**CS194/W Project Proposal**

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**Description of Project**

At its core, our project is a social photo editing platform that allows users to give and receive editing feedback from other photographers around the world. There are many features we would like to add to our product, given we have enough time. Thus we have split this section into three subsections: the minimum viable product, the extras, and the stretch goals.

The Minimum Viable Product (MVP)

These are the basic features that we will need to complete for our product to work. The MVP is a solid foundation for all of the extras and potentially stretch goals that we want to add later on.

Photo Uploading:

As with all other photo sharing platforms, we will provide users with a way to upload photos onto our website. These photos will come from users’ computers; we will potentially support mobile uploads as well. After a photo is uploaded, it will be attached to that user’s account and available for other users to see and edit.

Collaboration System:

The main purpose of our web app is to allow photographers to share their editing techniques with other photographers. Thus, each image that is uploaded will have an edits section that allows people to upload their edited version of the original photo. All users have the ability to download a photo, edit it, and post it as a follow-up image attached to the original photo.

Search for Photos:

In order to help users find images to view and/or edit, we will allow them to search for photos based on tagged keywords and maybe even color (stretch goal). The basic search feature will rely on users tagging their own photos with keywords. We will also provide a way to browse for photos based on pre-set categories.

Extras

The extras are all of the features we would like to have in our final product beyond the MVP. We will spend most of the quarter implementing as many of these features as possible.

Basic Online Photo Editing:

In order to promote engagement on our site, we will provide an online basic photo editor with filters such as Black and White and adjustments for contrast and saturation. Providing these editing capabilities ensures that users will remain on our website for basic edits. Additionally, users will be more likely to edit other users’ photos since the online editor makes it easier to do so. For more advanced edits, users can download the photos, edit them in Photoshop and/or Lightroom, and upload the new image.

Tagging Edits in Photos:

While in the photo editing interface, users will have the ability to “tag” the edits they have made in the photos. Tagging will involve drawing a box around the area they have edited and inserting a description of the change they made. Thus, when a user later views the edited photo, the tags containing a description of the edits will appear as they hover over the picture with their mouse.

Sharing on Social Media:

Since the purpose of our site is not to replace traditional photo sharing on social media, we plan on using the APIs for other sites such as Facebook, Instagram, Pinterest, and Flickr to share photos from our site.

Photo Categories:

To better organize images on the site and provide a means to search existing photos, users may create custom categories for their images. Categories can be added to an individual photo or group of photos (edits of the same image) with both types of categories appearing on the search screen. A category can range from a label for the image (e.g. a squirrel) to a description of its technical qualities (e.g. high contrast).

Stretch Goals

These are the features we recognize will take some more time to implement or we must first research how to implement before proceeding. The stretch goals are to be worked on after everything listed in the MVP and extras sections have been completed.

Live Editing:

This is a way for users to see how others are editing their photos in real time. If two users happen to be on the site at the same time, they can track each other’s edits and see what kind of process each person goes through while they edit photos. This feature is highly dependent on if we can work out the technical aspects.

Graphical Representation of Edit History:

In addition to the linear flow of the comments section attached to each photo, we would like to show each photo’s edit history in a more graphical representation. For this, we would make a tree-like diagram that shows the sequence of changes made to each photo and where each edited photo branched off from the original.

Grouping Photos by Color:

We think it would be cool to see photos on the website grouped by color without each user having to tag them manually. For this feature, we will need to figure out how to pick out the dominant color in each photograph and store this information for searching and sorting purposes.

**Need for Project**

Current photo websites promote a disconnect between the photographer who posts the image and the user who views it. These websites excel at providing a platform for photo curation (Flickr) with some leveraging social network connections to immediately generate a viewing audience (Facebook and Instagram). Although this strategy works for casual, cellphone photographers, more advanced users enjoy the artistic challenge of editing photos to create enhanced and surreal images while photographers appreciate the editing suggestions. Thus there is a need for a collaborative website that better connects the photographer who took the picture to a community of editors that can provide their own expertise to enhance the raw image. This collaboration allows for the uploaded photos to evolve through multiple editing iterations beyond the idea for the initial image.

**Potential Audience**

Our target audience consists of amateur to advanced photographers who enjoy taking and editing photos. These photographers enjoy learning from and collaborating with others to see how different people can produce different results from the same photo. Although not highly technical, our target audience knows how to maneuver around Photoshop and/or Lightroom and knows the basics of photo editing. These skills will help them understand our simple photo editing interface and contribute their works to the photo gallery.

**Competing Products**

Part of what makes our project unique is its conflation of photo editing with social interaction. While many websites and programs allow users to edit photos or interact with other people, nothing currently allows users to both edit photos *and* interact with other people. At the moment, programs like Photoshop, GIMP, and Paint.net provide users with high-end photo-editing capabilities. The features of Photoshop, GIMP, and Paint.net are so advanced, in fact, that they can be used by professionals and nonprofessionals alike; however, in spite of their sophistication, these programs lack the social component that brings sites like Facebook, Instagram, and Flickr to life. While Facebook, Instagram, and Flickr allow users to share and comment on other people’s photos, they prevent users from interacting with photos beyond tagging them, commenting on them, and upvoting (i.e. “liking”) them. In addition to providing support for some of the aforementioned features (sharing, commenting, upvoting), we intend for our project to provide users with the ability to edit other people’s photos and post their edited photos online; adding these capabilities, we believe, will not only foster creativity but also add a sense of inclusiveness among users. This inclusiveness is often lacking on social media websites, as comments, upvotes, and photos often get lost in the fray of thousands of other comments, upvotes, and photos. By supporting these photo-editing capabilities, our project adds more excitement to web-based social interaction and, in the process, allows users to feel like their contributions are meaningful and unique.

**Major Technologies**

Our project will be a web-based application, so it will rely very heavily on HTML, CSS, and JavaScript. To simplify the process of using the three aforementioned web technologies, we plan to develop our project using the Ruby on Rails framework; and to ensure that iterations of our project remain safe, we plan to use Git as our version control system. We will host our project online using Heroku, and we will likely store our data using the databases on Amazon Web Services.

**Resource Requirements**

Given that our project will be web-based, our resource requirements are not particularly extensive or unusual. Physically speaking, all that will really be required to build this project are our laptops. We will, of course, use the Stanford network to connect to version control, store our photos and comments, and upload our project; however, apart from these three tasks, nearly everything related to our project -- designing, developing, debugging, and testing -- will be done on our personal laptops.

**Potential Approaches**

During the brainstorming process, our group was unsure of whether to cater our project more to personal computers (i.e. desktops/laptops) or to mobile devices (i.e. smartphones/tablets). Even though we ultimately decided to cater our project to personal computers, we spent a fair bit of time debating the merits of other platforms. Because of the increasing ubiquity of mobile devices, one approach we considered involved having people use their phones/tablets to take, upload, and edit photos. With regard to editing, we considered having our project work with mobile devices in such a way that people could use their fingers to “draw” on other people’s pictures, among other things. While this approach would have been manageable, it would have limited our project’s capabilities, as the smaller screens of phones and tablets would have forced us to keep our project’s photo-editing features to a minimum; but because we see photo editing as a cornerstone of our project, limiting it was something we were not willing to do. Personal computers serve as a more versatile and more powerful medium, so we opted instead to focus on developing with the users of desktops/laptops in mind. The desktop/laptop approach allows us to add more photo-editing capabilities to our project and, thus, grant more power to the user; since higher-quality/higher-definition photos can be more easily edited on a full computer (as opposed to a small phone), the changes that people make to pictures can span a broad array of spectra.

**Assessment of Risks**

Based on our previous web development, we understand that unexpected issues may occur between the multiple technologies in use: the web framework, database, and server. One such risk we have dealt with in the past involves Heroku’s database restrictions. On a previous project that involved smartphone photo uploads, we found that iPhones upload photos with the name *image.jpg*. Thus, we needed to rename the photos once they were uploaded; however, Heroku does not allow the renaming of stored images. For this project we can avoid this issue entirely by saving our photos on a remote server hosted by Amazon Web Services.

Another issue that may arise involves database size. Since our web application is geared towards advanced photographers, we anticipate that users will upload high-resolution images. Although we are taking this into account and providing a large enough database, it is possible that the database will become filled if we receive a sudden influx in users. Thus, we will diligently monitor our database space and expand the database as needed.

Finally, since our website involves editing users’ uploaded content, some photographers may feel our site is violating their copyright on the photos. Therefore, we must be careful to write a user agreement stating that other users may edit their photos. This will involve working with the CS 194 teaching staff to ensure our product does not violate the user’s content ownership rights.

**Next Steps**

Now that we have a basic idea for our project, the next step is to get started on the code. To do this we will first need to set up a GitHub repo for our project. We plan to use Git as our main version control system throughout the quarter. Next we will need to create a new Ruby on Rails project as the starting point for our web application. Further down the line we will start creating the schema for our database and figuring out how to organize our user and photo information.

We will also get started on creating the basic design of the web app. This involves mocking up layouts in Photoshop and creating simple CSS versions of them to see which ones work best for our application. We would also like to come up with a name for our project soon so we can start designing a logo for it.

**To infinity and beyond…!**