this process.
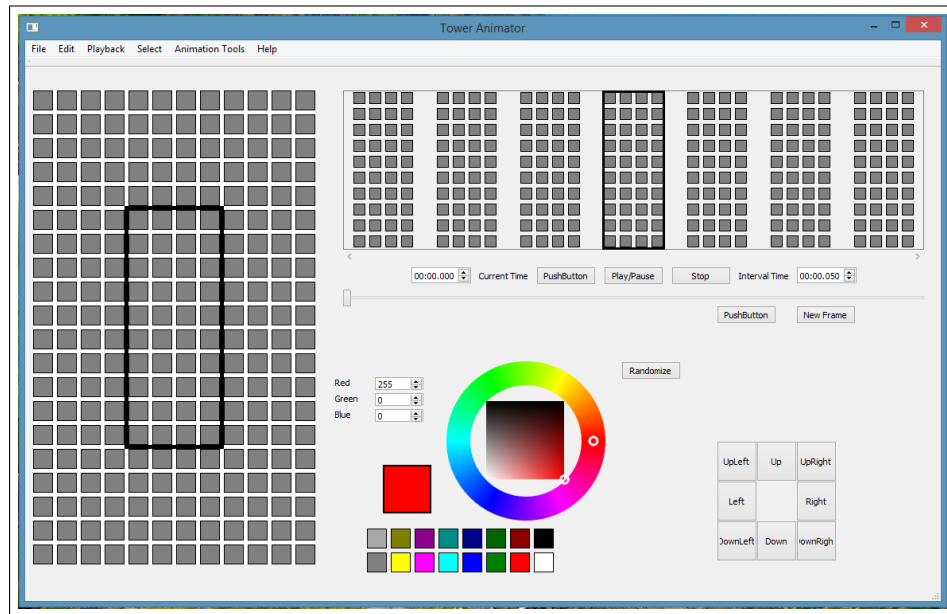
2.1 Figures

2.1.1 GUI Screenshots

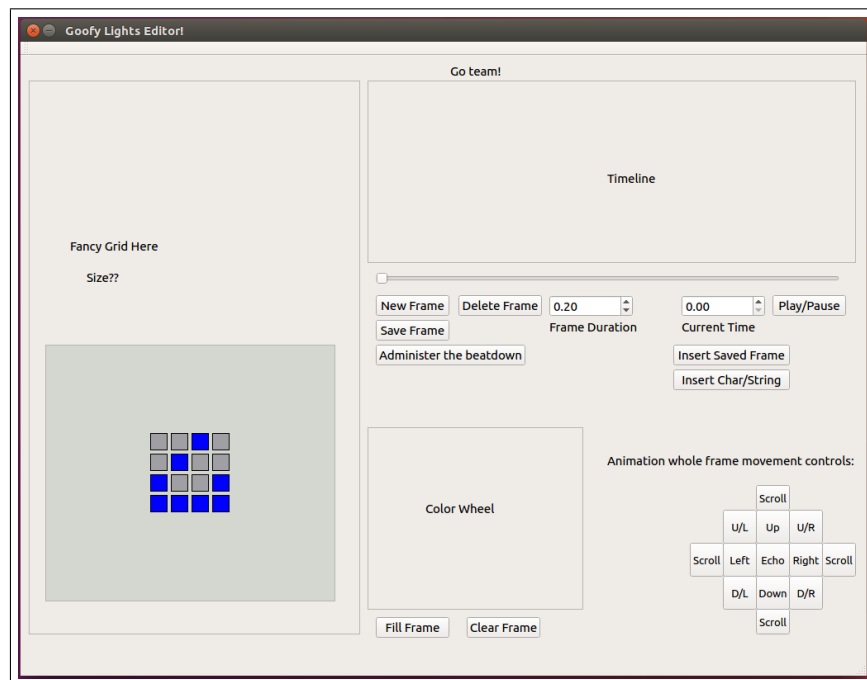Figure 1: Original GUI design from previous tower lights project

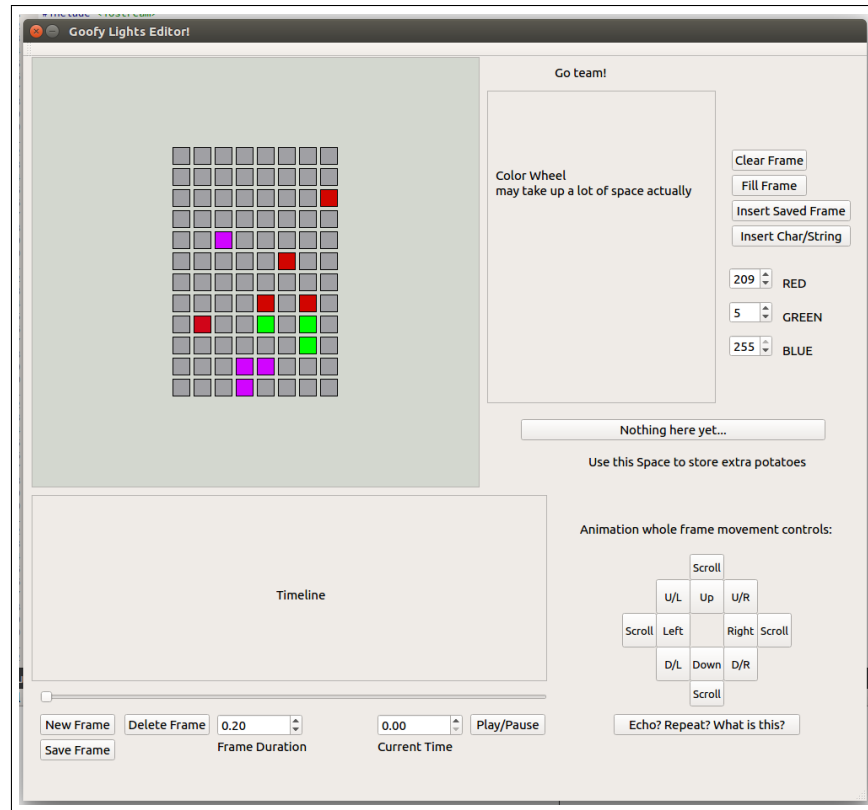Figure 2: Our initial GUI after first sprint

Figure 3: GUI after second sprint, RGB functionality added
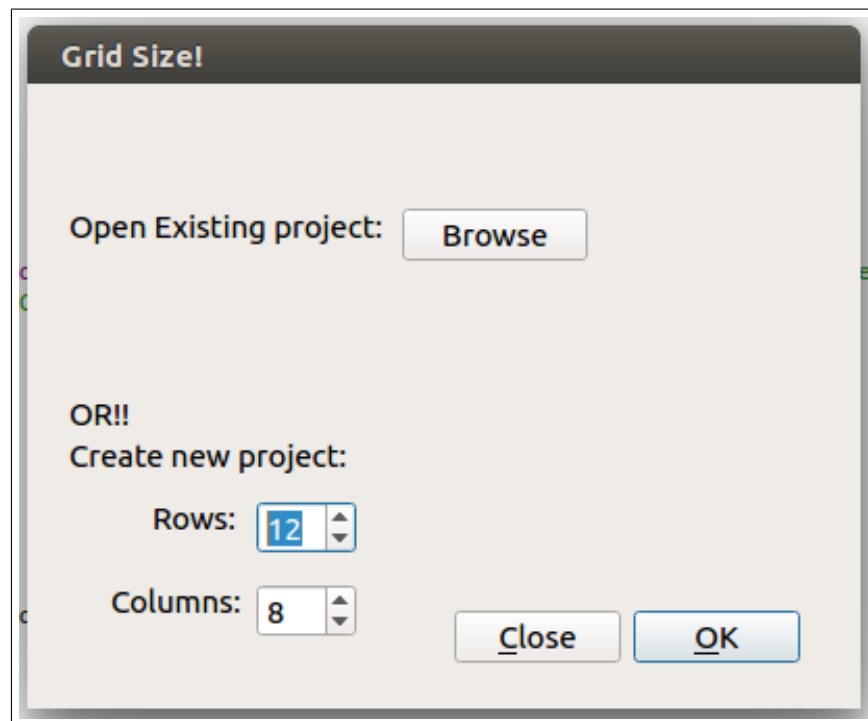

Figure 4: Grid size selection dialog added

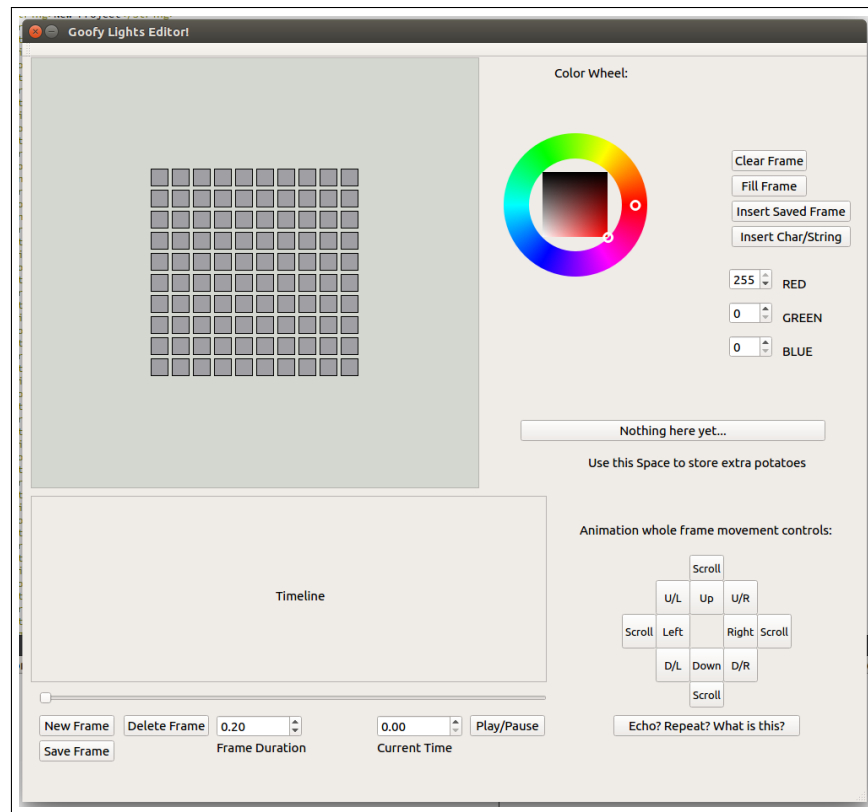Figure 5: Color wheel added in sprint 3
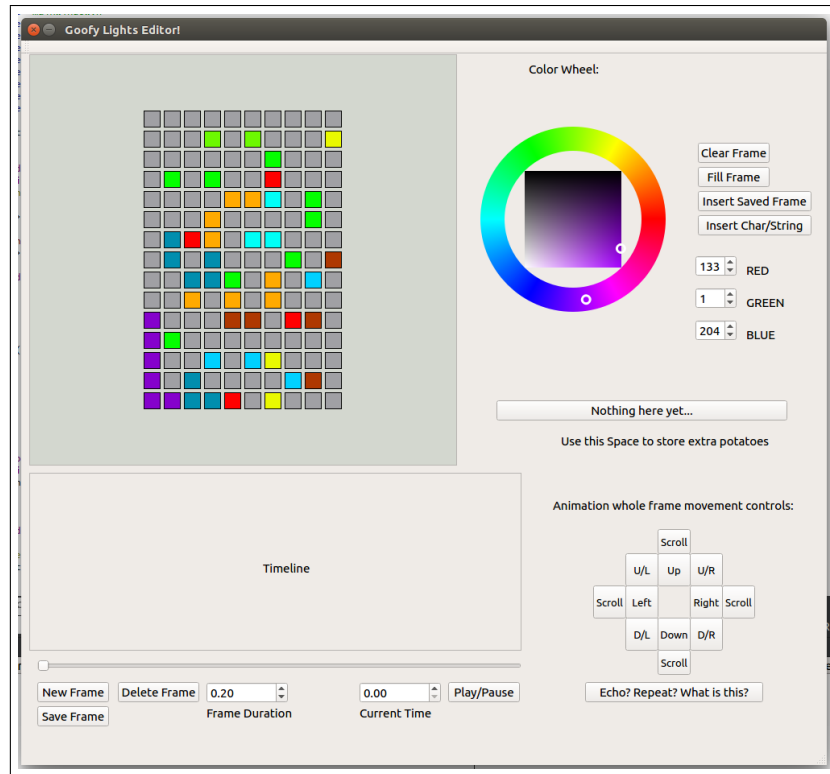
Figure 6: Color wheel demo
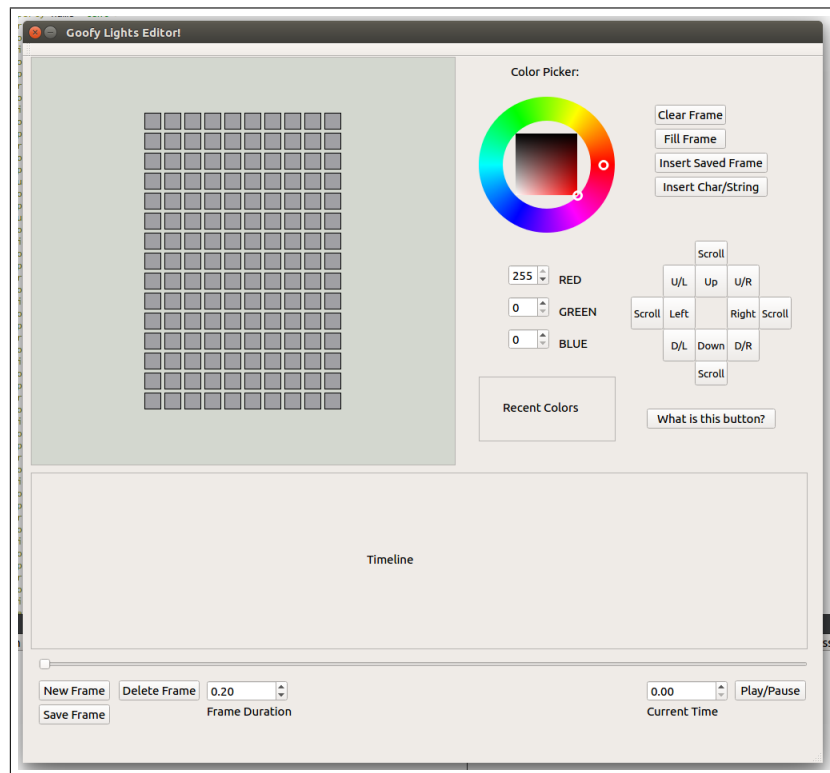
Figure 7: Control buttons moved in sprint 3
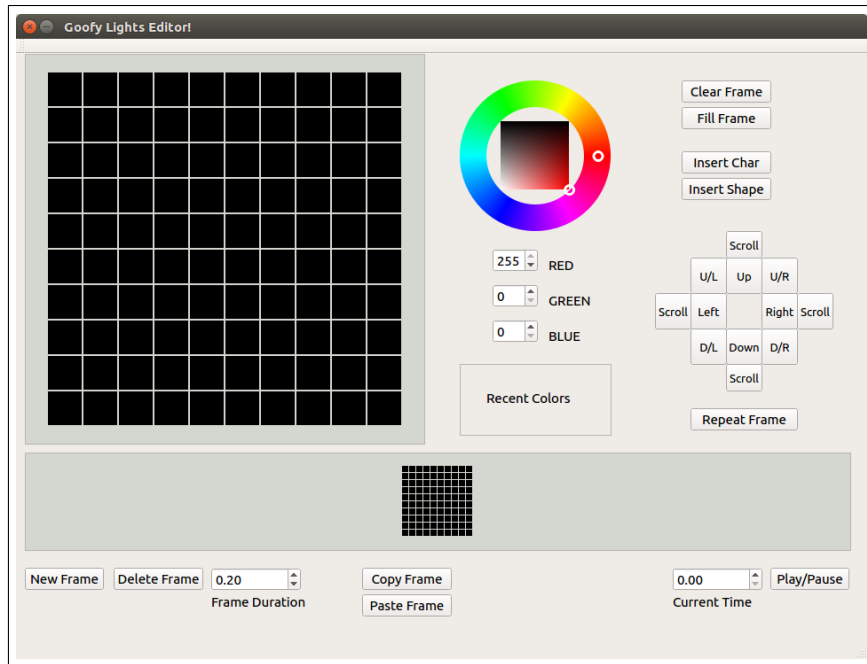
Figure 8: Timeline implemented. Default squares now black
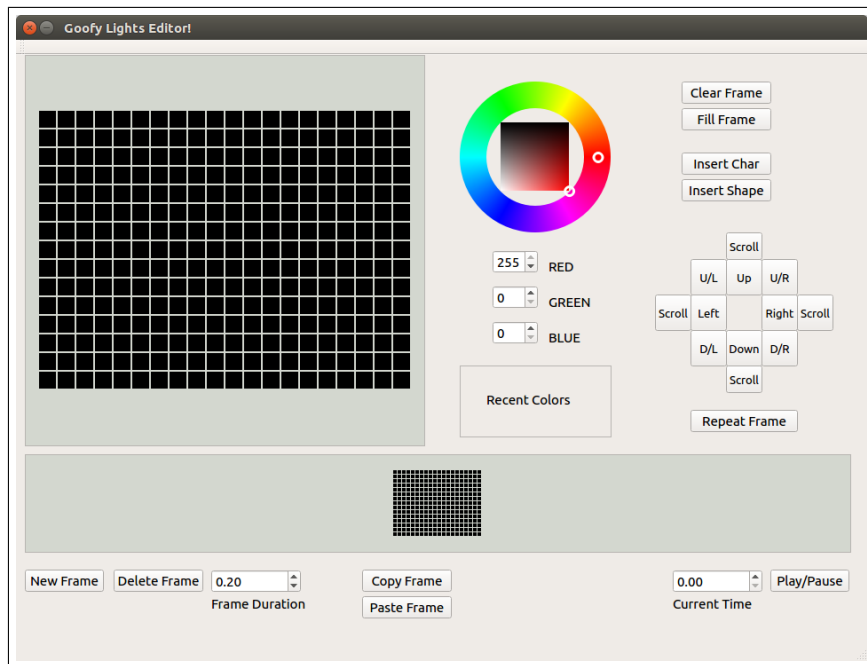
Figure 9: Grid size demo 15x20
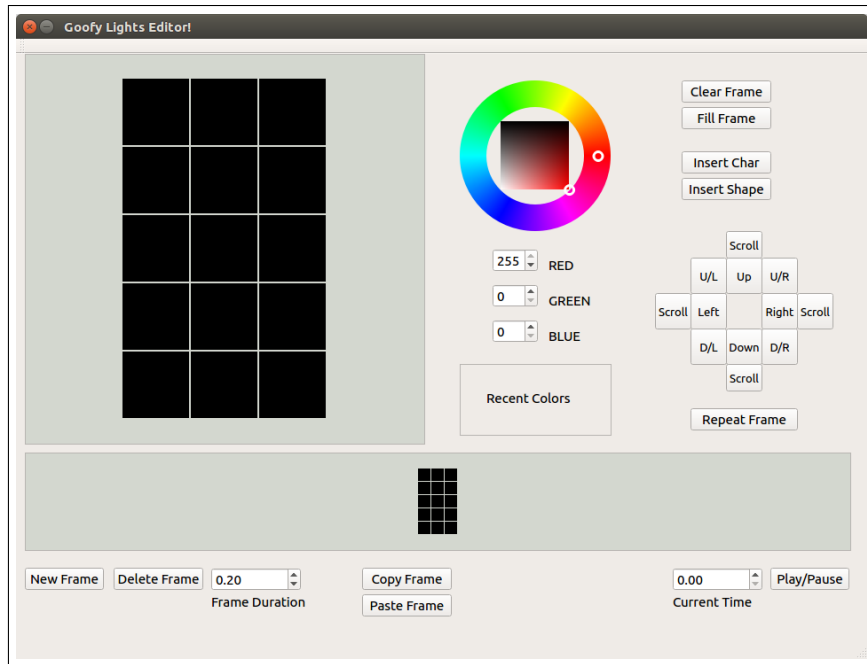
Figure 10: Grid size demo 5x3
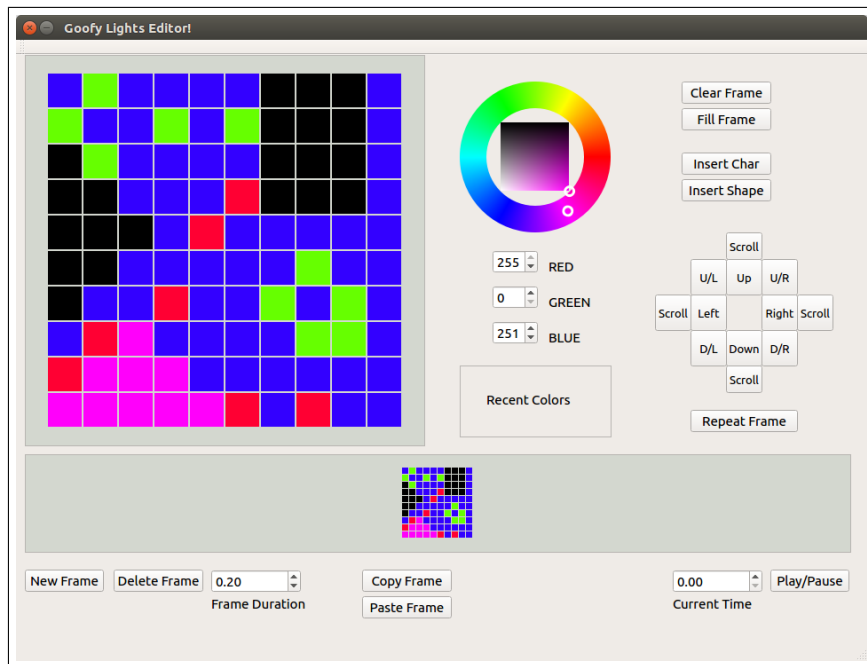
Figure 11: GUI usage demo at the end of sprint 3

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2.1.2 UML Diagrams
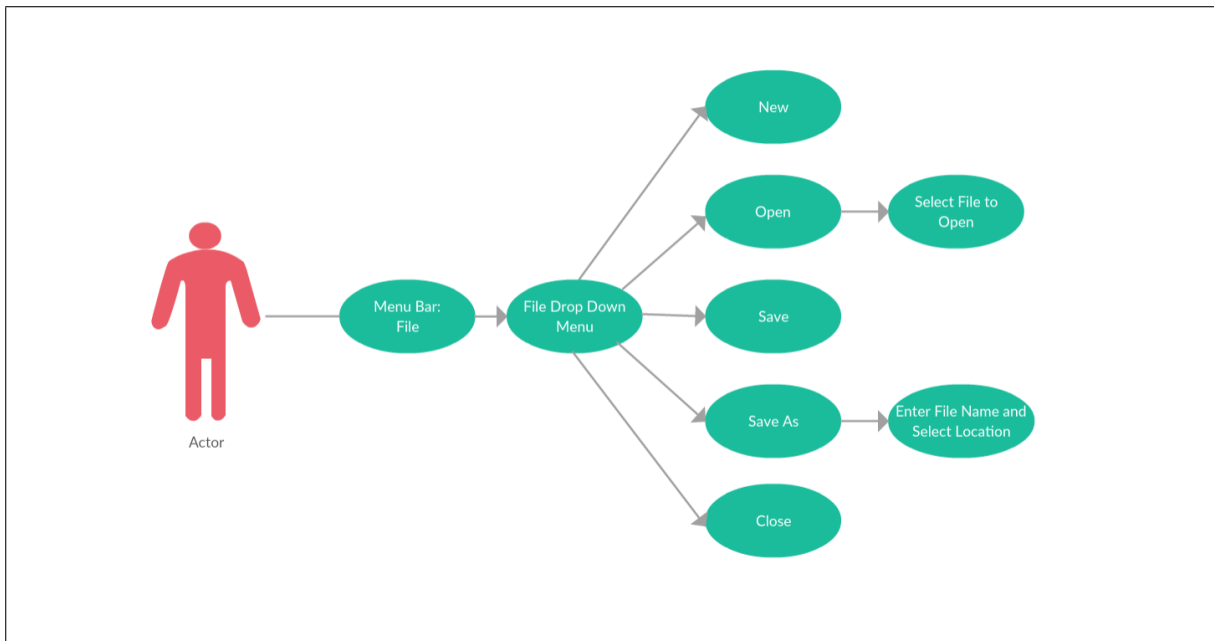
Figure 12: File manipulation
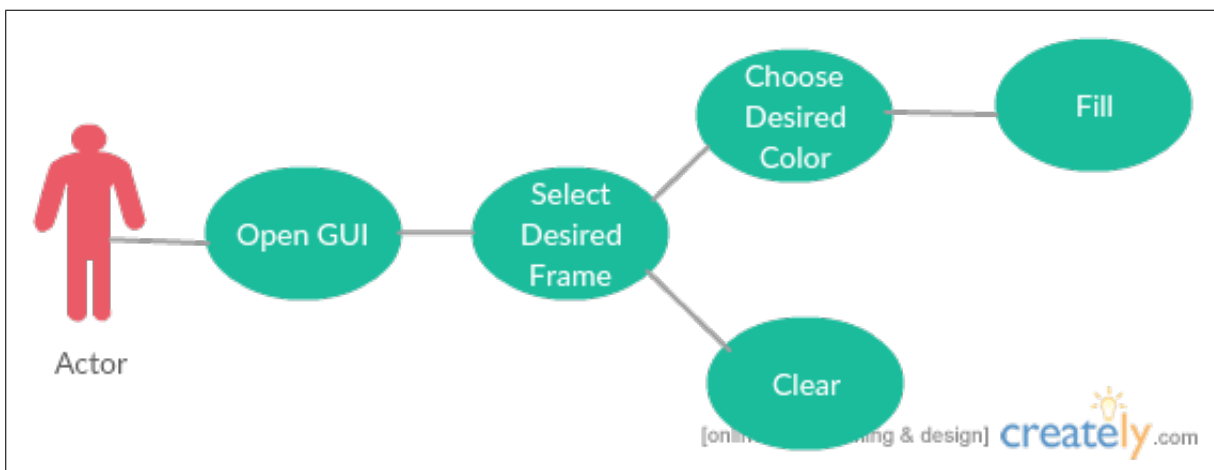
Figure 13: Fill or clear frame with current color
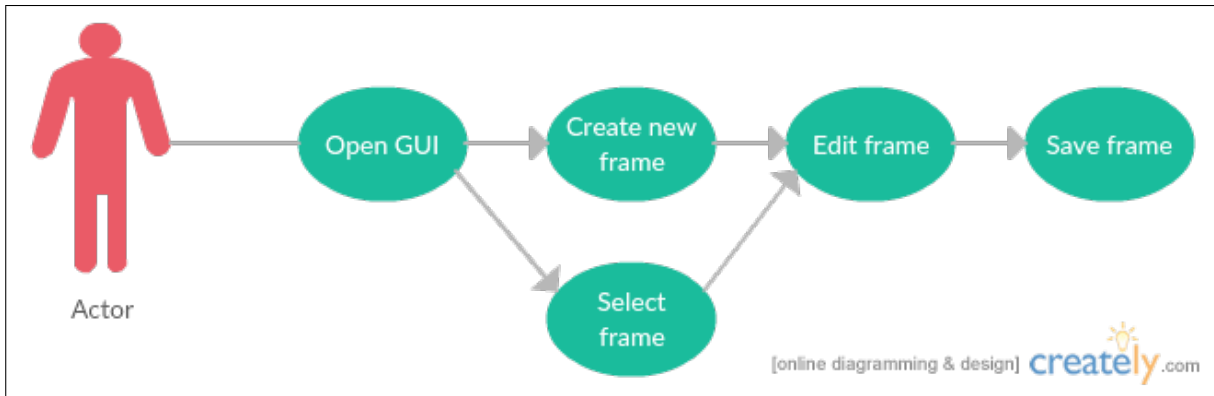
Figure 14: Save/copy current frame for re-use in animation
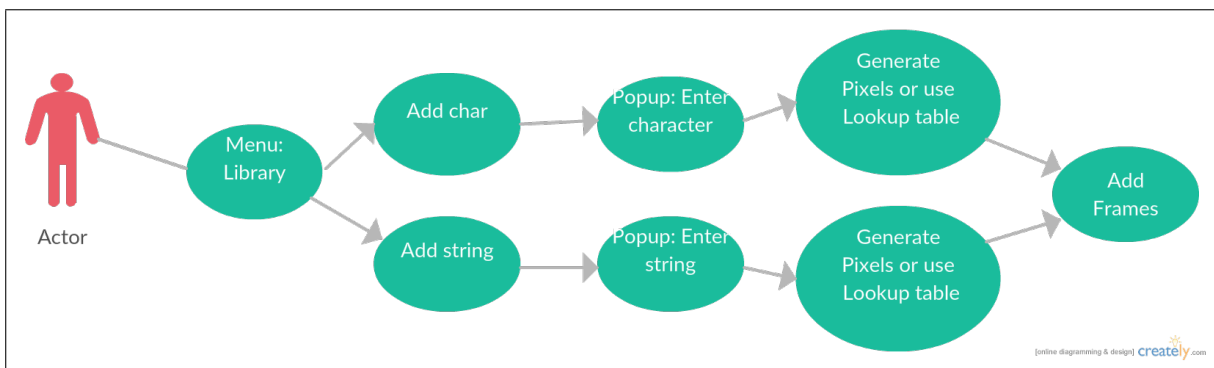
Figure 15: Add char/string from predefined set
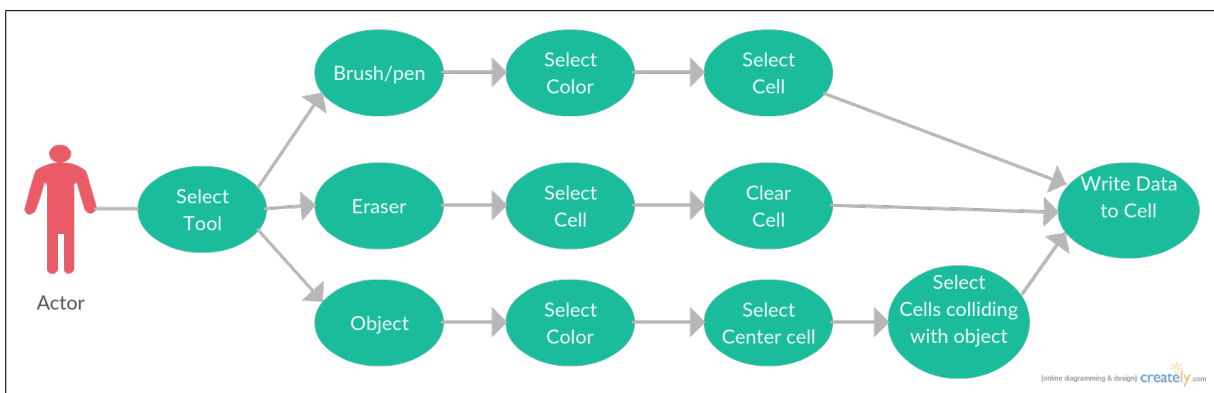
Figure 16: Add a pixel in any position in any color
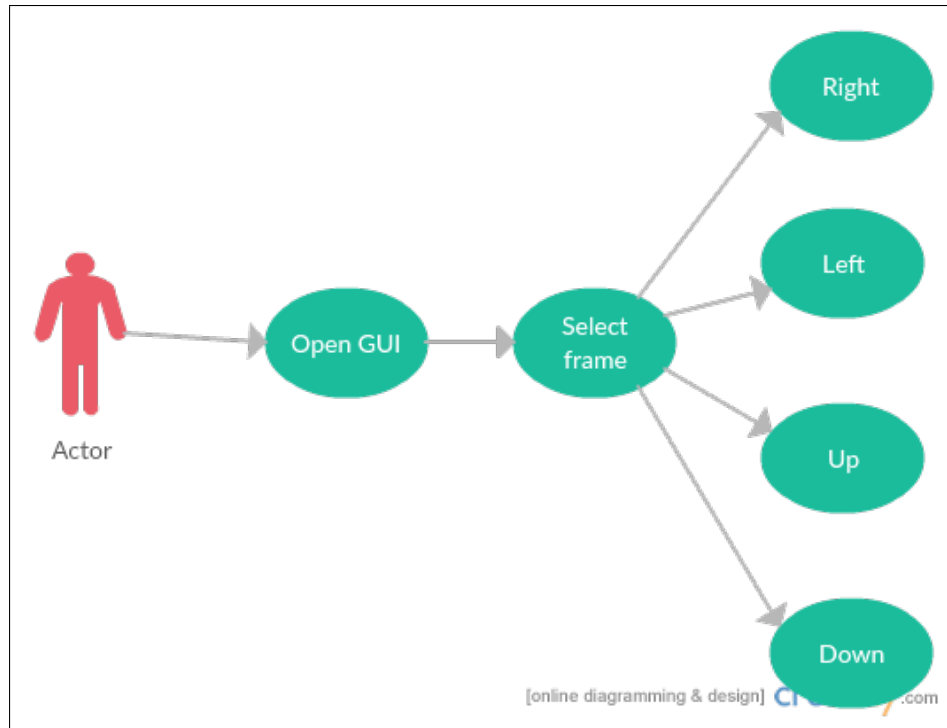
Figure 17: Move everything in frame 1 pixel in a direction
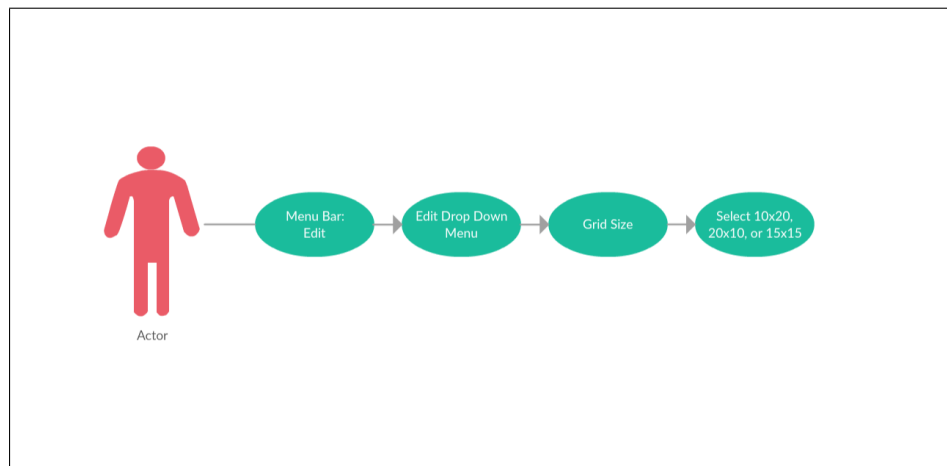
Figure 18: Choose grid size for the file
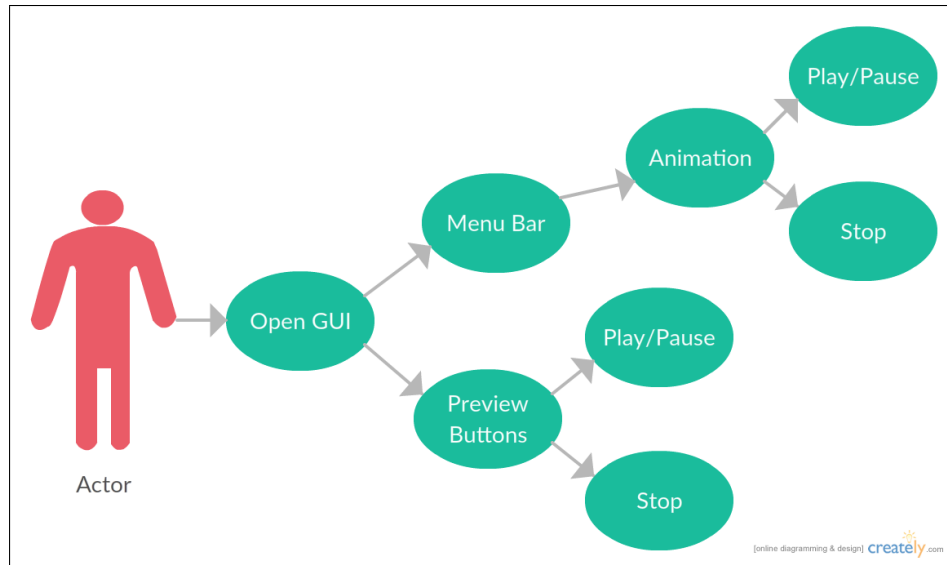
Figure 19: Preview play/pause/stop animation
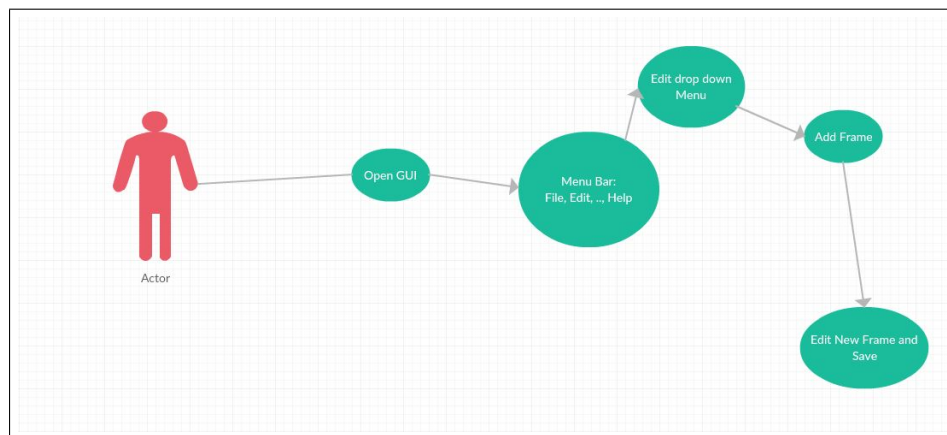
Figure 20: Create new frame
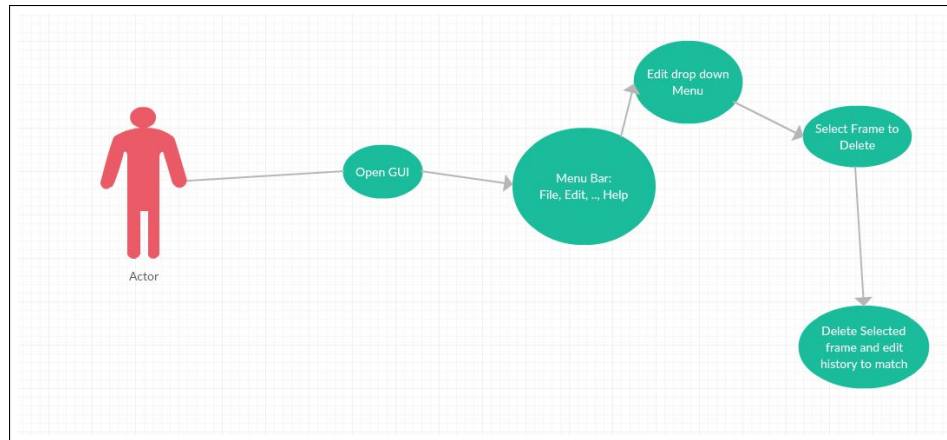
Figure 21: Delete a frame
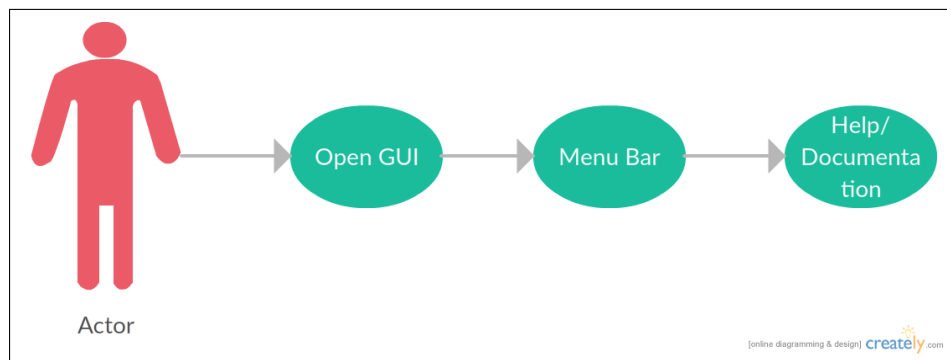
Figure 22: Open help/documentation text
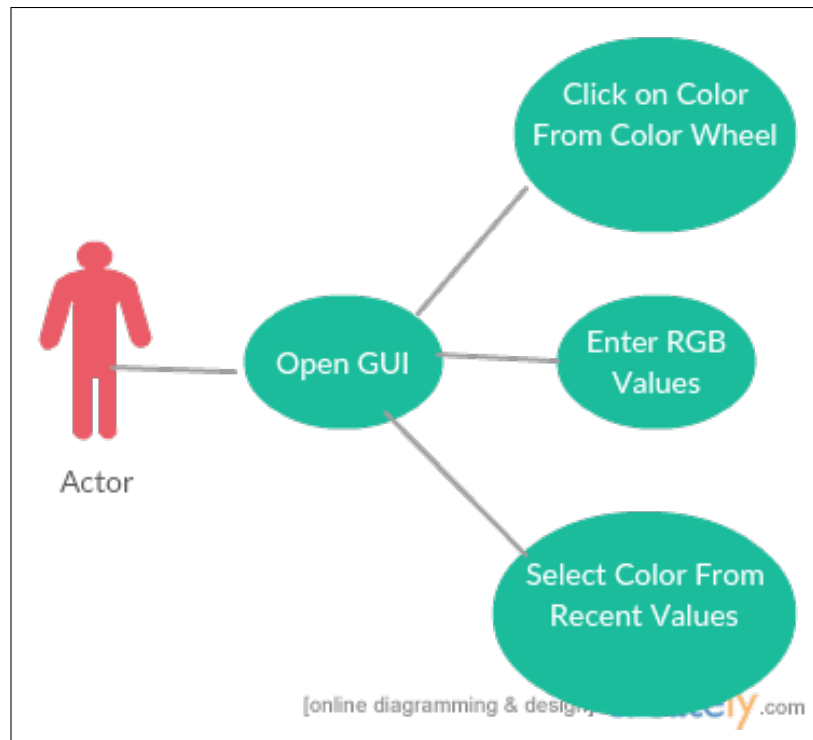
Figure 23: Chose a color on the colorwheel
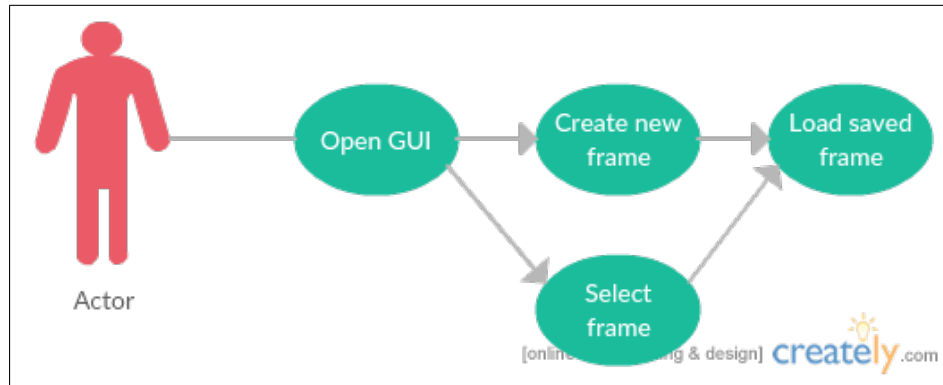
Figure 24: Insert a saved frame
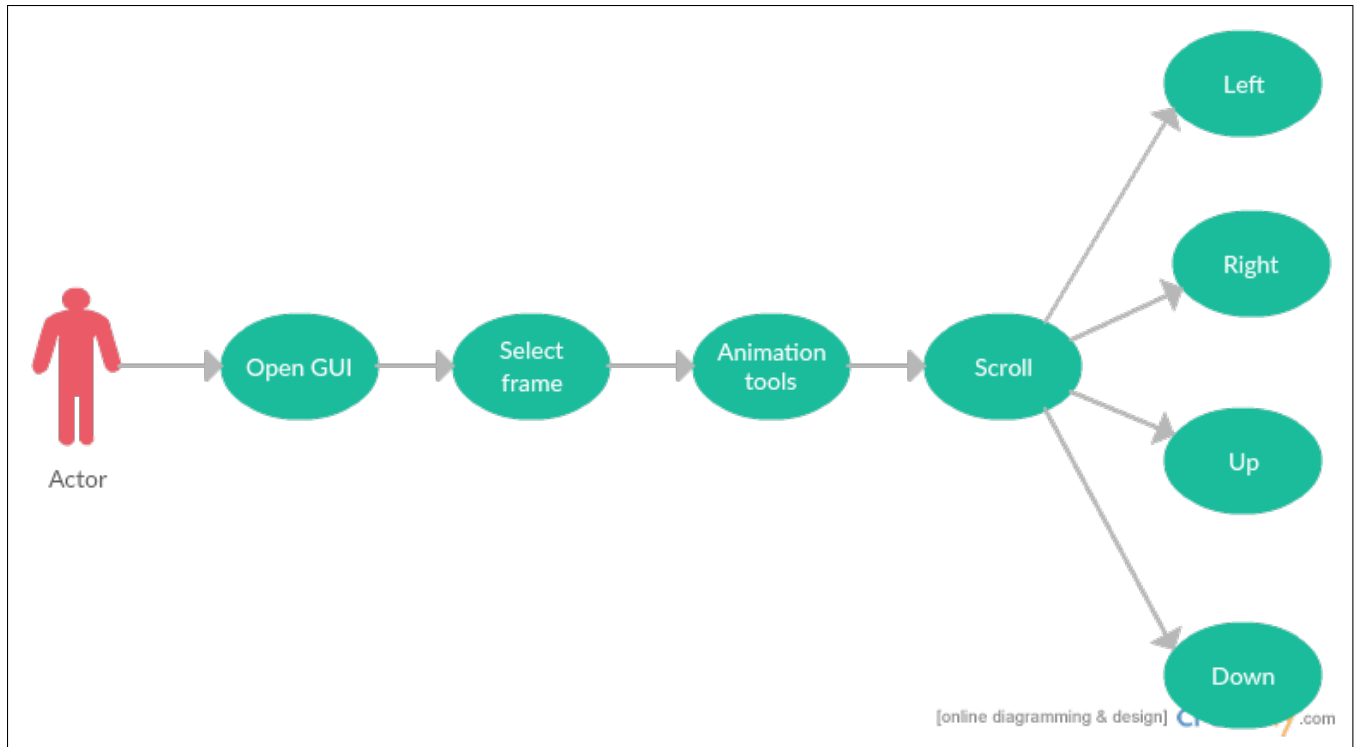
Figure 25: Scroll everything across entire frame

2.2 Timeline sprint 2

Rough timeline, revision #2
Starting March 30th (Thursday)

Week 1: (completed)
1) Rough out GUI
2) Create data structure
3) Start file manipulation functions
4) Make something to look at (pretty colors)

Week 2:
Sprint 2:
1) Add Row/Column data to Framedata
2) Delete attached RGB structures
3) Copy Framedata
4) Retrieve frame x
5) Fix RGB bug
6) Update frame x
//finish by TUESDAY???

Week 3:
Sprint 3:
SOLIDIFY GUI LAYOUT (buttons, sliders, sizes)
Start filling out the functionality of buttons

Week 4:
Sprint 4:
Finish all functionality
Add extra features
Start final documentation

Week 5:
Final sprint??
System testing, find bugs, hopefully something works mostly
Update UML diagrams
Polish final documentation

2.3 GitLog during sprint 2

Git log since 20170330

```
* d8d0fcb - Nick Krenowicz, Sun Apr 9 22:33:48 2017 -0700 : Team schedule finder
* 4baa9a3 - Nick Krenowicz, Sun Apr 9 22:33:24 2017 -0700 : Master Tex Doc: Gitlog
* b9eaba8 - Kevin Dorscher, Sun Apr 9 19:55:53 2017 -0700 : Master Tex Doc & PDF Update
* cd9db6f - Kevin Dorscher, Sun Apr 9 19:29:05 2017 -0700 : Master Tex Documentation
    Changes
* 7152af0 - Kevin Dorscher, Sun Apr 9 19:23:05 2017 -0700 : Documentation Changes
* 5cf9167 - welc2421, Sun Apr 9 19:00:00 2017 -0700 : Current Color Preview
* 94e8b76 - welc2421, Sun Apr 9 18:55:30 2017 -0700 : Current Color Preview
* 7e793d2 - welc2421, Sun Apr 9 18:53:30 2017 -0700 : Current Color Preview
* 3ffd1ca - welc2421, Sun Apr 9 18:52:14 2017 -0700 : Current Color Preview
* 925b27a - welc2421, Sun Apr 9 18:51:16 2017 -0700 : Current Color Preview
* c3516b3 - Emma Bateman, Sun Apr 9 18:40:10 2017 -0700 : framedata.durration ->
    framedata.duration
* c37fc69 - YupHio, Sun Apr 9 13:59:40 2017 -0700 : Tex authors
* f6f7eac - YupHio, Sun Apr 9 13:57:10 2017 -0700 : New Tex author formatting?
* 01f7126 - YupHio, Sun Apr 9 13:46:00 2017 -0700 : Tex author formatting
* 1ade1d0 - Nick Krenowicz, Sun Apr 9 13:12:39 2017 -0700 : FrameList delete mid minor
    fix
* 7f7e37a - YupHio, Sun Apr 9 13:07:50 2017 -0700 : Tex formatting
* 1ddb136 - YupHio, Sun Apr 9 12:50:15 2017 -0700 : Formatting
* 27645e3 - YupHio, Sun Apr 9 12:36:46 2017 -0700 : Seg fault comment
* a84f36b - YupHio, Sun Apr 9 12:34:01 2017 -0700 : Added GUI screenshots to Master Tex
*   78e4838 - Tim Sonnen, Sun Apr 9 12:33:30 2017 -0700 : Merge pull request #35 from
    CS383Team2/fileio
|\
| *   8da54da - tsonnen, Sun Apr 9 12:27:08 2017 -0700 : Merge remote-tracking branch
    'origin/master' into fileio
| |\
| |/
|/|
* | 294e6cf - YupHio, Sun Apr 9 12:11:27 2017 -0700 : Finally, static grid spacing
* | c0e9938 - YupHio, Sun Apr 9 11:45:28 2017 -0700 : Slightly better cropping
| * b43c853 - tsonnen, Sun Apr 9 12:25:24 2017 -0700 : Cleanup and test
| *   f849187 - tsonnen, Sun Apr 9 11:47:58 2017 -0700 : Merge branch 'master' into fileio
| |\
| |/
|/|
* | 90ed600 - YupHio, Sun Apr 9 10:41:45 2017 -0700 : Latest gui
* | 481358a - YupHio, Sun Apr 9 10:31:49 2017 -0700 : File management
* | b5ec046 - YupHio, Sun Apr 9 10:26:06 2017 -0700 : Historical GUI Screenshots
* |   7162833 - emmabateman, Fri Apr 7 20:38:30 2017 -0700 : Merge pull request #33 from
    CS383Team2/right/left
|\ \
| * \   52647dd - emmabateman, Fri Apr 7 17:35:29 2017 -0700 : Merge branch 'master' into
    right/left
| |\ \
| * | | 6fc2d6a - Emma Bateman, Fri Apr 7 17:07:51 2017 -0700 : 2 color pallette
* | | | 3559c14 - Nick Krenowicz, Fri Apr 7 19:52:59 2017 -0700 : FrameList: Bugfix
* | | | 530ad89 - Nick Krenowicz, Fri Apr 7 19:09:48 2017 -0700 : FrameList: Minor
    renames
```

```
* | | | 11106da - Nick Krenowicz, Fri Apr 7 18:50:39 2017 -0700 : FrameList: AddNode
    Middle Update
* | | | 09c4899 - Nick Krenowicz, Fri Apr 7 18:24:48 2017 -0700 : FrameList: Delete list
    update
* | | | 7d683f8 - Nick Krenowicz, Fri Apr 7 17:57:17 2017 -0700 : FrameList AddTail
    update
| |/ /
|/| |
* | | c9cef8a - Nick Krenowicz, Fri Apr 7 16:27:37 2017 -0700 : Doc: Cleanup doc
    directory
* | | e4cec55 - Krenowicz, Fri Apr 7 15:33:46 2017 -0700 : Doc: Added tan files and
    cleanup
* | | 8c8f713 - YupHio, Fri Apr 7 09:09:30 2017 -0700 : Fixed all ambiguous names... :)
* | | 5555462 - YupHio, Fri Apr 7 08:58:11 2017 -0700 : Fixed more widget names
* | | e8f6503 - YupHio, Fri Apr 7 08:42:57 2017 -0700 : Removed unused R and C from .h
    files
* | | 0277b8c - Nick Krenowicz, Thu Apr 6 21:36:49 2017 -0700 : Bug fix. main rc
* | |   39a1ac0 - Nick, Thu Apr 6 21:14:32 2017 -0700 : Merge pull request #31 from
    CS383Team2/Row_Col_Reworks
|\ \ \
| |/ /
|/| |
| * | cfa2255 - Nick Krenowicz, Thu Apr 6 20:59:47 2017 -0700 : Removed FrameData r/c
|/ /
* | 42d162d - Nick Krenowicz, Thu Apr 6 13:02:03 2017 -0700 : Minor update & compile
* | f951c05 - Kevin Dorscher, Thu Apr 6 13:02:03 2017 -0700 : Update
    Goofy_Lights_Editor_Master_Doc.tex
* | b75e77e - Kevin Dorscher, Thu Apr 6 12:19:01 2017 -0700 : Images of the GUI design
    from sprint 1 to now
* | 62da4a0 - welc2421, Wed Apr 5 19:13:08 2017 -0700 : double click to clear single
    square
* | 70eb973 - welc2421, Wed Apr 5 19:11:42 2017 -0700 : added double click to clear a
    single square
* | 803bf5f - Nick Krenowicz, Wed Apr 5 18:21:51 2017 -0700 : Doc: Master Doc Changed
    sizes
* | 2c8240f - welc2421, Wed Apr 5 16:04:59 2017 -0700 : I corrected my name
* | 6079165 - Nick Krenowicz, Wed Apr 5 15:59:51 2017 -0700 : Doc: Master Doc added names
* | 74712c4 - Nick Krenowicz, Wed Apr 5 14:35:23 2017 -0700 : Doc: Master tex document
    filled
* | 607d92a - YupHio, Wed Apr 5 13:18:18 2017 -0700 : updateTimeline() lags by 1 click
* | 703fd32 - Nick Krenowicz, Wed Apr 5 13:15:23 2017 -0700 : Doc: Master tex document
* | 98966ac - YupHio, Wed Apr 5 12:09:49 2017 -0700 : GUI scaled to 960x700
* | 76b95ee - YupHio, Wed Apr 5 12:02:35 2017 -0700 : GUI is now 960x768
* | 42dd1b5 - YupHio, Wed Apr 5 10:02:45 2017 -0700 : AUTO-MAGICALLY SCALED GRID! :)
* | 90928cd - YupHio, Wed Apr 5 10:02:11 2017 -0700 : Dialogs for help and doc...
* | 1b9acac - Nick Krenowicz, Wed Apr 5 00:27:13 2017 -0700 : UI Widgit Name Changes 4
* | beffff6 - Nick Krenowicz, Wed Apr 5 00:18:52 2017 -0700 : UI Widgit Name Changes 3
* | 8a344d1 - Nick Krenowicz, Tue Apr 4 23:57:52 2017 -0700 : UI Widgit Name Changes 2
* | e24185f - Nick Krenowicz, Tue Apr 4 23:29:47 2017 -0700 : UI Widgit Name Changes
* | 7fd3274 - YupHio, Tue Apr 4 11:35:47 2017 -0700 : Timeline is coming along.
* | 6d48c0c - YupHio, Tue Apr 4 11:23:56 2017 -0700 : Timeline alpha sucks, will work
    soon.
* | 3c43a53 - YupHio, Tue Apr 4 11:23:14 2017 -0700 : TIMELINE is coming soon...
* | 34a9472 - YupHio, Tue Apr 4 11:00:55 2017 -0700 : Actually fixed gridToFrameData
```

```
      segfault
* | cdcd50e - welc2421, Tue Apr 4 10:46:07 2017 -0700 : Update Function Round 2
* | 6fff940 - welc2421, Mon Apr 3 22:32:08 2017 -0700 : Added Update Node Functio
* | 1f132d4 - welc2421, Mon Apr 3 22:30:15 2017 -0700 : Added the Update Node Function
* | 62652ba - Nick Krenowicz, Mon Apr 3 22:28:07 2017 -0700 : mainwindow: FrameData
      cleanup
* | 55e9388 - Nick Krenowicz, Mon Apr 3 22:08:31 2017 -0700 : mainwindow: changed r/c
      vars to global G_Row/G_Col
| * 3e14b43 - tsonnen, Mon Apr 3 20:29:42 2017 -0700 : Update load interface. TESTED.
      Frame ID changes when returning back to calling function.
| * ebf7541 - tsonnen, Mon Apr 3 19:38:38 2017 -0700 : Change load file interface
      UNTESTED
|/
* 69f9fae - YupHio, Mon Apr 3 16:01:46 2017 -0700 : Seg Fault "fixed" for R<C
* 75bcc84 - YupHio, Mon Apr 3 15:57:49 2017 -0700 : Push
* ca11db9 - YupHio, Mon Apr 3 15:57:35 2017 -0700 : Help->Documentation dialog created
* b7402ac - YupHio, Mon Apr 3 15:49:03 2017 -0700 : Fixed Fill Frame bug. -P
* 5da2547 - YupHio, Mon Apr 3 00:33:18 2017 -0700 : Slightly looser grid to fix bugs
* 195cfce - YupHio, Mon Apr 3 00:19:37 2017 -0700 : Grid is tight as a drum. NoPen.
* d9d1e23 - YupHio, Sun Apr 2 22:49:29 2017 -0700 : Coding from my cellphone. Working?
* 56ede99 - YupHio, Sun Apr 2 17:54:47 2017 -0700 : FrameDataToGrid stitched in
* e603769 - YupHio, Sun Apr 2 17:42:50 2017 -0700 : Clear Frame stitched to FrameData
* ef64526 - YupHio, Sun Apr 2 17:40:09 2017 -0700 : Stitched a FrameData to the GUI grid
      -P
* 829a0d6 - Nick Krenowicz, Sun Apr 2 17:13:45 2017 -0700 : Cleanup: Removed github
      issues comments from files
*   8304bc7 - Tim Sonnen, Sun Apr 2 16:57:44 2017 -0700 : Merge pull request #20 from
      CS383Team2/fileio
|\
| *   4278d3b - tsonnen, Sun Apr 2 16:00:25 2017 -0700 : Merge remote-tracking branch
    'origin/master' into fileio
| |\
| * | 04426cd - tsonnen, Sun Apr 2 15:51:51 2017 -0700 : Changed nullptr to NULL as
    nullptr was not compiling.
| * |   9cb3648 - tsonnen, Sun Apr 2 15:44:30 2017 -0700 : Merge remote-tracking branch
    'origin/master' into fileio
| |\ \
| * \ \  1fbe861 - tsonnen, Sun Apr 2 15:34:29 2017 -0700 : Merge remote-tracking branch
    'origin/master' into fileio. Fix FileOperations.cpp error. Commits 38185e0 and
    aa76ef0 somehow overwrote the previous changes.
| |\ \ \
| * | | | 1dadec6 - tsonnen, Sun Apr 2 15:25:44 2017 -0700 : Fix overwrite issue. Check
    commit 38185e0
* | | | |   656c2ac - Nick Krenowicz, Sun Apr 2 16:45:40 2017 -0700 : Merge
    remote-tracking branch 'origin/master'
|\ \ \ \ \
| * | | | | 4ef6c77 - YupHio, Sun Apr 2 16:41:28 2017 -0700 : Comment clarity/ Fill Frame
* | | | | |   214b4ad - Nick Krenowicz, Sun Apr 2 16:45:08 2017 -0700 : Merge branch
    'copyFrame'
|\ \ \ \ \ \
| |/ / / / /
|/| | | | |
| * | | | | 2e6a099 - Nick Krenowicz, Sun Apr 2 16:24:33 2017 -0700 : copyFrame()
    finalized
```

```
| * | | | | | f3739f0 - Nick Krenowicz, Sun Apr 2 16:13:49 2017 -0700 : Fixed pointer
    error and changed copyFrame interface
| * | | | | | ca0b44c - Nick Krenowicz, Sun Apr 2 14:53:55 2017 -0700 : Changed copyFrame
    Interface
| * | | | | | cfa7db6 - Nick Krenowicz, Sun Apr 2 14:19:34 2017 -0700 : CopyFrame() done
| * | | | | | 0f4efa3 - Nick Krenowicz, Sun Apr 2 14:14:10 2017 -0700 : copyFrame row/col
    variables renamed
| * | | | | | 1309aad - Nick Krenowicz, Sun Apr 2 14:05:34 2017 -0700 : Moved
    frames.DeleteList Before "Program end" output
| * | | | | | 5effc69 - Nick Krenowicz, Sun Apr 2 14:04:34 2017 -0700 : Minor edits to
    FrameList.cpp
* | | | | | | 525f51f - YupHio, Sun Apr 2 16:37:02 2017 -0700 : Removed ALPHA from all
    code -P
* | | | | | | ff8cf26 - YupHio, Sun Apr 2 16:26:56 2017 -0700 : Clear Frame is now BLACK
* | | | | | | 11a1c47 - YupHio, Sun Apr 2 16:21:09 2017 -0700 : copyFrame fixed with error
    checking
* | | | | | | c196b24 - YupHio, Sun Apr 2 16:14:18 2017 -0700 : copyFrame coded and not
    tested :)
* | | | | | | fef1693 - YupHio, Sun Apr 2 16:01:03 2017 -0700 : Fill Frame and Clear Frame
    work great
| |_|_|_|/
|/| | | |
* | | | | 2b615f8 - YupHio, Sun Apr 2 15:49:06 2017 -0700 : SmartGit works right?
* | | | | 83e7221 - YupHio, Sun Apr 2 15:47:35 2017 -0700 : Fill Frame+Clear Frame
    buttons work on GUI side
| |_|_|/
|/| | |
* | | | 3b6db45 - YupHio, Sun Apr 2 15:29:05 2017 -0700 : Clarification
| |_|/
|/| |
* | | 87c35d9 - YupHio, Sun Apr 2 15:26:14 2017 -0700 : Testing SmartGit
* | | f6069d4 - Nick Krenowicz, Sun Apr 2 15:10:17 2017 -0700 : Merge pull request #19
    from CS383Team2/fileio
* | |   952ee9d - Tim Sonnen, Sun Apr 2 14:28:23 2017 -0700 : Merge pull request #19 from
    CS383Team2/fileio
|\ \ \
| | |/
| |/|
| * | 8fec6eb - tsonnen, Sun Apr 2 14:16:07 2017 -0700 : Merge remote-tracking branch
    'origin/master' into fileio
|/ /
* | 1448ab3 - YupHio, Sun Apr 2 14:13:56 2017 -0700 : GUI Version 3.0 -P
* |   617bf2d - Nick, Sun Apr 2 14:09:04 2017 -0700 : Merge pull request #16 from
    CS383Team2/Delete_RGB
|\ \
| |/
|/|
| *   621e903 - Nick Krenowicz, Sun Apr 2 13:38:45 2017 -0700 : Merge branch 'master'
    into Delete_RGB
| |\
| |/
|/|
* | b6139f3 - YupHio, Sun Apr 2 13:12:27 2017 -0700 : Colorwheel linked to spinboxes
    (sorta)(difficult)
```

```
* | 6a3e519 - YupHio, Sun Apr 2 11:54:26 2017 -0700 : The color wheel, IT'S ALIVE!
* | 83f0ba3 - YupHio, Sun Apr 2 11:18:35 2017 -0700 : What is a color wheel? Oh.
* | 9bea306 - YupHio, Fri Mar 31 15:00:10 2017 -0700 : Full RGB support! Woohoo
* | 7059410 - YupHio, Fri Mar 31 14:52:25 2017 -0700 : GridSquares now support RGB,
    ooooo -P
* | 4463f47 - YupHio, Fri Mar 31 14:15:44 2017 -0700 : *another* dialog to browse for
    existing .tan file
* | 9a1fcd0 - YupHio, Fri Mar 31 14:00:54 2017 -0700 : May want to open an existing file?
* | 3700fb1 - YupHio, Fri Mar 31 13:55:39 2017 -0700 : Existing project dialog update
* | abb520a - YupHio, Fri Mar 31 13:15:47 2017 -0700 : Better grid size dialog
* | 78cd88f - YupHio, Fri Mar 31 13:02:26 2017 -0700 : Grid size dialog!
* | 5f6a9da - YupHio, Fri Mar 31 12:19:27 2017 -0700 : Added grid size popup dialog.
    +extern G_ROW, G_COL
 /
* 99b16dd - Nick Krenowicz, Fri Mar 31 00:56:25 2017 -0700 : Update comments for
    main.cpp test code
* 0827459 - Nick Krenowicz, Fri Mar 31 00:48:45 2017 -0700 : Added delete_RGB to
    FrameList delete methods
* 19d0eba - Nick Krenowicz, Fri Mar 31 00:27:19 2017 -0700 : Merge branch 'master' into
    Delete_RGB
```

3 Sprint 3

Sprint dates: Start: 4/11/2017(check this date) End: 4/19/2017

3.1 Work done and problems encountered

For this sprint in out Goofy Lights Editor we covered a lot of needed basic functionality additions, as well as resolved some issues we created with sprint 2. The summary of these changes can be found below. The main additions our group added to the Goofy Lights Editor in sprint 3, were mostly related to the changes in scope of our variables from local to global, and adding our time line to the GUI.

Paul did most of the work for the addition of the time line, and it's functionality. After we had a working timeline, we added extra functionality to some of the pre-existing buttons we already had displayed in our GUI. This allowed us to test our new time line multiple times for correctness. We did run into a small issue with figuring out how to go about adding and updating the timeline frames to match the grid that is currently being edited.

A few of our team members set up a "code review" for some needed clarification on some of the GUI functions, as well as discussed how to fix the small issue with the time line mentioned above. The only other major issue we ran into this sprint, that was carried over from sprint 2, was scoping changes. We changed a lot of our local variables that were being used in multiple functions to a global scope for ease of access.

3.2 Timeline sprint 3

Our time line for sprint 3 has almost stayed the same since the last sprint. Original sprint 3 time line: Solidify GUI Layout (buttons, sliders, sizes, ect.)

Updated Sprint 3 time line:

- Recent Color Palette

- Alter adding to the time line (linked list)

- Integration of existing code into GUI

3.3 Sprint 3 figures

3.3.1 GUI Screenshots

Figure 26: GUI Layout, beginning of sprint 3

Figure 27: GUI Layout, beginning of sprint 3

3.4 GitLog during sprint 3

Git log since April 11th, 2017

```
* 3f07ea4 - gjcarter, Wed Apr 19 18:04:30 2017 -0700 : Updated fill frame and clear
    frame buttons to use our fillFrame function.
* 506097b - gjcarter, Wed Apr 19 18:02:15 2017 -0700 : Updated fillFrame functions to
    use pointers for FrameData.
* a82a18c - YupHio, Wed Apr 19 17:58:57 2017 -0700 : Playback basically works
*   7b5b8c8 - Kevin Dorscher, Wed Apr 19 16:13:29 2017 -0700 : Merge remote-tracking
    branch 'origin/master' into Time-Line-Position-Rework
|\
| * 5442687 - YupHio, Wed Apr 19 15:08:41 2017 -0700 : Player window started (button
    works)
* | c07c5a7 - Kevin Dorscher, Wed Apr 19 16:12:58 2017 -0700 : Updated Time Line
    Positions to be its own function.
|/
* a81257a - YupHio, Wed Apr 19 14:21:28 2017 -0700 : Red Square works
* 1cc170e - YupHio, Wed Apr 19 13:21:35 2017 -0700 : Red Square started
* d4de72a - Nick Krenowicz, Tue Apr 18 20:51:12 2017 -0700 : Review Notes
* 93abdce - Nick Krenowicz, Tue Apr 18 18:30:31 2017 -0700 : Quick optimize of
    create_RGB with framenumber. Removed loop and combined with current loop.
* 05faa4d - gjcarter, Tue Apr 18 17:25:23 2017 -0700 : Fixed translateFrame to take a
    pointer as an argument. Also cleaned up other translate button functions to match
    the cleaner version.
* 8fcc12b - Kevin Dorscher, Tue Apr 18 15:51:10 2017 -0700 : Time Line Position Update
* c48ff0e - Nick Krenowicz, Tue Apr 18 14:41:38 2017 -0700 : Master doc update
* 19fb068 - Nick Krenowicz, Tue Apr 18 09:52:59 2017 -0700 : Draw grid for first node at
    program start
* c648588 - YupHio, Tue Apr 18 09:34:53 2017 -0700 : Ooops, click lose bug still there
* 462ad1e - YupHio, Tue Apr 18 09:04:34 2017 -0700 : Fixed bug where fill frame gets
    lost in a click
* dc2be91 - YupHio, Tue Apr 18 09:00:20 2017 -0700 : Play button
* 55f66da - YupHio, Tue Apr 18 08:26:53 2017 -0700 : Play window started
* 8fb1794 - Nick Krenowicz, Mon Apr 17 23:58:00 2017 -0700 : Translate rework 2 &
    copyFrame update
* 267299c - Nick Krenowicz, Mon Apr 17 21:39:47 2017 -0700 : Translate Rework
* 4c64aae - Nick Krenowicz, Mon Apr 17 16:52:59 2017 -0700 : More of the same
* 44a2c1b - Nick Krenowicz, Mon Apr 17 16:30:10 2017 -0700 : Mainwindow consistancy work
* bebdb05 - Nick Krenowicz, Mon Apr 17 16:07:19 2017 -0700 : Mainwindow retreiveframe
    rework
* 9464924 - YupHio, Mon Apr 17 11:47:41 2017 -0700 : Delete Frame still needs some work
* d5d235f - YupHio, Mon Apr 17 11:40:25 2017 -0700 : Repeat Frame button implemented
*   ad0b81b - Tim Sonnen, Mon Apr 17 01:27:48 2017 -0700 : Merge pull request #40 from
    CS383Team2/fileSegFaultFix
|\
| *   ef2a9a8 - tsonnen, Mon Apr 17 01:16:34 2017 -0700 : Merge remote-tracking branch
    'origin/master' into fileSegFaultFix
| |\
| |/
|/|
* | aeacfa7 - Nick Krenowicz, Mon Apr 17 00:03:06 2017 -0700 : Mainwindow cleanup &
    rework
* | 9cb4f2f - Kevin Dorscher, Mon Apr 17 00:02:17 2017 -0700 : More GUI Screenshots from
```

```
       sprint 3
* | 9740eaf - Nick Krenowicz, Sun Apr 16 21:42:07 2017 -0700 : main cleanup & removed
    test code
* | f9f507d - Kevin Dorscher, Sun Apr 16 20:25:26 2017 -0700 : GUI_3_2_04-16-2017
* |   abed582 - Nick Krenowicz, Sun Apr 16 20:08:01 2017 -0700 : Merge branch
    'Doc_MasterDoc_Rework'
|\ \
| * | bcba9d8 - Kevin Dorscher, Sun Apr 16 20:06:07 2017 -0700 : Sprint 3 Info added to
    master doc
| /
* |   b07f7be - Emma Bateman, Sun Apr 16 19:21:07 2017 -0700 : Merge remote-tracking
    branch 'origin/master'
|\ \
| * | ddbe113 - YupHio, Sun Apr 16 18:44:31 2017 -0700 : All translate buttons work
| * | 0892c7e - YupHio, Sun Apr 16 18:36:02 2017 -0700 : Translate Right button now
    works :)
* | | 48a5fb7 - Emma Bateman, Sun Apr 16 19:13:24 2017 -0700 : timlineFrameNumer ->
    timelineFrameNumber
* | | 1059107 - Emma Bateman, Sun Apr 16 18:40:04 2017 -0700 : frame duration
|/ /
| * 97ef48f - tsonnen, Sun Apr 16 13:56:55 2017 -0700 : Integrate save/load
| *   0e97eb4 - tsonnen, Sun Apr 16 13:14:35 2017 -0700 : Merge remote-tracking branch
    'origin/master' into fileSegFaultFix
| |\
| |/
|/|
* | 87dbf9e - YupHio, Sun Apr 16 12:55:49 2017 -0700 : Fixed merge error
* |   9732e31 - YupHio, Sun Apr 16 12:52:11 2017 -0700 : Merge pull request #38 from
    CS383Team2/MultiFrameReview
|\ \
| * \   45c0c7d - YupHio, Sun Apr 16 12:51:56 2017 -0700 : Merge branch 'master' into
    MultiFrameReview
| |\ \
| |/ /
|/| |
* | | 6356d8c - YupHio, Sat Apr 15 07:09:11 2017 -0700 : Timeline frame spacing fixed
* | | a07ba44 - Emma Bateman, Sat Apr 15 00:46:06 2017 -0700 : start with first frame on
    grid
| * | 2d0aea7 - YupHio, Sun Apr 16 12:35:46 2017 -0700 : Start with zero frames and no
    grid
| * | 59976d7 - YupHio, Sun Apr 16 12:28:31 2017 -0700 : New Frame updates timeline,
    fixes lost click
| * | 37c5f2f - YupHio, Sun Apr 16 11:34:16 2017 -0700 : Delete Frame button does NOT
    work yet
| * | d31dacb - YupHio, Sun Apr 16 11:26:42 2017 -0700 : Delete Node button almost sorta
    works
| * | fefc90c - YupHio, Sun Apr 16 11:10:08 2017 -0700 : Fixed a FillFrame/ClearFrame bug
| * | e8753bb - YupHio, Sun Apr 16 11:00:03 2017 -0700 : New Frame button makes current
    frame the new frame
| * | 5aba45b - YupHio, Sun Apr 16 10:54:18 2017 -0700 : New Frame button implemented :)
|/ /
* | 9d346b0 - Nick Krenowicz, Fri Apr 14 19:00:56 2017 -0700 : Merge branch 'master'
    into MultiFrameReview
|\ \
```

```
| * | cdbf74e - tsonnen, Fri Apr 14 02:34:12 2017 -0700 : Add availability
| * | b6a59fd - gjcarter, Wed Apr 12 22:34:17 2017 -0700 : Updated availability
| * | 091779f - Kevin Dorscher, Wed Apr 12 19:55:21 2017 -0700 : Updated Team Schedule
    (Kevin)
| * | 2e82c1f - Emma Bateman, Wed Apr 12 18:37:46 2017 -0700 : schedule
| * | 176f3a5 - welc2421, Wed Apr 12 12:27:56 2017 -0700 : Add files via upload
| /
* | 516c1ba - Nick Krenowicz, Fri Apr 14 18:54:54 2017 -0700 : Fixed test code to not
    segfault with grid size under 10.
* | dcbac29 - YupHio, Fri Apr 14 16:52:21 2017 -0700 : You can now select which frame to
    edit
* | c5e7c01 - YupHio, Fri Apr 14 15:12:29 2017 -0700 : 10
* | c88d205 - YupHio, Fri Apr 14 15:11:32 2017 -0700 : corner to corner cool
* | b07bfef - YupHio, Fri Apr 14 15:10:18 2017 -0700 : Timeline Scroll demo
* | d3c859f - YupHio, Fri Apr 14 15:08:18 2017 -0700 : Solved object uniqueness problem
* | a250a04 - Nick Krenowicz, Fri Apr 14 13:27:41 2017 -0700 : Mainwindow: MultiFrame
    Review
* | 660efdb - YupHio, Fri Apr 14 12:41:32 2017 -0700 : Cleaned
* | 5f507b4 - YupHio, Fri Apr 14 12:01:50 2017 -0700 : Comment clarity and pretty test
    colors
* | db25304 - YupHio, Fri Apr 14 11:16:21 2017 -0700 : finally more than one frame
* | 344f2b8 - YupHio, Fri Apr 14 11:14:22 2017 -0700 : Fixed palette and 3rd frame
* | 3451bc9 - YupHio, Fri Apr 14 11:02:04 2017 -0700 : 2 frames on timeline, finally.
* | c9585eb - Nick Krenowicz, Fri Apr 14 10:44:09 2017 -0700 : FraemFrameList: Retrieve
    frame fix 2
* | 0c3818f - Nick Krenowicz, Fri Apr 14 10:40:08 2017 -0700 : FrameList: Retrieve frame
    fix
| * a6ec5d7 - tsonnen, Fri Apr 14 03:09:39 2017 -0700 : Load file seg fault fix
|/
* eb5a78a - Nick Krenowicz, Thu Apr 13 22:57:32 2017 -0700 : Mainwindow: temp FrameData
    variable rename
* 95e51a1 - gjcarter, Thu Apr 13 22:08:43 2017 -0700 : Fillframe and fillframe2
    corrected to use QColor variables.
* e1fa64a - Nick Krenowicz, Thu Apr 13 22:02:33 2017 -0700 : Return Code update
* 625f94f - Nick Krenowicz, Thu Apr 13 21:53:40 2017 -0700 : First Frame
* 57a2496 - Nick Krenowicz, Thu Apr 13 21:36:22 2017 -0700 : MainWindow Cleanup
* 2f0ca2a - Nick Krenowicz, Thu Apr 13 13:44:13 2017 -0700 : FrameList Added methods to
    update internal row,col
* 5cc9f7e - Nick Krenowicz, Thu Apr 13 13:26:31 2017 -0700 : Reverted: Removed blank
    FrameList constructor
*   7cf5fac - Nick Krenowicz, Thu Apr 13 13:06:35 2017 -0700 : Merge branch
    'Implementing-square-objects-into-FrameData' into Implementing/FrameList_Advancement
|\
| * 171d1a8 - YupHio, Thu Apr 13 12:52:59 2017 -0700 : Multiple frames in timeline. Send
    help.
| * 649c423 - YupHio, Thu Apr 13 12:21:37 2017 -0700 : Timelinegrid now accessed through
    linked list
| * 618f857 - YupHio, Thu Apr 13 11:11:35 2017 -0700 : Swapped ROW and COL in objects
| * ec68d6e - YupHio, Thu Apr 13 11:01:04 2017 -0700 : Deleted ALL global variables :)
| * 6052727 - gjcarter, Wed Apr 12 23:48:40 2017 -0700 : Changed global row and columns
    throughout code to match new global struct. Commented out some FileIO code as it was
    causing some seg faults and isn't currently working with the changes.
| * c761a19 - gjcarter, Wed Apr 12 22:24:16 2017 -0700 : Added global structure
    containing global row and columns, left and right palette colors, and framelist
```

```
     pointer.
*  | 7dd46f8 - Nick Krenowicz, Tue Apr 11 22:52:53 2017 -0700 : FileOp: advancement fix &
     pointer debugging
*  | 02d356b - Nick Krenowicz, Tue Apr 11 20:41:02 2017 -0700 : FrameList Advance upgrade
|/
* 9eb43c0 - Nick Krenowicz, Tue Apr 11 19:56:55 2017 -0700 : Removed blank FrameList
     constructor
* cdb33bc - Nick Krenowicz, Tue Apr 11 19:54:37 2017 -0700 : Merge branch 'master' into
     Implementing-square-objects-into-FrameData
```