UC MERCED
SCHOOL OF ENGINEERING

ENGR 165/CSE 140 Final Project

Basic Information

Team Name: **Angelo's Angels**
Team Member Names: **Jonathan Moran, Nancy Navarro, Emily Bossiere, Will Stanton**
Github repo link: https://goo.gl/SGjrsh
Slack channel: https://cse165.slack.com
Code glossary: https://goo.gl/NmnngK
Final presentation: https://goo.gl/PpHMbt

Getting Started

1. Project Design:

What are we going to build?

1. What is the mission of your product? What aspect of the project are you most passionate about improving?
   We want to create a basic C++ OpenGL paint application that passes all of the project requirements. We are most excited to further develop our application and add new sticker packs.

2. Which features are your top three most important features to accomplish?
   i. **Bare minimum application requirements met**
   ii. **Code hosting/replicability across computers**
   iii. **Feature expansion with new sticker packs, color palettes**

3. Of those three features, rank your first, second, third priority.
   i. **Code hosting/replicability across computers**
   ii. **Bare minimum application requirements met**
   iii. **Feature expansion with new sticker packs, color palettes**

How are we going to build the product?

1. **Outline of Approach:** For each of the three features, what is the high level of your approach to getting the user observable result?

The most important feature iteration (MVP) will have to meet the requirements of the project. The most *user observable* deliverable will be a bare-bones C++ OpenGL application, then expand on functionality and design at a later time.

2. **Further Research:** What don't you know that you need to know to complete these features?
    i. **OpenGL external library resources (animations, textures, rendering)**
    ii. **OOP Design Guides (managing program state, object-class hierarchy)**

3. **How will you break down the work?** Who will work on what? Can you divide each feature into smaller chunks? What are those chunks?

    Team 1 *Team 2*

    i. **Code hosting/replicability across computers**
        1. Create design doc/code glossary
        2. Draft out initial wireframes, methods/classes to be created
        3. Create github repo
        4. Review initial code *prior to meeting*

    ii. **Bare minimum application featureset**
        1. Continually push updated code (new classes) to repo
        2. Verify functionality of basic brushes, color palette, etc
        3. Prep for future iterations
        4. Complete program flow chart/wireframes

    iii. **Feature expansion with sticker packs, color palettes**
        1. Research and design new stickers (either with OpenGL geometry or textures)
        2. Collect color hex values, geometric formulas, state logic
        3. Bug test + reiterate on Github
        4. Prep for future iterations

4. **What will the most challenging part be?** What do you expect to be the hardest part, and how will you approach it?

2. Project Implementation

Upon finishing a feature, you must have your code peer-reviewed by your direct teammate AND the other team PRIOR to the meeting[1]:

- ❑ Feature name + description
- ❑ Who worked on what
- ❑ Actual development timeline
- ❑ Summary of bugs/issues encountered during the feature sprint
- ❑ Summary of something interesting learned during the feature sprint
- ❑ A link to the updated code documentation, which will include: links to any external libraries, web tutorials, helpful implementation commentary, etc.

We will be making heavy use of Google Doc's "comment + assign" feature.

[1] This will be done via the Github version control framework. All code changes will be pushed to the host repository

Each team member will *take ownership* of what exactly they worked on during the weekly sprint. For example, if Jonathan was to work on the initial sticker pack for Week 1, here's what a snippet of the Week 1 feature summary would look like:

Added the Alien emoji to Starter Pack 2
Completed by Jonathan Moran + Nancy Navarro
Tasks involved: creating a new emoji sticker class, updating the draw/render functions, publishing code changes to Github, updating the project documentation to include the new emoji class descrip, and linking all resources and guides used

Remember, each member will be required to report *all project changes* on this Google Doc to their direct teammate and the other team PRIOR to the code review. Each team member will "acknowledge" the feature update by using the *Comment* option like so

Development Timeline

Week 0: April 5th - April 10th

This is it, the beginning of another OpenGL project. *shivers* But fear not– This week's feature outline is supposed to ease us into the development process. We will be preparing the documents that will be important throughout the next couple weeks. Some of these important bits and pieces include:

- Code documentation – all new methods/classes **MUST** have a corresponding entry in the project documentation
- Project resources/dependencies list– all external libraries, guides and tutorials **MUST** be listed in the project documentation with a short descrip
- Github repository-- our source code will be remotely hosted and dynamically maintained here. Please take the time to familiarize yourself with the command line or GUI versions of git. A git quick start guide will be your best bet if this is new to you.
- Scheduling– all great dev teams have even better communication. Let's nail down a time so that we can all meet to go over implementation details and talk shop. See the #scheduling Slack channel for our first *availability poll*

Week 1: April 10th - April 17th

Congrats team, we made it through our first week! Now time for the fun stuff.. this week we will be tackling some of our major implementation goals. Some of these important bits and pieces include:

- Completed code outline– all core features **must** have corresponding project documentation entries
- Basic app progress– let's make sure we can render a blank canvas and some shape(s) (including button logic)
- Github repository-- our source code will be remotely hosted and dynamically maintained here. Please take the time to familiarize yourself with the command line or GUI versions of git. A git quick start guide will be your best bet if this is new to you.

- Prepped code blocks-- all methods/classes that have *not* been finished **must** have a corresponding entry in the code glossary

Week 2: April 17th - April 26th

We are finally off to a great start! The code base provided by Angelo (freeglutapp) is now pushed to our Github repository (/master branch), which will allow us to easily add features from here on out. This is a list of things we need to accomplish **before** the end of our project week:

- Document new methods and understand functionality– all core features **must** have corresponding project documentation entries
- Continue basic app progress– let's make sure we can ~~render a blank canvas~~ and some shape(s) (including button logic)
    - **Basic shapes: circle (look at tictac toe game), triangle, square**
    - **Eraser tool**
    - **max/min resizing of shapes**
    - **Highlighting button**
    - **Color palette: (red, yellow, blue, orange, green, purple)**
    - ~~**Draw free hand (the point)**~~
- Code review/~~team meeting -~~ now that we have a functioning codebase, we need to maintain excellent communication to ensure synchrony across our devices. Our Slack channel will do the trick, **make sure to stay on top of our assigned todos**

Week 3: April 26th - May 3rd

Angelo to the rescueeeee! Luckily, Angelo was able to fix our project functionality in his office hours. The latest pull request (commit: `32577bb`) has been merged into our `hot` branch. Here's what we need to accomplish **this week**:

- Commit all code changes from Angelo's OH visit to our `cold` branch (will be merged after approval into the `hot` branch)
- Continue basic app progress– let's make sure we can ~~render a blank canvas~~ and some shape(s) (including button logic)
    - **Basic shapes: circle (look at tictac toe game), triangle, square**
    - **Eraser tool**
    - **max/min resizing of shapes**
    - **Highlighting button**
    - **Color palette: (red, yellow, blue, orange, green, purple)**
    - ~~**Draw free hand (the point)**~~
- Code review/~~team meeting -~~ now that we have a functioning codebase, we need to maintain excellent communication to ensure synchrony across our devices. Our Slack channel will do the trick, **make sure to stay on top of our assigned todos**

Week 4: May 3rd - May 8th

WE MADE IT THROUGH THIS, TEAM!!! Angelo's Angels did a kick ass job and was able to nail down our projects goals and expectations. Thanks again to Angelo for the office hour fixes, and @emilybossiere for finalizing our codebase changes <3 In summary, this

is what we did over the week:

- Committed a finalized version of our app to Github (in the `cold` branch, commit #: `30f905d85bc9a69b0a02009babe5ec98aac288c8`)
- Finished all the project basic requirements:
    - **Basic shapes: circle tool**
    - **Eraser tool**
    - **Shape resizing**
    - **Selection highlighting**
    - **Color palette: (red, yellow, blue, orange, green, purple)**
    - **Draw free-hand**
- Code review: done 5/7/18, assigned final OOP design changes
- Created some cool presentation slides (available here: https://goo.gl/PpHMbt)

Final Words

Angelo's Angels ***completed all of the requirements for the ENGR 165 Final Project***. I am so happy we got to work together on this project, and wish all of you the best of luck in your future dev work<4

Please feel free to re-use this template for other personal projects. The current outline was provided to me by Google during a Spring '17 program, and has been a very effective tool for consolidating timelines, goals and expectations.