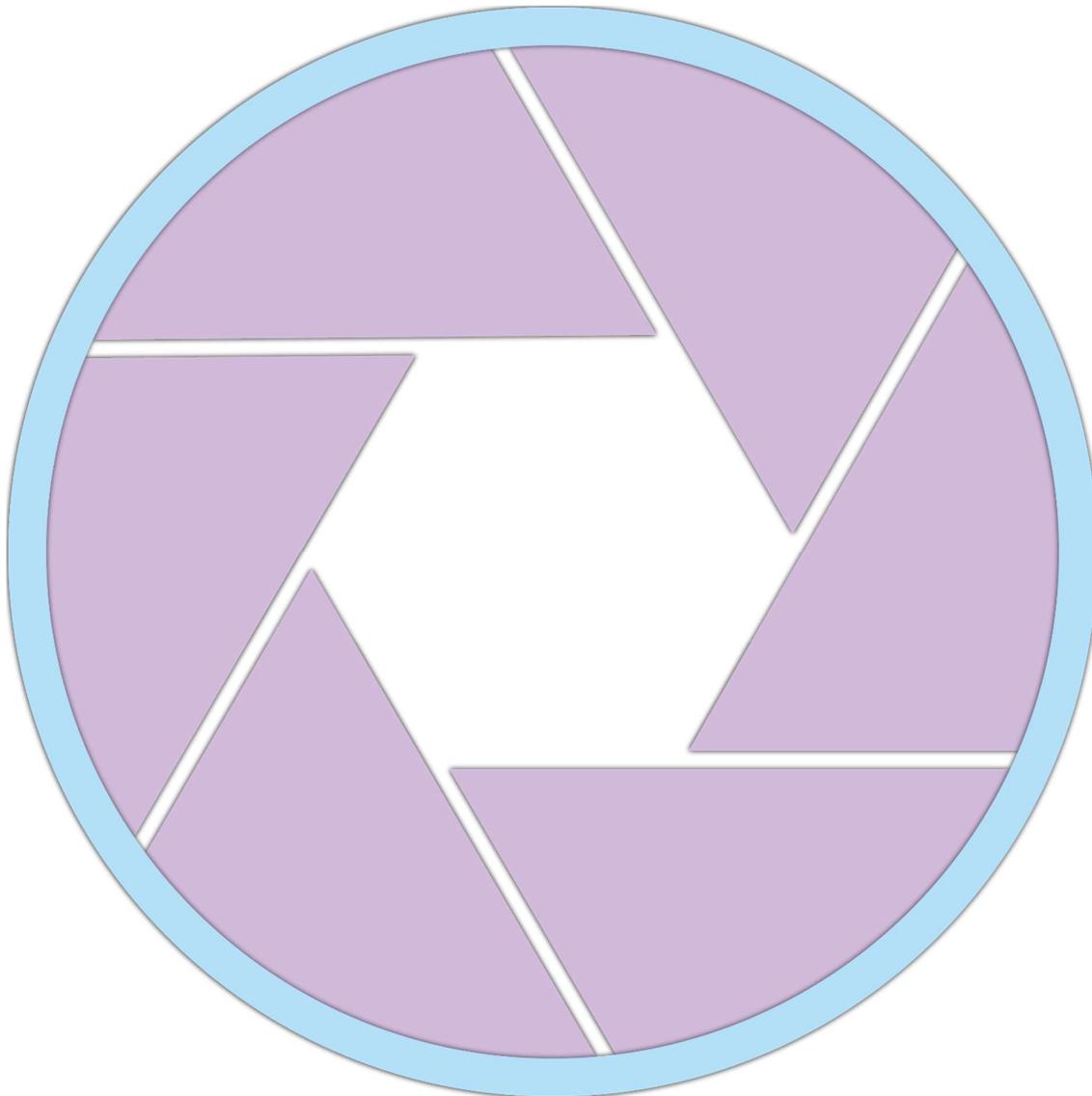

ANNULUS SHARE

The Photography Enthusiasts' Photo Sharing Network



Student: 29628785

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Statement of Intent

I intend to produce an interactive and dynamic website to allow photography enthusiasts/hobbyists to not only share their work but also share HOW they achieved such a photo. This will be done by extracting critical metadata from either JPEG or RAW (CR2, NEF, etc.) then compiling and presenting that information in a streamlined and design-driven fashion.

I intend to produce a competitive product that will provide an alternative to Flickr. I intend for my project to stand out against Flickr by producing a more visually engaging and pleasing design. By carefully following elements and principles of design, as well as extensive testing, I intend to produce a visually superior product while protecting user's data.

As a complement to the website, I intend to produce a video outlining and exploring how to utilise the website functions efficiently. This video will be posted onto a separate page which overall contains information about the website and its specific functions. The video is intended to go into detail about metadata tags and filetypes. This will help other photographers to improve their skills and quality of photos by exposing the benefits of RAW photography and the specific settings that coincide with such photos.

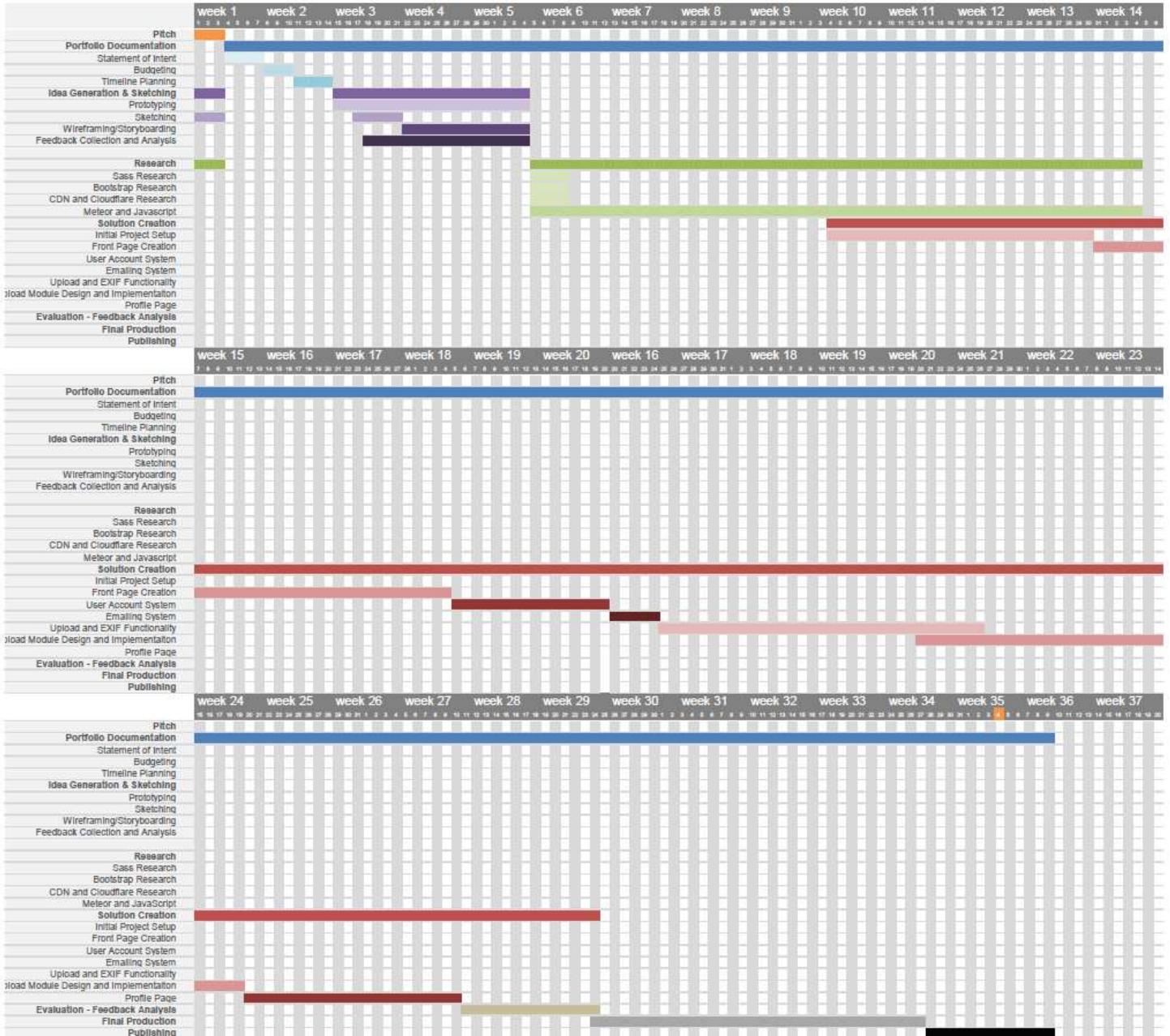
Furthermore, I also intend to produce an Android application for the website so that it can more easily run on smartphone devices without having to rely on the phones built in web browser.

The project is intended to allow users to share photographs taken from cameras ranging from high-end DSLR's to smartphone cameras. Then to display that information in a cohesive and user-friendly manner which will allow people of all skill levels to be able to relate and compare to their own photos.

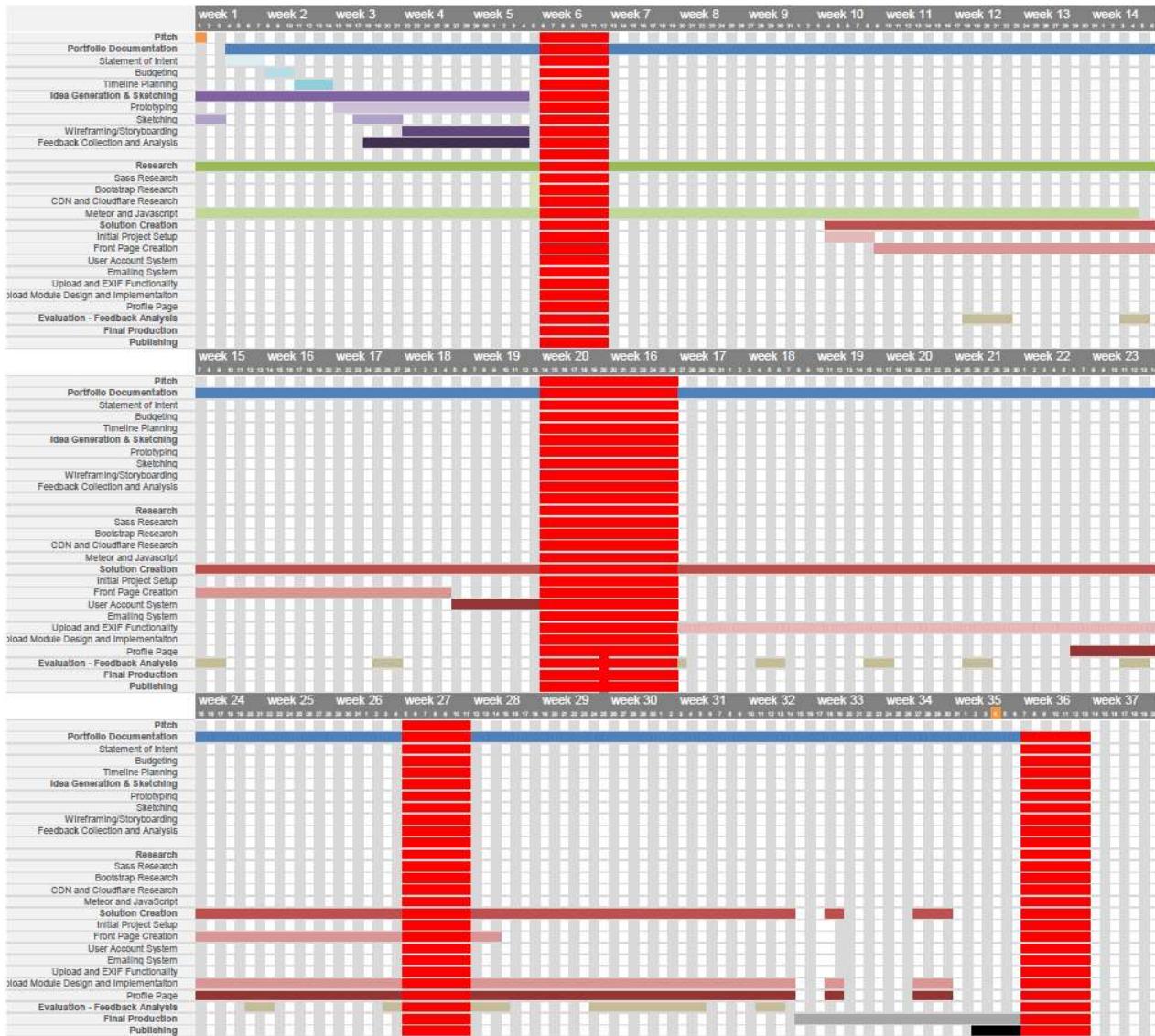
I intend to utilise my skills in front-end web design to achieve this as well as using libraries and frameworks such as Bootstrap and SCSS/SASS to make the CSS and web design element more efficient and quicker to produce with relative speed. Furthermore, back-end technologies such as NGINX, Let's Encrypt TLS, HTTP2, and Cloudflare to produce a modern, secure, and cohesive user-experience which will give the consumer a level of comfort in knowing that their data is handled with care and efficiency. I also intend to use MeteorJS as the underlying platform for my application as it utilises a language that I already know (JavaScript).

I intend to utilise as much feedback as possible from my peers, other photography enthusiasts, and my mentors and teachers. The feedback received will greatly aid the development and production process as it will allow me to produce a website that satisfies a wide range of users. The project is intended to take until the middle of the third term of the school year in 2017. By this time, it is intended that the project will be finalised and completely ready for display.

Proposed Timeline



Actual Timeline



For the actual timeline, I remained on course for most of the project. Unfortunately, I didn't consider the breaks and times I would take to study especially since I wasn't sure of the exam dates. The large red sections reflect 1-2 week breaks that I took during holidays and time when other subjects needed extensive attention for exams.

I was doing much more research than I anticipated especially during production and I found myself asking for feedback and analysis many times at the end of a major production cycle and when substantial features were added. The final production stage involved the production of marketing material as suggested by some students as well as the quick tutorial video hence the larger allocation than planned as I had to record audio, animate After Effects video and edit them altogether.

As a result, the marketing material production took longer than expected therefore the tutorial video had to be left out of the production. This was my only strike of poor time management and it was an aspect of the production that should've been given more attention.

Proposed Budget

Cost Schedule

Good/Service	Unit	Cost (\$AU)
Adobe CC Suite	Month	\$ 15.00
Android Development License	One-Off	\$ 35.00
Desktop Computer	One-Off	\$ 2,200.00
Domain & WHOIS Privacy	Year	\$ 20.00
Internet	Month	\$ 120.00
Keyboard & Mouse	One-Off	\$ 110.00
Laptop Computer	One-Off	\$ 1,980.00
Lynda.com Membership	Month	\$ 25.00
Monitor	One-Off	\$ 180.00
Other Miscellaneous Peripherals	One-Off	\$ 60.00
Virtual Private Server	Month	\$ 10.00

Proposed Budget

Good/Service	No. of Units	Unit	Cost (\$AU)
Adobe CC Suite	11	Month	\$ 165.00
Desktop Computer	1	One-Off	\$ 2,200.00
Domain & WHOIS Privacy	1	Year	\$ 20.00
Internet	11	Month	\$ 1,320.00
Keyboard & Mouse	1	One-Off	\$ 110.00
Laptop Computer	1	One-Off	\$ 1,980.00
Lynda.com Membership	11	Month	\$ 275.00
Monitor	1	One-Off	\$ 180.00
Other Miscellaneous Peripherals	1	One-Off	\$ 60.00
Virtual Private Server	11	Month	\$ 110.00
		Total	\$ 6,420.00

Proposed Budget Evaluation

Overall, the cost schedule and budget is relatively simple and straight forward. To complete this project, I will need essential software such as the Adobe CC Suite, this suite includes software such as Photoshop, which will allow me to produce the images and visual resources for the website. The project also requires an internet connection, computer, computer accessories (such as monitors, keyboards, and mouses). Finally, the hosting and production of the website requires the use of a private server and a domain name with privacy. The cost of the desktop computer and the laptop are a bit high but a modern and powerful computer are necessary to produce high quality video within After Effects and other Adobe CC Suite applications.

Although, it must be mentioned, the assumed human labour costs are free as I am doing all the work for myself. In the multimedia industry, there would be a need to hire web developers, graphics artist, designers, UX testers, and people to provide feedback. These are not considered as I will be utilising the help of peers and teachers which act in voluntary favour and require no payment.

Actual Budget

Good/Service	No. of Units	Unit	Cost (\$AU)
Adobe CC Suite	11	Month	\$ 165.00
Desktop Computer	1	One-Off	\$ 2,200.00
Domain & WHOIS Privacy	1	Year	\$ 38.00
Internet	11	Month	\$ 1,320.00
Keyboard & Mouse	1	One-Off	\$ 110.00
Laptop Computer	1	One-Off	\$ 1,980.00
Lynda.com Membership	2	Month	\$ 50.00
Monitor	1	One-Off	\$ 180.00
Other Miscellaneous Peripherals	1	One-Off	\$ 60.00
Virtual Private Server	11	Month	\$ 110.00
Android Development License	1	One-Off	\$ 35.00
		Total	\$ 6,213.00

Actual Budget Evaluation

I went under the budget dollars totalling the sum to \$ 6,213. This was mainly because the PHP and MySQL course was dropped and I had paid for two months of membership for Lynda.com.

The Adobe CC Suits was paid for in full for the whole 11 months, and an extra month (wasn't in project timeframe). Although, now, high school students do have access to the Adobe CC Suite for free through DEC programs. Furthermore, the Desktop and laptop computer were obtained before the start of the project. It is advised to have a modern computer to be able to build and compile applications on the fly for testing but they aren't strictly necessary to get the work done. Although, for some of the video editing and After Effects work on the promotional video, it is recommended to have a modern and powerful computer to be able to work effectively.

The main cost of the production would be the human resources. A typical web developer in NSW would earn (on average) around \$67,000 a year. (payscale.com, 2017) Although this heavily depends on their skill set, the cost to hire web developers would add a significant increase to the budget of a production in the Multimedia industry. Furthermore, when shooting promotional content, the need for more human resources in terms of helpers as friends were asked to help hold lights, setup equipment and were asked repeatedly for advice and feedback. In the multimedia industry, people would have to be paid for jobs like this although it is hard to tell without having any experience in the industry.

Overall, the actual cost of the production totalled to \$6,213 but it would've costed much more in the multimedia industry if the website were being made by an individual for themselves.

Receipts

<p>Internet Connection (Telstra Broadband). Needed to be able to access the internet and work from home.</p>	<p>Telstra Broadband 1000GB Includes 1000GB BigPond® Broadband, discounted international call rates and Family Calls Benefit</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 60%;">Telstra Broadband 1000GB</td><td style="width: 40%; text-align: right;">\$113.00</td></tr> <tr> <td colspan="2">Services included in your Bundle</td></tr> <tr> <td>• Telephone 02 [REDACTED]</td><td></td></tr> <tr> <td>• BigPond [REDACTED]@bigpond.com Ultimate - Cable</td><td></td></tr> <tr> <td colspan="2">Additional Charges for your Bundle</td></tr> <tr> <td>Call Return</td><td style="text-align: right;">1 Item</td></tr> <tr> <td>BigPond Internet Usage</td><td style="text-align: right;">496,351 MB</td></tr> <tr> <td>Ultimate Speed Boost</td><td style="text-align: right;">\$0.00 \$0.00 \$10.00</td></tr> <tr> <td></td><td style="text-align: right;">\$123.00</td></tr> </table>	Telstra Broadband 1000GB	\$113.00	Services included in your Bundle		• Telephone 02 [REDACTED]		• BigPond [REDACTED]@bigpond.com Ultimate - Cable		Additional Charges for your Bundle		Call Return	1 Item	BigPond Internet Usage	496,351 MB	Ultimate Speed Boost	\$0.00 \$0.00 \$10.00		\$123.00														
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<p>Binarylane Virtual Server Costs. This was needed to be able to host the application somewhere with a stable internet connection.</p>	<p>Customer</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 60%; border: 1px solid black; padding: 5px;"> Name [REDACTED] Email [REDACTED]@gmail.com Location 121. [REDACTED] (Australia) Reference Number acc016769 </td><td style="width: 40%; border: 1px solid black; padding: 5px;"> Date 09 July 2017 Date Due 16 July 2017 Invoice No. 00188701 </td></tr> <tr> <td colspan="2" style="text-align: right; padding-top: 10px;"> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left; width: 60%;">Description</th><th style="text-align: right; width: 40%;">Total</th></tr> </thead> <tbody> <tr> <td>[REDACTED] (07 Jun, 2017 to 02 Jul, 2017 - 584.3 hours) Server Operating System: Ubuntu 16.04 LTS (64bit) 512MB RAM, 10GB Disk, 200GB Transfer</td><td style="text-align: right;">\$4.06</td></tr> <tr> <td>[REDACTED] (22 Jun, 2017 to 07 Jul, 2017 - 359.4 hours) Server Operating System: Ubuntu 16.04 LTS (64bit) 512MB RAM, 10GB Disk, 200GB Transfer</td><td style="text-align: right;">\$2.50</td></tr> <tr> <td colspan="2" style="text-align: right; font-size: small;"> * A negative total indicates an in-store credit to your account. * Early payment discounts are not applied to months utilizing a voucher. </td></tr> <tr> <td style="text-align: right; vertical-align: bottom;"> Sub Total </td><td style="text-align: right; vertical-align: bottom;"> \$6.56 </td></tr> <tr> <td style="text-align: right; vertical-align: bottom;"> GST </td><td style="text-align: right; vertical-align: bottom;"> \$0.60 </td></tr> <tr> <td style="text-align: right; vertical-align: bottom;"> Total Due </td><td style="text-align: right; vertical-align: bottom;"> \$6.56 </td></tr> </tbody> </table> </td></tr> </table>	Name [REDACTED] Email [REDACTED]@gmail.com Location 121. [REDACTED] (Australia) Reference Number acc016769	Date 09 July 2017 Date Due 16 July 2017 Invoice No. 00188701	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left; width: 60%;">Description</th><th style="text-align: right; width: 40%;">Total</th></tr> </thead> <tbody> <tr> <td>[REDACTED] (07 Jun, 2017 to 02 Jul, 2017 - 584.3 hours) Server Operating System: Ubuntu 16.04 LTS (64bit) 512MB RAM, 10GB Disk, 200GB Transfer</td><td style="text-align: right;">\$4.06</td></tr> <tr> <td>[REDACTED] (22 Jun, 2017 to 07 Jul, 2017 - 359.4 hours) Server Operating System: Ubuntu 16.04 LTS (64bit) 512MB RAM, 10GB Disk, 200GB Transfer</td><td style="text-align: right;">\$2.50</td></tr> <tr> <td colspan="2" style="text-align: right; font-size: small;"> * A negative total indicates an in-store credit to your account. * Early payment discounts are not applied to months utilizing a voucher. </td></tr> <tr> <td style="text-align: right; vertical-align: bottom;"> Sub Total </td><td style="text-align: right; vertical-align: bottom;"> \$6.56 </td></tr> <tr> <td style="text-align: right; vertical-align: bottom;"> GST </td><td style="text-align: right; vertical-align: bottom;"> \$0.60 </td></tr> <tr> <td style="text-align: right; vertical-align: bottom;"> Total Due </td><td style="text-align: right; vertical-align: bottom;"> \$6.56 </td></tr> </tbody> </table>		Description	Total	[REDACTED] (07 Jun, 2017 to 02 Jul, 2017 - 584.3 hours) Server Operating System: Ubuntu 16.04 LTS (64bit) 512MB RAM, 10GB Disk, 200GB Transfer	\$4.06	[REDACTED] (22 Jun, 2017 to 07 Jul, 2017 - 359.4 hours) Server Operating System: Ubuntu 16.04 LTS (64bit) 512MB RAM, 10GB Disk, 200GB Transfer	\$2.50	* A negative total indicates an in-store credit to your account. * Early payment discounts are not applied to months utilizing a voucher.		Sub Total	\$6.56	GST	\$0.60	Total Due	\$6.56														
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<p>Google play Developer Subscriptions (For the Android App). This subscription is needed to be able to publish applications to the app store.</p>	<p>+ GOOGLE *Google Play g.co/helppayCA ##0717 25.00 US DOLLAR</p> <p style="text-align: right;">Business expenses ▾ -\$32.01 </p>																																

Success Criteria

Technical Criteria

Fast Load Time and Content Delivery

1. Use of Cloudflare content delivery network to provide fast and stable connections to users around the world.
2. Use well optimized and HTTP2 ready backend technologies such as NGINX to host web content.
3. Basic modern day front end web design features such as HTML5, CSS3, and JavaScript for intuitive and aesthetically pleasing designs as well as uniformity amongst devices/browsers.
4. Use of frameworks and libraries such as jQuery, Bootstrap, MeteorJS for efficient and more organised production development.

Information Safety and Security

1. Use of Letsencrypt free TLS security as well as handling all requests with HTTP2/TLS encrypted connections.
2. Use password hashing/salting to ensure passwords are stored in plaintext on the database.
3. Conform to proven and trusted password schemes and basic cybersecurity do's and don'ts.

Cross-Compatibility

1. Use of grid layouts and @media queries in CSS3 to conform website design to device width and other obscure viewing situations.
2. Use of standardised technologies such as HTML5 and CSS3 as well as Bootstrap and jQuery for support on most modern browsers and almost all modern devices.
3. Allow uploading .JPG filetypes containing EXIF metadata tags that can be extracted for display.

Design Criteria

User-Experience

1. Follow simple user-experience guidelines for easy to use web navigation.
2. Collect feedback to improve usability and overall look of website.
3. Use Bootstrap practices and built-in components for efficient user-oriented design.

Aesthetic - Design Elements/Principles

1. Extensive use of Elements and Principles of design.
2. Use of modern CSS3 animations to produce engaging web content.
3. Use of elements to produce visually appealing web design and content to improve aesthetics as well as user experience.
4. Use of principles of design to communicate certain feelings/ideas/notions to the viewer to maintain a certain reaction and level of attention.
5. Use of Google's Material Design principles and practices.

Research

Image Filetypes

Filetype	Name	Pros	Cons	Justification
	JPG/JPEG (Joint Photographic Experts Group)	<ul style="list-style-type: none"> • Compatible in most OS (Mac, PC, Linux) • 24-bit colour, with up to 16 million colours 	<ul style="list-style-type: none"> • After compression, loss of quality. • Cannot be animated • Does not support transparency 	Best used for photography and images that need to work on older and across a large range of devices.
	GIF (Graphics Interchange Format)	<ul style="list-style-type: none"> • Supports transparency • Can be animated • Relatively small file-size • Can be lossless 	<ul style="list-style-type: none"> • Only supports 256 colors • Dated file format and larger filesize than PNG 	Best use for animated images on the web, not better than PNG for static graphics.
	BMP (Windows Bitmap)	<ul style="list-style-type: none"> • Works well with most Windows programs and OS 	<ul style="list-style-type: none"> • Large filesizes • Does not scale or compress well • No advantage over other types 	Best use for Windows wallpapers, no real use cases for web and not supported across many devices.
	PNG (Portable Network Graphics)	<ul style="list-style-type: none"> • Lossless, so it does not lose quality and detail after image compression • Supports transparency • Small file sizes 	<ul style="list-style-type: none"> • Not good for large images • Cannot be animated 	This is one of the best filetypes for small graphics on the web. It is small/light and supports transparency. Perfect for small icons/logos.
	TIFF/TIF (Tagged Image File Format)	<ul style="list-style-type: none"> • Flexible format, supports several types of compression • High quality image format 	<ul style="list-style-type: none"> • Large file size 	Great for high quality images but result in long transfer times, huge disk space consumption, and slow loading time.

	SVG (Scalable Vector Graphics)	<ul style="list-style-type: none"> • Infinitely scalable without quality loss • Relatively small file size • Supports transparency 	<ul style="list-style-type: none"> • Limited to shapes • Images can get large file sizes with shadows • Some older browsers don't render them correctly 	SVG's are perfect for logos and larger icons. They are especially useful in scenarios where the graphic is to be viewed on a myriad of device sizes.
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Selection and Justification

I decided that the website will consist of SVG's, JPEGS, and PNG's. I chose to utilise SVG's to display and produce the logo of the site to be able to resize it and reuse it without quality loss. All uploaded images will only be accepted in the JPEG format, the reason so is because of its balance between quality, size and its compatibility amongst many devices and technologies. Furthermore, I will use PNG's for smaller icons and graphics as they support transparency and have a low file-size.

I will not be using TIFF as there isn't a need for extreme quality at the cost of having the servers eat up all their disk space and people's internet bandwidth. Also, I will not be using BMP as there is no appealing qualities about it that JPEG already has. Finally, I won't be using any GIF's as I have no need for animated graphics and that PNG's are usually smaller than GIF's for icon usage.

Combined Technologies Platforms

PHP with MySQL Essential Training from Lynda.com

This 14hr 32min course goes through the fundamental skills and knowledge required to develop PHP for the web with the inclusion of tying together the use of MySQL databases. (Lynda.com, 2016) This course provides the knowledge and training to allow me to develop and design the core mechanics of the backend of the website. Such training will enable me to produce dynamic and changing content and allow me to utilise the multimedia uploaded by users to produce collages and upload feeds for other users to interact with. Core mechanics will include account management, upload and download management, EXIF tag reading from RAW and compressed photographs/images, password salting/hashing, MySQL integration, commenting and image posting system, and other forms including contact forms.

However, with further research I found that MeteorJS was the better solution as I would have to learn PHP and MySQL while I already knew a good amount of JavaScript (which is what Meteor is built on). Therefore, I switched to MeteorJS for the project and is what the project is built off now because of the outstanding benefits compared to PHP (Further discussion below).

Meteor JS

Meteor is a full-stack JavaScript framework that allows you to develop web applications with JavaScript. It is based on NodeJS, a trusted JavaScript library for web applications. (Meteor Development Group Inc., 2016) Meteor makes it much easier for me to develop the API's and specific functions of the website such as posting functionality, user accounts, password hashing and salting, storage of hashed passwords, automated emailing services, scalability, and overall agility of the application to be able to run on any device with a browser. (Meteor Development Group Inc., 2016) The foundation of my project is built upon this framework and I believe it is the best framework to use as it is easy, new and constantly being improved, and it integrates and works well with many other libraries.



Selection and Justification

Meteor is a better platform for me to use than PHP and MySQL as Meteor allows me to build the application on the Client and Server side simultaneously with baked in integration with MongoDB databases. With all this in mind, I chose Meteor because it allows me to focus more on the design and development of the site but still give me full control of the platform. At the time of writing, there are no stable solutions that compete with MeteorJS. I chose to not use PHP and MySQL to build my platform because they are relatively outdated technologies and MeteorJS simply provides more features and flexibility.

DDP and Reactivity (Further Justification)

One of Meteor's biggest strengths is the implementation of reactivity, this is where there is no need to refresh the page to receive new content from the database/server.

Traditional websites are built off the GET/PUSH protocol to communicate with the server. Where a new connection is opened every time, the client wants to receive or send information to/from the server. On the other hand, Meteor utilises a DDP socket based communication protocol. (Meteor Development Group Inc., 2016) This is where a connection is established and left open to the server during initial connection. Therefore, as information on the server updates, it will automatically push it to the client and the client will display it without having to refresh the page.

This is one of the major reasons that I chose to learn and develop my application on the MeteorJS platform. It will produce a more coherent user experience and make the website more unique.

EXIF Metadata

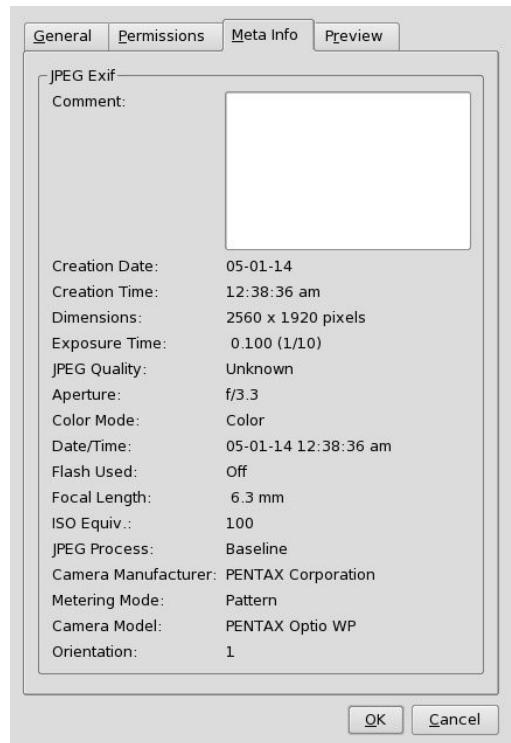
EXIF's primary feature is its ability to record camera information in an image file at the point of capture. Some common data fields include the camera make and model, its serial number, the date and time of image capture, the shutter speed, the aperture, the lens used and the ISO speed setting. Exif metadata often includes other technical details, such as white balance and distance to the subject.

(photometadata.org, 2017)

The following capture displays just some of the many metadata types that can be extracted from EXIF metadata tags. These tags are what the underlying function of my network will run with. (Wikipedia, EXIF, 2016)

The use of these tags will allow me to display settings that will be formatted and displayed to the user in a cohesive and aesthetically pleasing manner. EXIF tags can be read from almost all filetypes. If these tags exist within the file, they will be able to be extracted. The extraction of metadata is available through a JavaScript library for Meteor simple known as exif-meteor. I can simply feed the program an image input and get out the EXIF information that I can send to a database and connect to a user's post.

Selection and Justification



EXIF metadata is standardized and already popular within the multimedia industry. This makes it a perfect candidate to achieve exactly what I envisioned. There are no drawbacks to using EXIF metadata as it is supported by almost all photographic devices and it has support within MeteorJS (through a package) so that I can efficiently extract such metadata from uploaded images.

The Utilisation of other metadata standards would prove redundant as EXIF metadata already contains information about the aspects of photography that I am looking for, notably, Make, Model, Shutter Speed, ISO, Aperture, etc.

Mailing API's

Self-Hosted Mail API (Postfix)

There is a possibility of self-hosting the mail API on the server itself. This can be done using a Linux program named "Postfix". Postfix is a free and open-source mail transfer agent (MTA) that routes and delivers electronic mail. (Venema, 2017) Setting up and maintaining a self-hosted mailing API will take up considerable amounts of time, eating away at the limited production time. The feature set is relatively small unless extensive amounts of time are dedicated to extending its features.



SendGrid Mail API

SendGrid is a Denver, Colorado-based customer communication platform for transactional and marketing email. (SendGrid , 2017) SendGrid is an emailing API that will allow me to send emails to users with relative ease. It integrates well with the MeteorJS platform and is vital for the use of sending recovery emails and verification emails for signup. It is scalable and easy to use within Meteor as it ties in with the emailing module of MeteorJS. It is also free to use and will significantly reduce the production time compared to a self-hosted API.



Selection and Justification

SendGrid will provide a feature-rich and sustainable mailing API for me that will require much less setup and time than the self-hosted mailing API. Although I would have more flexibility and choice when using Postfix. The benefits of SendGrid outweigh the benefits of Postfix by a great margin, this is also since SendGrid also have a strong reputation for reliable mailing API's. As a result, I will be going with SendGrid rather than a self-hosted solution as the setup will not take up unnecessary time, and it will integrate well with MeteorJS.

Backend Technologies

NGINX and HTTP2

NGINX [engine x] is an HTTP and reverse proxy server, a mail proxy server, and a generic TCP/UDP proxy server. (NGINX, 2016) NGINX is the web server that will be hosting the website I produce, this will be coupled with Let's Encrypt which provides signed SSL certificates for free (Let's Encrypt, 2016), the HTTP2 standard will also be implemented as it will improve load times through improvements to HTTP headers and the methods of loading CSS, HTML, JS, and image files. These improvements will produce a better user-experience and will improve the interactions with multimedia amongst the users.



Apache and HTTP2

Apache HTTP Server, colloquially called Apache, is free and open-source cross-platform web server software, released under the terms of Apache License 2.0. (Apache Software Foundation, 2016) Apache and NGINX share many similarities and their differences especially in performance boil down to trivial, unnoticeable. Apache also can provide HTTP2 web hosting as well as integration with Let's Encrypt. Apache has also been around since 1996 (Apache Software Foundation, 2016) so it is a well matured piece of software with a stable codebase and development team.



Selection and Justification

The differences within both Apache and NGINX are merely trivial and I have chosen to go with NGINX instead since I have experience with providing web services using NGINX. I did this to reduce production time and allocate my time to other part of the website. The end user will not notice the difference between the two as they run the simple task of running the back-end. There exist no drawbacks to either web server software. I also decided to utilise the Let's Encrypt software to be able to obtain an SSL certificate to ensure trusted secure and encrypted web traffic between the user and the server. This ensures that some of the technical and privacy focused criteria are achieved.

Development Environment

Frameworks and Libraries

These resources provide information on the use of the libraries that I will be using for my project. These libraries are especially useful as they will allow me to write HTML, CSS, and JavaScript with ease and efficiency. This is a large project and I can foresee the need for pages of code. However, the extensive nature of the code as well as repetitiveness can be deprecated using these libraries. Bootstrap specifically will allow me to produce well designed and cross-browser/cross-device compatible content. (Bootstrap.com, 2016) Using the included grid system, I can layout content that can scale with devices. Bootstrap also include many pre-defined elements which will significantly improve the aesthetic look of the website and produce a more efficient and faster loading webpage. These libraries tie into MeteorJS as they are all based on JavaScript applications. (JQuery, 2016) (SASS, 2016) Therefore, the easy integration of these libraries meant they were a perfect resource to utilise for the project. Especially jQuery, SCSS, and Bootstrap. These specific 3 make the production process of the project more streamlined and stable.



Gitlab with GitKraken Source Control

GitLab is a version control system. It allows me to upload and keep track of changes I've made to my project every time I upload changes to the site. (Gitlab, 2017) I can go to the project homepage and look through the code changes and file changes I've made to allow me to diagnose and resolve problems. It also allows me to download a specific version of the application in the state that it was when I uploaded it. This service is extremely helpful in the production of such an application as it allows me to keep track of what I'm doing and go back to any changes I've made. Gitkraken is the software that I use to upload and structure the content that is uploaded to GitLab. (Gitkraken, 2017) Gitkraken allows me to stage changes for upload and add comments and descriptions that detail what had been added in that specific iteration of project. I use GitLab over other source control services as it is free and has a large quantity of control over its main competitor "GitHub" with the addition of free private repositories. (Gitlab, 2017) GitLab and Gitkraken both incorporate modern UI's which makes them more pleasant to use as well as being available on almost all devices. The use of version control software reduces time spent on diagnosis and bug fixing as it keeps a clear log of the changes that were made every update. Thus, helping to efficiently utilise the limited resource of time.



Atom.io Integrated Development Environment (IDE)



Atom.io can is a text editor on steroids as it provides countless features for developers to make web development and programming easier. (Atom.io, 2017) By

having a simple file explorer and automatic code completion with the ability to split screen two different files I can increase my productivity immensely by minimising the time it takes to look through files and switch between application windows when using other text editors and IDEs. Programs like Adobe Dreamweaver also exists but I personally find the UI clunky and gross. While Atom.io is also free and open-source while other IDEs like Dreamweaver are not, it seemed like the best choice for me.

```
profilePage.html — C:\Users\Anam\Documents\annulus-share — Atom
File Edit View Selection Find Packages Help

annulus-share
  - git
  annulusShareApp
    - meteor
    - client
    - imports
      - api
      - startup
    - ui
      - components
        - exifshowcase
        - exiftesting
          - exiftest1
          - exiftest2
        - exiftest3
        - exiftest4
        - exiftest5
        - exiftest6
        - exiftest7
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        - exiftest9
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        - exiftest37
        - exiftest38
        - exiftest39
        - exiftest40
      - pages
      - stylesheets
    - node_modules
    - private
    - public
    - server
      - gitignore
      - package.json
    - build
    - annulusShareMJS-old.7z
    - LICENSE
    - LICENSE-md
    - README-md
  - annulusShareApp/imports/ui/components/profilePage/profilePage.html 1:1
```

```
profilePage.js
1 // Start code for profilepage components
2 // The already built fixed header will be used for the profile page.
3 // However, it is integrated with the profileSide.
4
5
6 <template name="profileSide">
7   </> Navigation bar fixed !
8   <nav id="fixedNavBarProfile" class="fixedNavBarProfile navbar navbar-light bg-white">
9     <div style="row vertical-align:navbar-brand align-items:center">
10       <a role="button" class="btn btn-secondary" href="/Home/>
11       <a role="button" class="btn btn-secondary target=_blank" href="https://www.google.com">
12       <a role="button" class="btn btn-secondary" href="#about">
13       {{#if currentUser}}
14         <a role="button" class="btn btn-secondary" href="#" data-
15           {{else}}
16             <a role="button" class="btn btn-secondary" href="#" data-
17           {{/if}}
18       </div>
19       <div class="float-right">
20         <button class="navbar-toggler float-right hidden-md-up" type="button" data-
21           <span class="navbar-toggler-icon float-right"></span>
22       </div>
23     </div>
24   </nav>
25   <div class="row justify-content-center">
26     <div class="col-12 collapse collapseMenu hidden-md-up" id="nav">
27       <div class="text-center">
28         <div class="btn-group-vertical btn-block" role="group">
29           <a role="button" class="btn btn-block btn-secondary" href="#" data-
30           <a role="button" class="btn btn-block btn-secondary" href="#" data-
31           {{#if currentUser}}
32             <a role="button" class="btn btn-block col-xs-12 btn-
33           {{else}}
34             <a role="button" class="btn btn-block col-xs-12 btn-
35           {{/if}}
36         </div>
37       </div>
38     </div>
39   </div>
40 </div>
```

```
profilePage.html
1 <!-- Start code for profilepage components
2   The already built fixed header will be used for the profile page.
3   However, it is integrated with the profileSide.
4 -->
5 <template name="profileSide">
6   </> Navigation bar fixed !
7   <nav id="fixedNavBarProfile" class="fixedNavBarProfile navbar navbar-light bg-white">
8     <div style="row vertical-align:navbar-brand align-items:center">
9       <a role="button" class="btn btn-secondary" href="/Home/>
10       <a role="button" class="btn btn-secondary target=_blank" href="https://www.google.com">
11       <a role="button" class="btn btn-secondary" href="#about">
12       <a role="button" class="btn btn-secondary" href="#" data-toggle="moda
13       </div>
14       <div class="float-right">
15         <button class="navbar-toggler float-right hidden-md-up" type="button" data-
16           <span class="navbar-toggler-icon float-right"></span>
17       </div>
18       <div class="float-right">
19         <button class="navbar-toggler float-right hidden-md-up" type="button" data-
20           <span class="navbar-toggler-icon float-right"></span>
21         </button>
22       </div>
23     </div>
24   </nav>
25   <div class="row justify-content-center">
26     <div class="col-12 collapse collapseMenu hidden-md-up" id="nav">
27       <div class="text-center">
28         <div class="btn-group-vertical btn-block" role="group">
29           <a role="button" class="btn btn-block btn-secondary" href="#" data-
30           <a role="button" class="btn btn-block btn-secondary" href="#" data-
31           {{#if currentUser}}
32             <a role="button" class="btn btn-block col-xs-12 btn-
33           {{else}}
34             <a role="button" class="btn btn-block col-xs-12 btn-
35           {{/if}}
36         </div>
37       </div>
38     </div>
39   </div>
40 </div>
```

```
loginSignupUI.js
1 //Imports and dependencies
2 import './loginSignupUI.html';
3 //Variables
4 var currentUsername = null;
5 var changePasswordActivate = false;
6
7 //Events for resetPassword
8 Template.resettingPassword.events({
9   //Reset password using token email
10   'submit #resetPasswordForm' (event) {
11     event.preventDefault();
12     var resetPassword = event.target.resetPassword.value;
13     var resetPasswordConf = event.target.resetPasswordConf.value;
14     if (resetPassword === resetPasswordConf) {
15       Accounts.resetPassword(Session.get('resetPasswordToken'), r
16         function (error) {
17           if (error) {
18             var message = "There was an error resetting the passw
19             $('#resetPasswordFailMessage').html(message);
20             $('#resetPasswordFailMessage').collapse('show');
21             window.setTimeout(function(){
22               $('#resetPasswordFailMessage').collapse('hide');
23             }, 2000);
24           } else {
25             Router.go('/');
26             Session.set('resetPasswordToken', null);
27           }
28         }
29     } else {
30       var message = "Passwords must match!";
31       $('#resetPasswordFailMessage').html(message);
32       $('#resetPasswordFailMessage').collapse('show');
33       window.setTimeout(function(){
34         $('#resetPasswordFailMessage').collapse('hide');
35       }, 2000);
36     }
37   },
38   {{# loginSignupUI}}
39   </template>
40 }}
```

Above is an example of the typical development environment when developing the application. Atom allows me to use 3 (or more) files at a time open meaning I can make quick changes and compare code across files and libraries as I produce the application, this overall made the development process easier and more efficient.

Design Elements and Principles

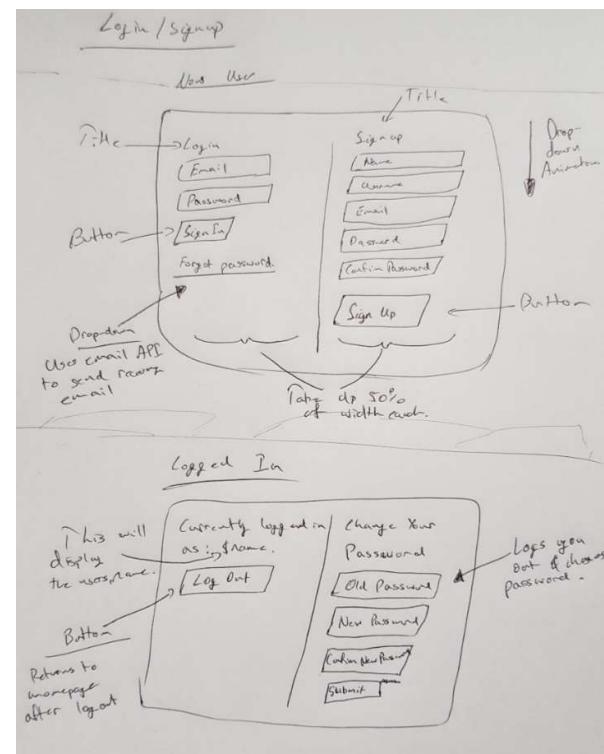
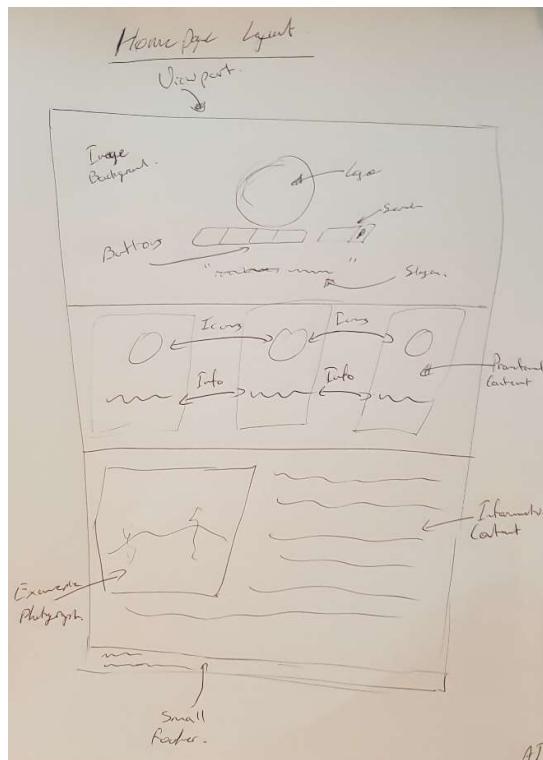
This simple webpage provides insights in the use of design elements and principles from many ranging webpages, this is an important resource as it allows me to reference other successful webpages and draw web design inspiration from other well-designed websites. (Canva.com, 2016)

Idea Generation/Sketching

Eager to begin working on the production. I had to lay out my rough ideas on how things would look and work on the website. I did this by drawing rough wireframes of the design of certain aspects of the website, as well drawing of flowchart diagrams that depict how a certain API or system should communicate with the server/user. Most of the idea generation started from the project pitch, where the main goals of the production were laid out. The project pitch contained the following ideas:

- Annulus Share is a web application that aims to bridge the gap between streamline photo sharing apps like Instagram and photography enthusiasts.
- There is a problem in the photo sharing social media networks. Photos are uploaded to sharing networks but photography enthusiasts would like to know more about the photo.
- The application is aimed at aspiring, novice, and professional photographers willing to share their work and contribute to the community where individuals can learn and flourish.
- This is where Annulus Share comes in, it allows users to share photos with the mass amount of metadata as well as RAW image quality. This enables the sharing of the use of camera properties in specific photos such as aperture values, ISO, location, shutter speed, camera make/model, etc. This allows the users to learn from other photographers.
- Use of HTML5, CSS3 and JavaScript for front-end design.
- Use of Android studio to produce android application.

With these goals in mind, the following very rough sketches were drawn that outlined some of the core components and systems of the website.



Record of Production

Website Homepage

Initial Site Designs

The homepage of the website is of utmost importance in the webpage design. It sets a precedent for the user for what to expect in terms of layout and design. The goal for the webpage is to provide a visually appealing but functional homepage. It must scale well as per the success criteria.

The sketch and wireframe showcase the initial idea that I came up with for the homepage. The screenshots below are a depiction of a very early prototype incorporating the design that was envisioned.

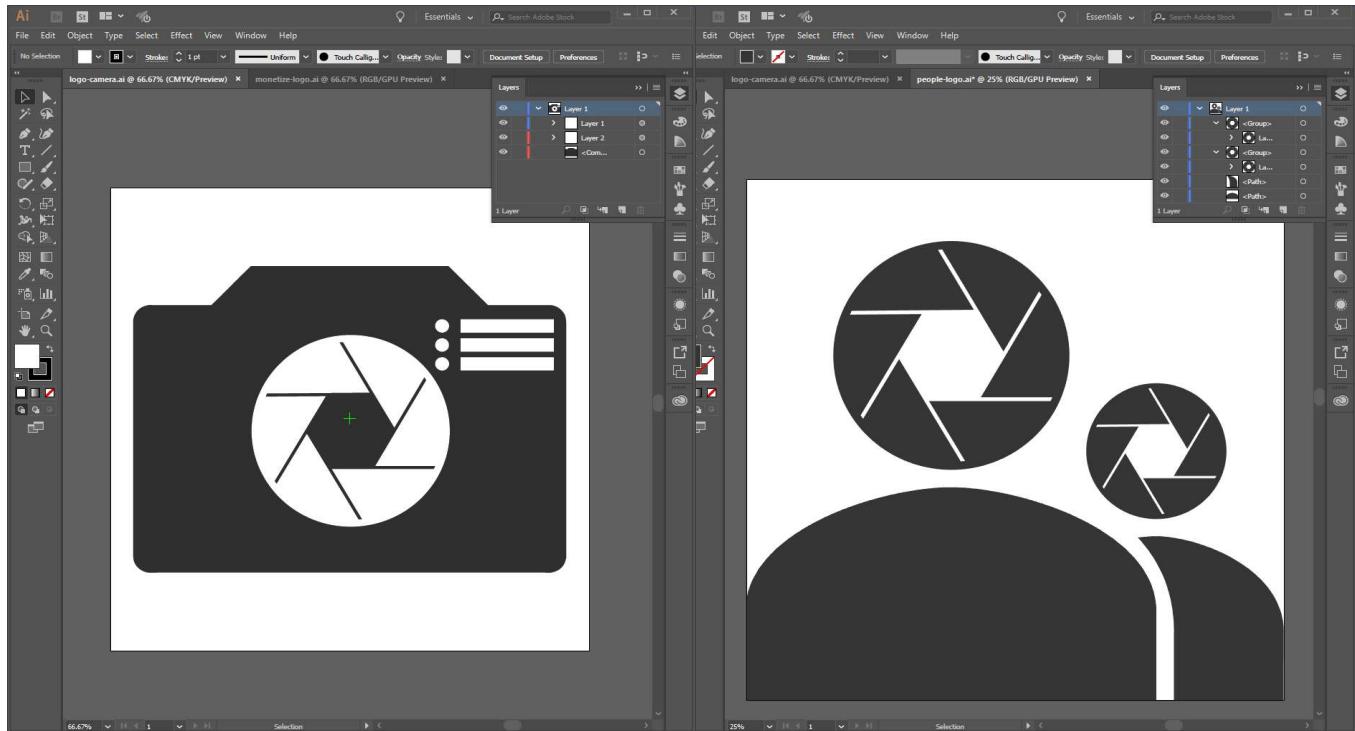


However, I wasn't satisfied with the logo for the website especially since it wasn't something I made from scratch, rather, it was a free to use (copyright free) image that I had slightly edited. The logo changed after this point but I will discuss this further in the logo production section.

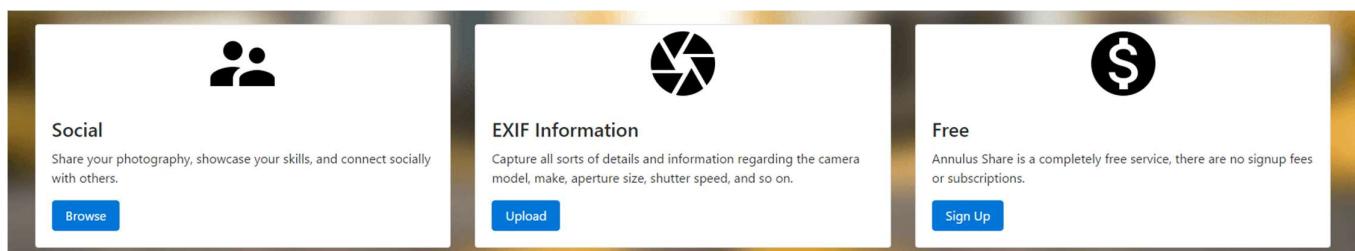
I added three blocks of information that provided basic advertising and an overview of the product. Being that it was social, free, and provided specific metadata analyses under the EXIF standard. Each block also has a button at the end of each one to allow the user to quickly navigate to core function of the platform. At this point, I was also developing the login/signup functions simultaneously although this will be discussed in detail in the Login/Signup section.

Producing the Three Promotional Icons

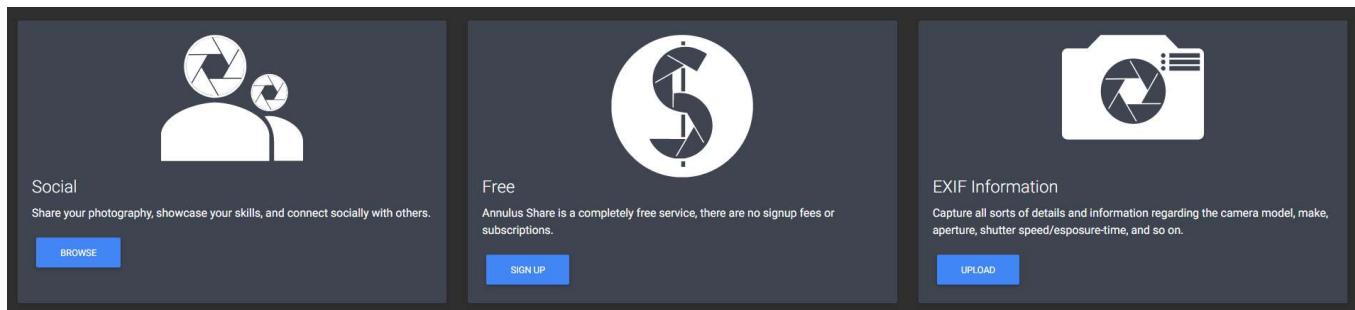
The initial iterations of the front-page design included three promotional icons that maintained symbolic reference to the promotional content. However, these icons were pulled from the Google Material design icons website (<https://material.io/icons/>). As a result, to maintain a more original design I decided to design and produce logos that were inspired by the material design icons. Again, I used Adobe Illustrator CC to produce 3 vector image logos that could be used and scaled without quality loss.



Before:



After:



I utilized the new icons for the promotional card content to give the icons a more unique look to the website. I consulted several students as well my Multimedia teacher to get some feedback on the card promotional icons.

Old Icons Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none"> • Minimalistic and simple design. • Easy to implement. • Cross compatibility across browsers. • Use of Material design principals. 	<ul style="list-style-type: none"> • Unoriginal design. • Although free to use, taken from Google. • Lacked relevancy to the web-page design. • Felt out of place. 	The old icons were a clean and quick design implementation but lacked originality and relevancy to the website.

New Icons Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none"> • Original content. • Produced in the SVG file format. • Vectored image could be scaled infinitely without quality loss. • Fit the design language of the webpage. • Visually appealing. 	<ul style="list-style-type: none"> • Took substantially longer time to produce. • Larger and more complex icons made the image file larger. • Longer load times 	Although the newer icons required a longer period to produce and implement, they complemented the design well and produced a more complete feel.

Justification:

Personally, the older icons needed to be changed to give the website a more original look. I also didn't like the fact that I didn't produce those icons on my own therefore I felt the need to add my own twist to the design. I feel that the newer icons are much more fitting to the design of the site especially since I utilised the new logo design and incorporate it into the icon design. I am overall happy with the outcome of the icon design and I am confident it is ready for public showcase.

Second Thoughts on Landing Page

A strong inspiration stemmed from www.jntnh.se made by a web developer names Jonathan Alpmyr, he incorporates a full screen background for his front page. This provides a striking and surprising effect on the viewer which produces a strong interest and intrigue to the rest of the site. I was convinced by this design to attempt something similar. Although this set me back longer than I anticipated to spend on the homepage, I was grateful that I did since I produced a more stunning front-page.



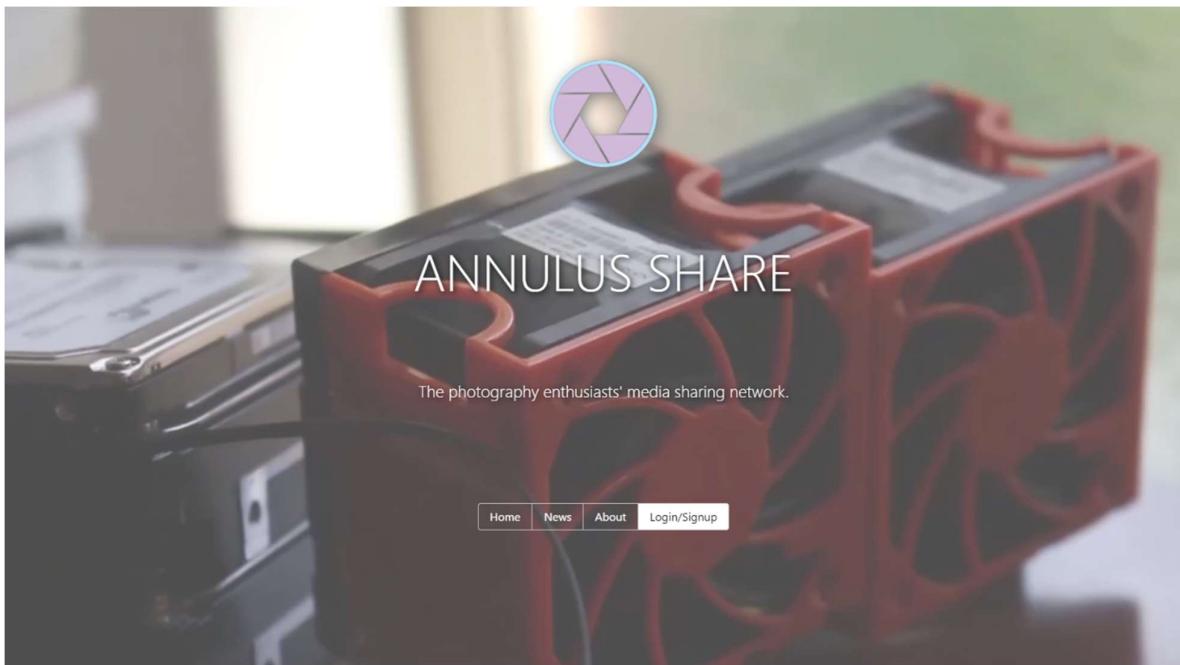
With this inspiration in mind, I continued to alter the design of the site by capturing some quick video and editing it to be able to be used in the web. At first, I tried to include this full-width video under the logo and navigation as I was reluctant to remove the work I had already done. However, it simply did not flow well with the rest of the page and this was reiterated from students through feedback. Struggling to come to a solution that worked well, I gained the courage to change the header and remove the previous work I had done.

A screenshot of the Annulus Share website. The top section features a light blue and purple gradient background with a circular logo containing a camera aperture. Below the logo is a navigation bar with links for "Home", "News", "About", and "Account Settings". The main title "ANNULUS SHARE" is displayed in large, bold, black letters, with the subtitle "The photography enthusiasts' media sharing network." underneath. The bottom section has a dark background with three white rectangular cards. The first card on the left is titled "Social" with a user icon, describing the feature to share photography and connect socially. It includes a "Browse" button. The middle card is titled "EXIF Information" with a camera icon, describing the feature to capture camera details. It includes an "Upload" button. The third card on the right is titled "Free" with a dollar sign icon, describing the feature of being a completely free service. It includes a "Sign Up" button.

After removing the old gradient background header and moving the header elements within the full-width video, the following was achieved.

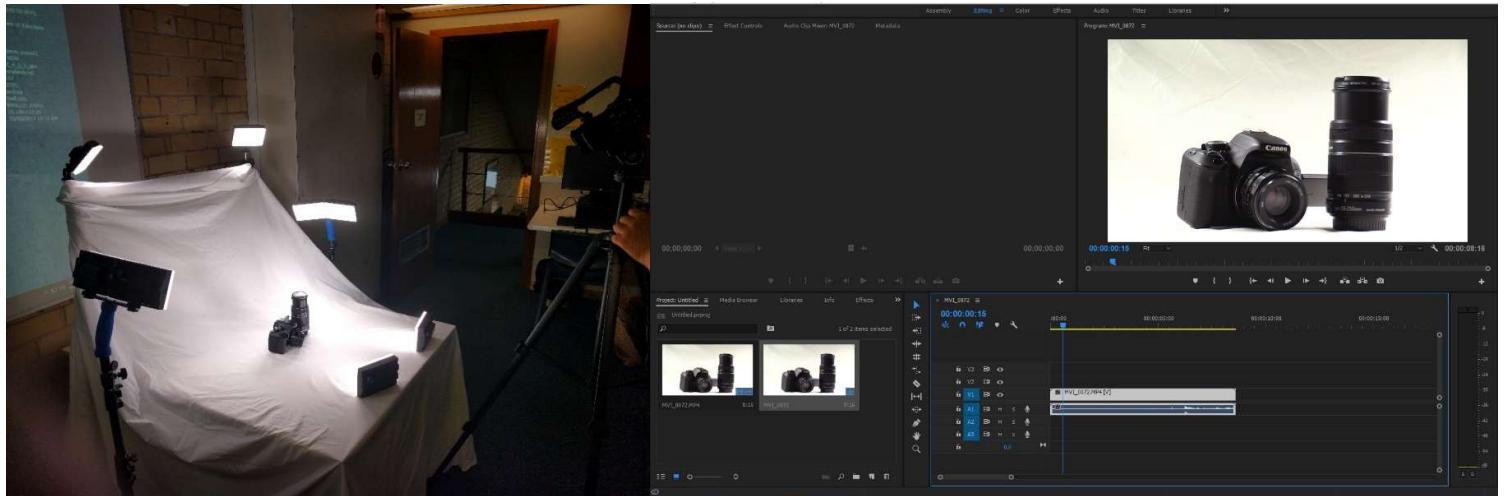


However, I still wasn't satisfied, through the inspiration of the webpage mentioned previously, and the aim to provide an aesthetically pleasing design (as outlined in the success criteria), I enjoyed the look and feel of a full-screen video background. This brought elements of the modern web that I had never worked with before. Using HTML5 video and tricks with CSS to allow the video to play automatically, without sound and have the logo and navigation layered on top. This was achieved with CSS tags "position: absolute" and other positioning values such as "margin" and "padding" with an extensive amount of "div" tags to allow all the information to structure itself accordingly. Consequently, the full-screen video was finally achieved by changing the width and height of the video element to 100% and changing the positioning of the video element to absolute with a Z-index of -1000 to let it be layered under the rest of the elements on the page also allowing it to cover the whole div size without changing the aspect ratio of the video on different devices (enabling use on all screen sizes). These series of modifications yielded the following:

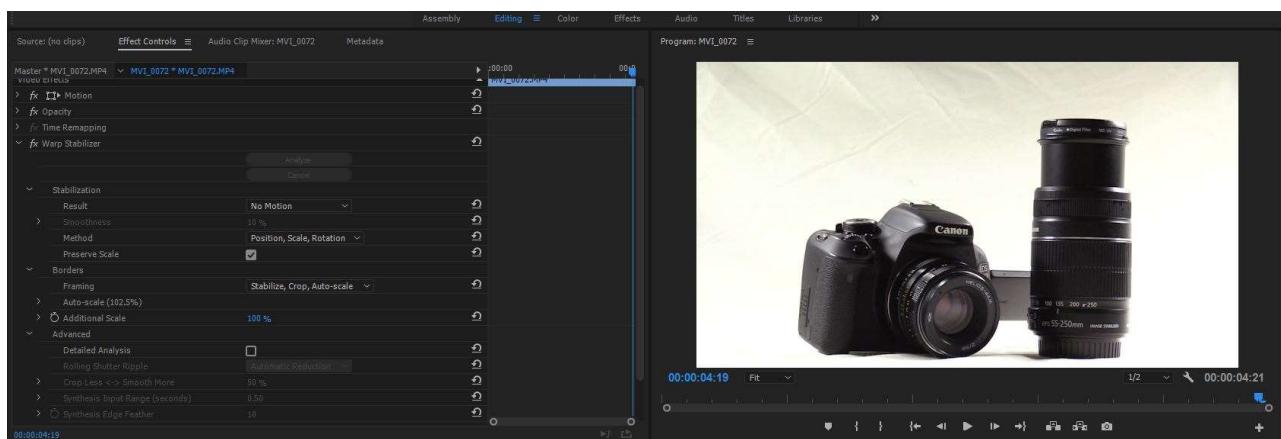


This design produced a lot of positive feedback, my peers asserted that the design was "perfect" although my teacher, Mr. Jones did point out a good flaw in the design, this was that the video background had "nothing to do with the website" which was true. The video was of two computer fans sitting on my desk with some hard drives next to them. This didn't fit the purpose of the website. Therefore, I decided to use our school A/V equipment to take a small video shot of a DSLR on a flat white background.

I used a Canon XA30 with a tripod and eight LED lights (school provided equipment) to illuminate the white background. The subject was a Canon 600D with a lens next to it. The shot was a simple static shot with a change in the camera focus to produce a changing depth of field effect. I then imported this shot into Adobe Premier Pro CC to apply some editing techniques.



I cropped the shot, shortened it and duplicated it with a reverse effect so that it looked like the same shot was going on forever without a jittering movement when it repeated. However, it wasn't perfect yet. There were small movements when we were recording even though we used a tripod, this was because the focus ring was being operated during recording. To fix this, I added a warp stabiliser effect to the footage producing a "buttery smooth" (as one student put it) video.



I finally decided the new video was adequate to replace the old video on the site. After making minor changes and exporting the video into the recommended video formats for the web (Mozilla Developer Network, 2017) WEBM, OGV, MP4, and MOV. This allowed the video to be played on all devices ranging from smartphones, desktop computers, and tablets running both iOS or Android. Any modern web browser can run the video on the browser.



Old Header Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none"> Visually appealing full width gradient background. Clean flow of webpage. 	<ul style="list-style-type: none"> Outdated design principals. Could be more engaging. Boring and dull front page. 	The initial front-page production was adequate for my envisioned design, but after production, I was no longer satisfied with the product especially after the lack of positive feedback.

New Header Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none"> Engaging and striking full-screen video. Professionally produced background video using adequate lighting and a relevant subject. 	<ul style="list-style-type: none"> Large filesize compared to CSS gradient. Longer load times. Jittery animation due to HTML repaints. 	The newer header production produced a very striking and visually appealing design to make the front-page stand out. However, the implications of the jittery motion caused much larger problems than anticipated.

The final two elements of the page were the footer and a small showcase of the metadata analysis. These two were very simple to implement and yielded no problems in the production. I simply created more div tags with different background colours and an image for the EXIF showcase with the actual EXIF metadata of that image. I used a Bootstrap modal for the Show Metadata button that has a smooth animation while revealing the EXIF information for that image. The peers and teachers seemed to all agree that the homepage was "good" and I got no extra feedback or criticisms that needed to be addressed.



What is Annulus Share?

Annulus Share is a platform that enables photography beginners, enthusiasts, and professionals to explore photography, learn from others, and share their work. Every photo contains metadata that is shared amongst users and is automatically extracted from each uploaded image. We give users the freedom to share their work as well as their methods and techniques.



Social

Share your photography, showcase your skills, and connect socially with others.

[Browse](#)



EXIF Information

Capture all sorts of details and information regarding the camera model, make, aperture size, shutter speed, and so on.

[Upload](#)



Free

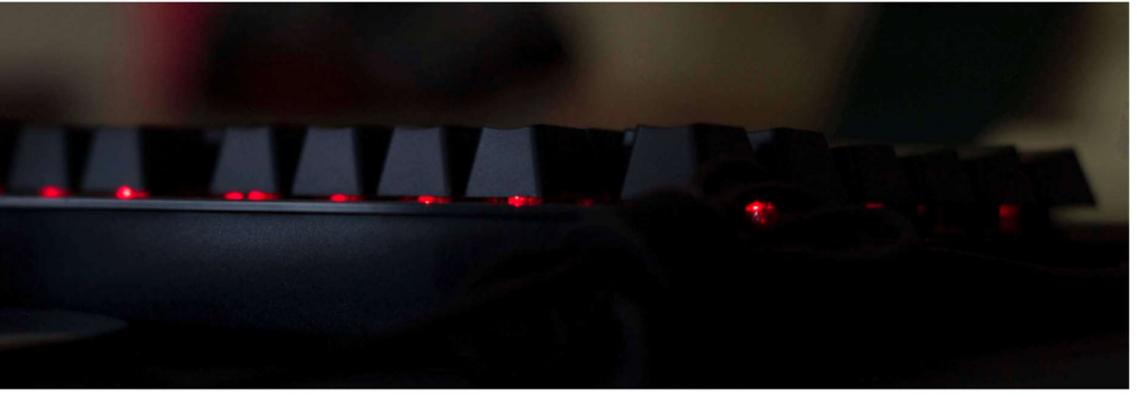
Annulus Share is a completely free service, there are no signup fees or subscriptions.

[Sign Up](#)

EXIF Showcase

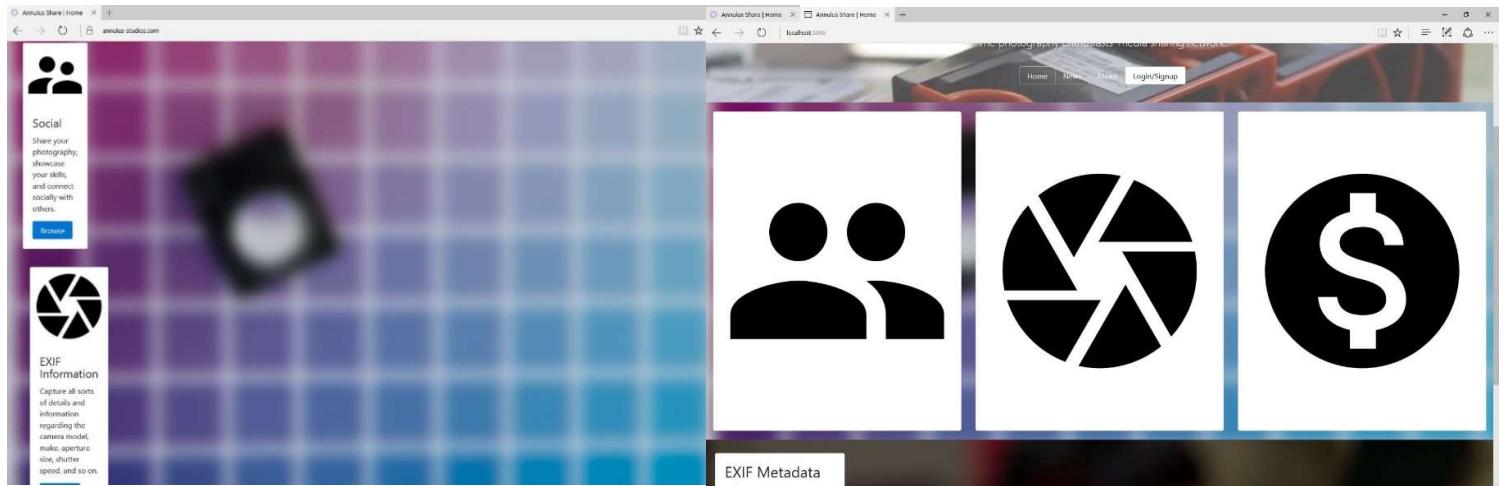
[Show Metadata](#)

Make: Canon
Model: EOS 600D
Artist: Ali Hamieh
Copyright: alihamieh008@gmail.com
Lens Model: EF50mm f/1.8 II
F-Stop: 2.5
ISO: 200
Exposure Time: 0.01(s)

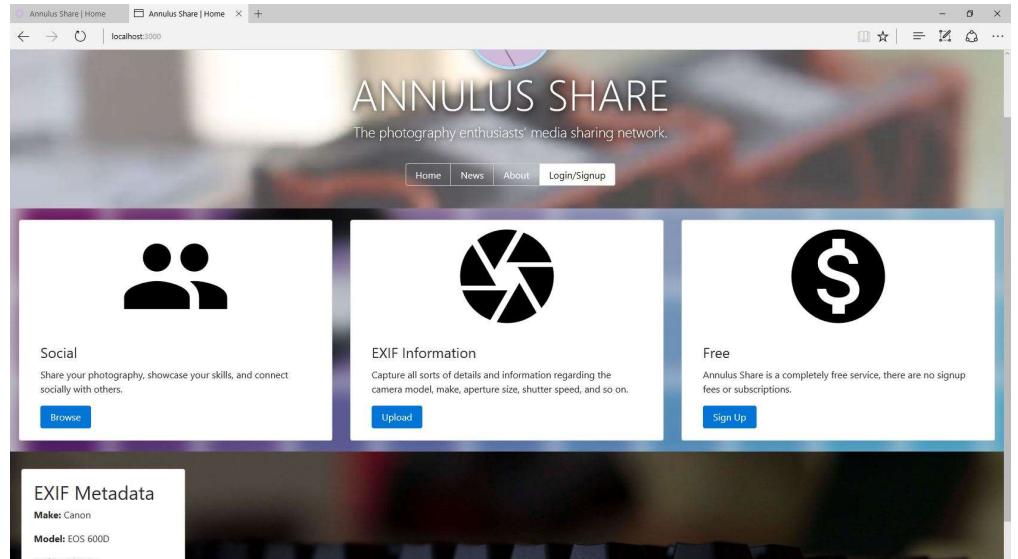


A Problem with Microsoft Edge Browser

A problem arose during testing of the application. One of the key success criteria of the application include the cross-compatibility of the product. It is paramount that I ensure that the application is accessible and usable from all devices, web-browsers and screen sizes. The advertisements cards just didn't seem to render properly in Edge. The issue stumped my peers and researching online yielded no solutions. This was probably because I am using an alpha development version of Bootstrap which there exists little troubleshooting information on. To try and diagnose this problem. I tried to reproduce the advertising cards from scratch in a clean project. I could get them to render sensibly with the exclusion of the oversized images (which was an easy fix anyway).

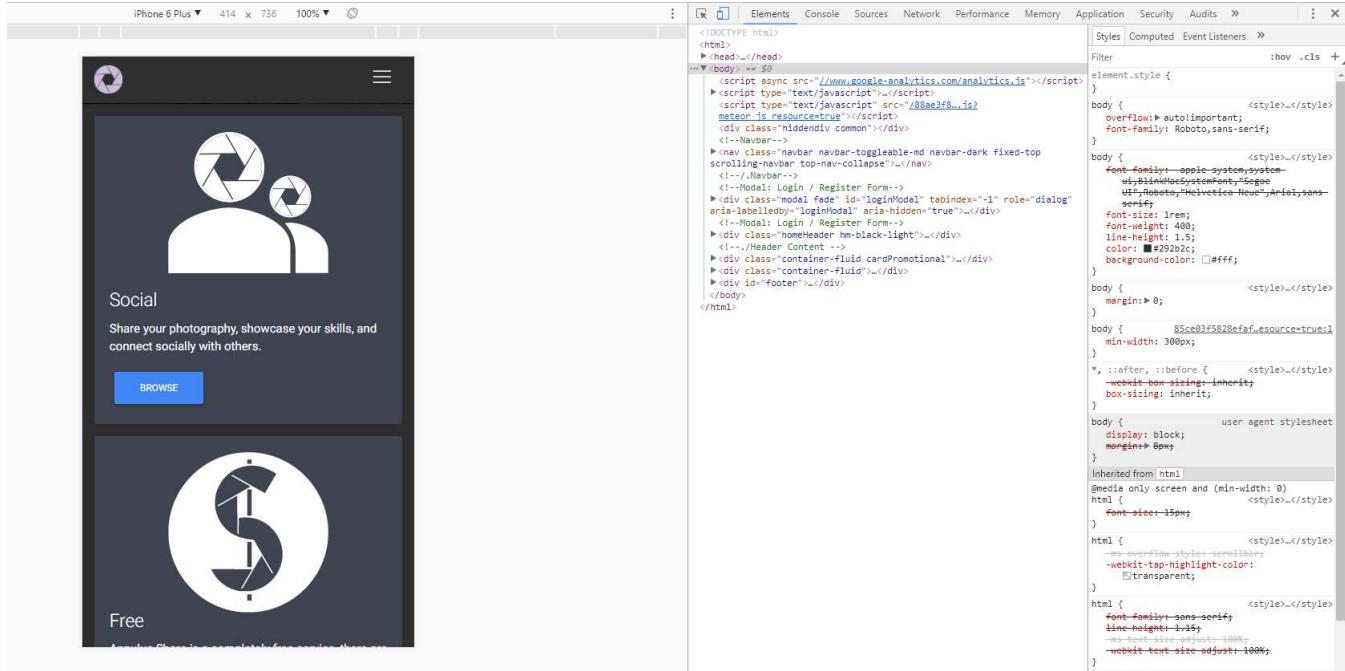


Although still broken, this was a strong step forward in fixing this problem. The problem seemed to have stemmed from inefficient use of dividers and column sizes in Bootstrap. The fix came from resizing and changing which cards behaved in which way by altering the structure of the column tags and changing the position in where the row attribute was declared in the HTML. By declaring the row class in the beginning of the card group and using col instead of a defined col-4 I could get the cards to behave as planned on all browsers. I then fixed the oversized images and integrated the other information in the cards. I was happy with the result and after further testing with multiple browsers and tools, I concluded that the homepage was of adequate production to move onto the profile page.

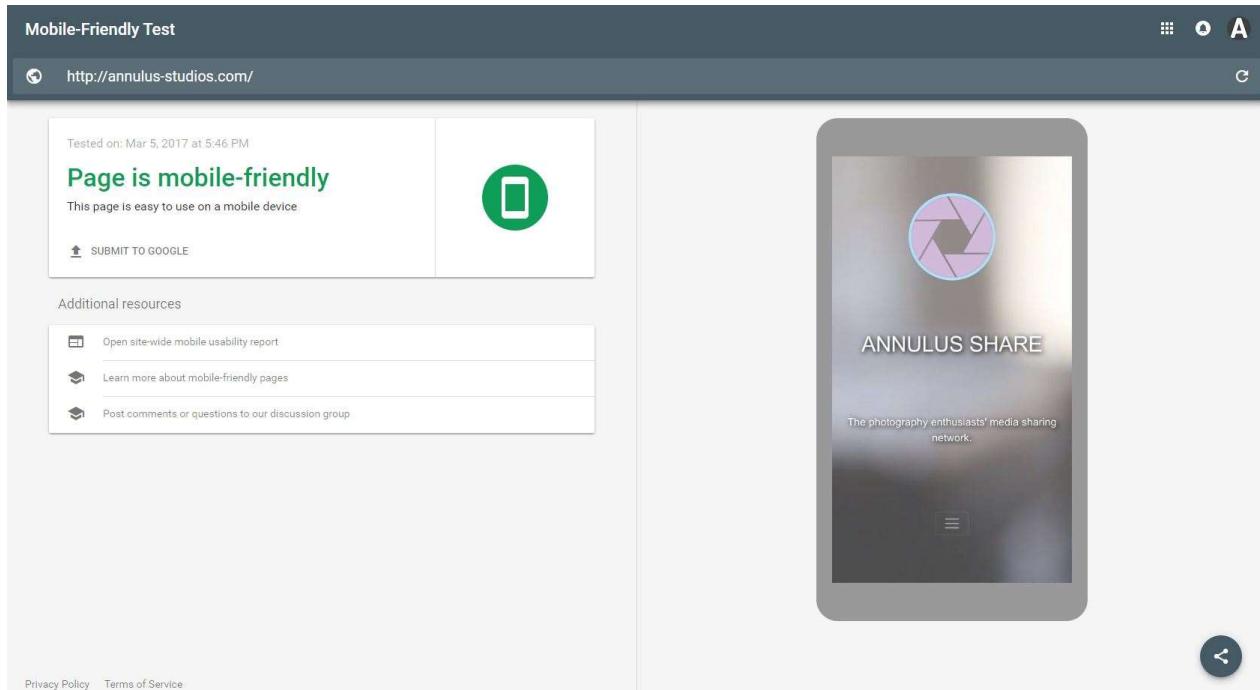


Testing Mobile Compatibility

As per the technical criteria for the project, the website must be cross-compatible amongst devices of different widths and heights. To test for this, I used Google Chrome's developer tools. Specifically, the option to be able to emulate the width and height of different mobile and tablet devices. I also utilised Google's mobile friendly test checking website, this fetches the website and automatically tries to display it using the rendering engine that's used in the Android operating system.



The screenshot shows the Google Chrome Developer Tools with the mobile emulation set to an iPhone 6 Plus (414 x 736 pixels, 100% scale). The left pane displays a dark-themed mobile website for "ANNULUS SHARE". The main content area features two large circular icons: one with a camera lens and another with a stylized letter "S". Below these are sections labeled "Social" and "Free". The "Social" section includes the text "Share your photography, showcase your skills, and connect socially with others." and a blue "BROWSE" button. The "Free" section has a "Annulus Share" link. The right pane shows the browser's developer console with the "Styles" tab selected, displaying a large amount of CSS code for the page, including rules for elements like `.body`, `#html`, and `#body`.

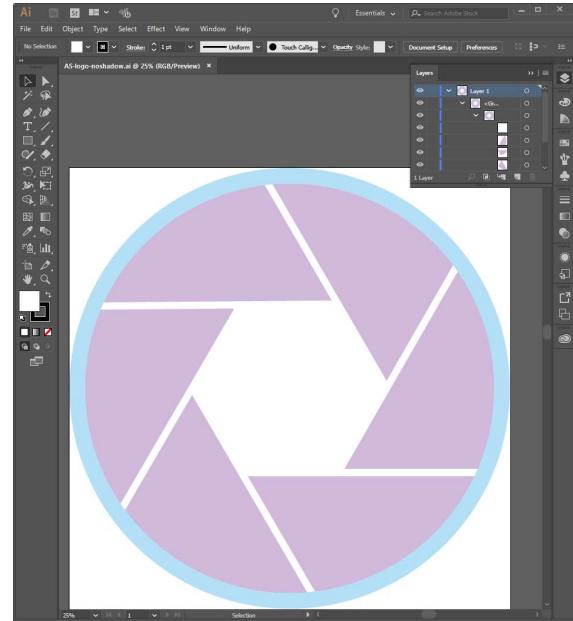


The screenshot shows the Google Mobile-Friendly Test tool. At the top, it says "Mobile-Friendly Test" and shows the URL "http://annulus-studios.com/". Below this, a green box indicates the test was "Tested on: Mar 5, 2017 at 5:46 PM" and "Page is mobile-friendly". It states "This page is easy to use on a mobile device" and includes a "SUBMIT TO GOOGLE" button. A "Green bar" icon is shown next to this text. On the left, there's a "Additional resources" section with links to "Open site-wide mobile usability report", "Learn more about mobile-friendly pages", and "Post comments or questions to our discussion group". On the right, a preview window shows a blurred version of the ANNULUS SHARE mobile site, which has a dark background with a camera icon and the text "ANNULUS SHARE". At the bottom, there are links for "Privacy Policy" and "Terms of Service".

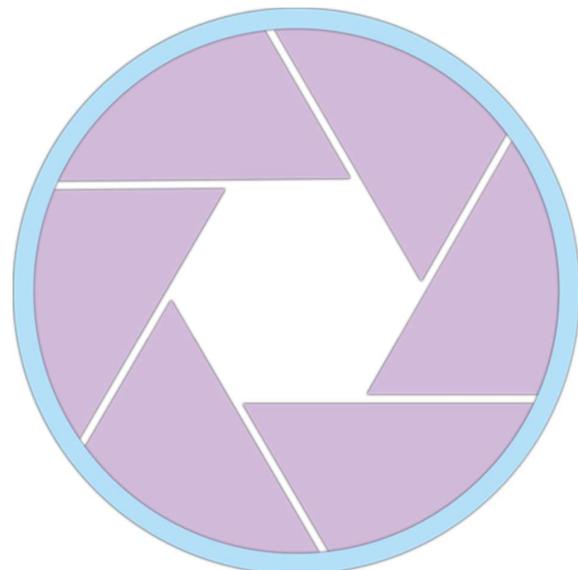
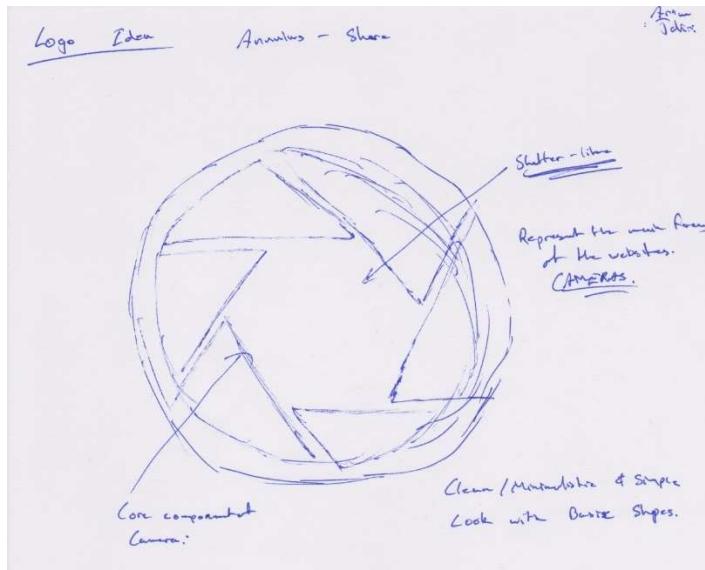
Logo Creation

I drew a rough sketch for a logo that I thought would represent the brand and be more visually appealing. The rough drawing is a depiction of a camera aperture, hence its connection to the core focus of the website (a platform for photographers). I used Adobe Illustrator CC to construct the shapes needed. The logo was then exported as an SVG Vector Image to allow me to reuse it and scale it how I like without a loss in quality.

Old Logo vs. Production of New Logo



The finished product yielded a result of the following logo, which I was very pleased with. Feedback from peers all concluded that the logo was a perfect fit for the site and that it had a strong visual appeal while representing what the website is about. Thus, I continued to develop the homepage per the wireframe plans with the inclusion of the new logo.



Evaluation/Justification of new Logo

Old Logo Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none">• Quick to produce and implement.• Relatively clean looking design.• Basic symbolism of main concepts of the website.	<ul style="list-style-type: none">• Free to use but not designed and created by me.• Lacked originality.• Did not fit the feel of the website.• PNG	The old logo was adequate for the design and production but I simply wasn't satisfied with the lack of originality and the lack of scalability introduced by not using an SVG.

New Logo Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none">• Fresh and clean design.• More appropriate for the website.• Vector file format, infinitely scalable for use in large or small displays.• Maintains the feel and flow of the website.	<ul style="list-style-type: none">• Considerably longer time than the old logo.	The move to the new logo was a success, with the only drawback being the longer time for production.

Justification:

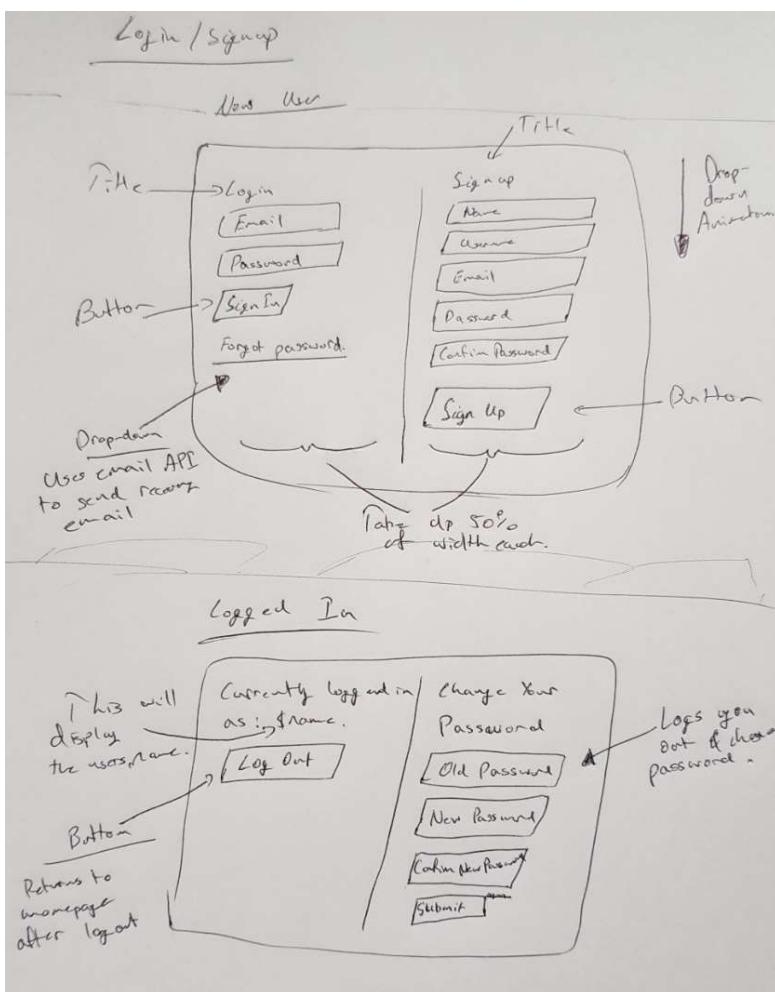
Overall, I am pleased with the new logo and through further feedback and analysis, my peers and multimedia teacher felt that the new logo was an overall improvement over the older one. One of the main reasons for producing the new logo was to be able to have a scalable vector image that could then be used for the mobile app and splash screens. The production of logos and graphics are always preferred to be in a vector format, the Multimedia industry values such filetypes as it allows designers to produce a logo once and reuse it in many areas without having to redo work.

User Accounts, Login/Signup

Introduction to Password Security

The user accounts were the lifeblood of the application. Everything from posts to images to EXIF information had to be tied to a user account. Meteor makes this aspect of web application relatively easy by providing developers with a library named "accounts-ui" and "accounts-password". Meteor takes care of the several security concerns when it comes to storing passwords for users. Hashing, salting, and iterations are built into the Meteor library "accounts-password". Basically, in-case of an attack, the perpetrator wouldn't be able to steal the passwords and login to accounts. This is because the passwords aren't stored in plaintext rather they are stored as hashes which turns your password into a jumble of text using mathematical algorithms. This hash happens every time a user logs in therefore, the hashes are compared on the database and the login is allowed. Thus, the attacker would have to reverse the hash which can take hundreds or thousands of years on the fastest supercomputers depending on the strength of the original password. Although not directly related to multimedia, these sorts of concerns have plagued the multimedia industry with the hacking of large companies.

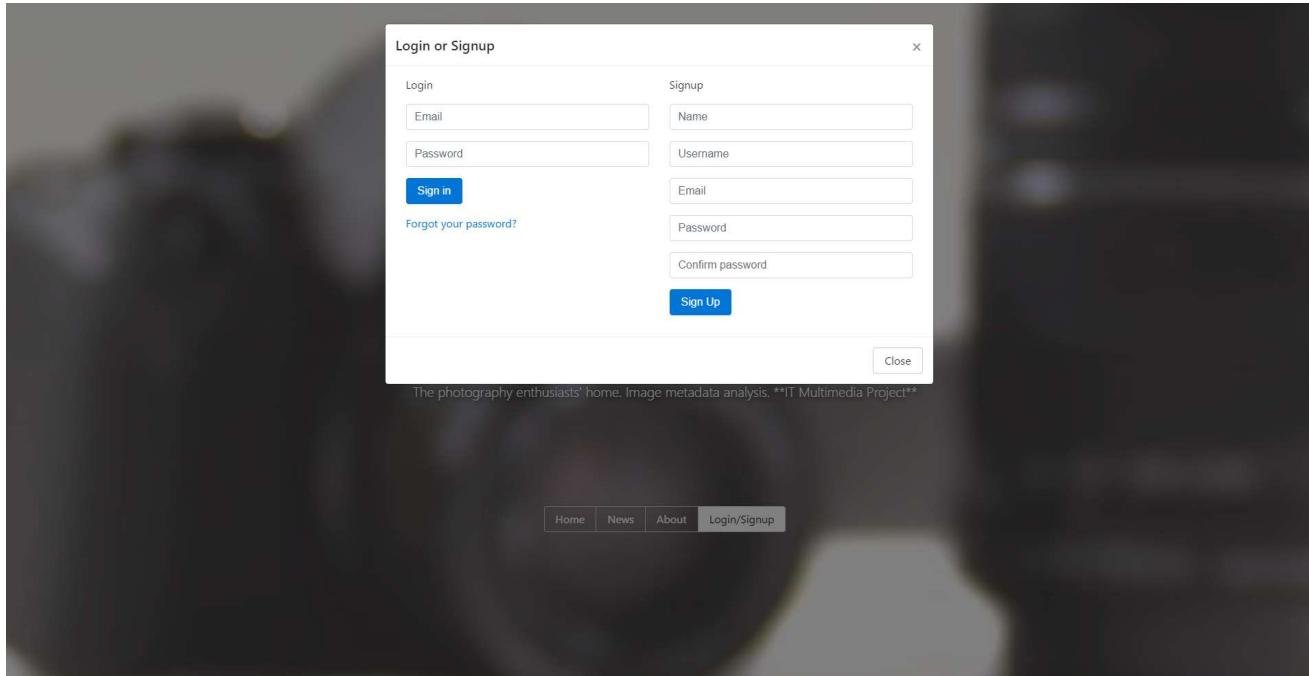
Producing the Front-end



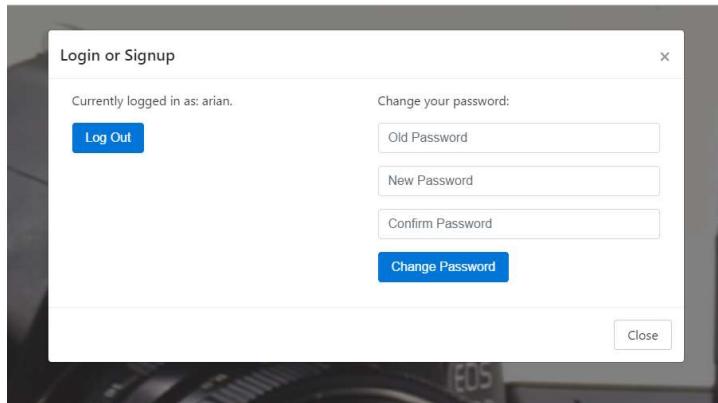
Once the backend was taken care of, it was time to design and implement an interface for the user to interact with to make the login/signup process easy. The initial plans received good feedback from my multimedia teacher and there wasn't anything that needed to be changed. The UI was relatively simple and easy to use. The development went smoothly with no major problems in the production until the form validation had to be implemented. (More on this later) The following plans were a good visual aid for the front-end design. I utilised Bootstrap 4 form elements and the modal dropdown animations.

The modal dropdown produced a streamlined look for the design which integrates well with the rest of the application. A couple small changes were made to the final production model such as the "X" icon to close the modal including the close button itself, as well as a more distinct title. These small changes made it easier for users to navigate the modal and get rid of it with ease. The logged in version of the UI is very similar and the already mentioned changes were added to that version of the UI too. The UI was tied in with the Meteor backend to display information such as the name of the user. Small improvements like this give the UI a polished feel.

Logging in or Signing up:



Already logged in as User:



User Feedback and Interaction with Form Elements

The largest issue with the UI was that there was no form validation at all, therefore the user received no feedback from the application when they did something wrong like not entering their email or not confirming their password properly. This greatly affects user experience and this was clear from feedback from peers that I told to sign up for testing. People said that "I didn't know when I entered the wrong password. The pager just seemed like it froze". The form validation and user input checking took me a painful couple of weeks to perfect. Here is an example of the code-base for the form validation:

```
1 //Imports and dependencies
2 import "./loginSignupUI.html";
3 //Variables
4 var currentUsername = null;
5 var changePasswordActivate = false;
6
7 //Events for resetPassword
8 Template.resettingPassword.events({
9   //Reset password using token email
10  'submit #resetPasswordForm' (event) {
11    event.preventDefault();
12    var resetPassword = event.target.resetPassword.value;
13    var resetPasswordConf = event.target.resetPasswordConf.value;
14    if (resetPassword === resetPasswordConf) {
15      Accounts.resetPassword(Session.get('resetPasswordToken'), resetPassword,
16        function (error) {
17          if (error) {
18            var message = "There was an error resetting the password: <strong>" + error.reason + "</strong>";
19            $('#resetPasswordFailMessage').html(message);
20            $('#resetPasswordFailMessage').collapse('show');
21            window.setTimeout(function(){
22              $('#resetPasswordFailMessage').collapse('hide');
23            }, 2000);
24          } else {
25            Router.go('/');
26            Session.set("resetPasswordToken", null);
27          }
28        }
29      }
30    } else {
31      var message = "Passwords must match!";
32      $('#resetPasswordFailMessage').html(message);
33      $('#resetPasswordFailMessage').collapse('show');
34      window.setTimeout(function(){
35        $('#resetPasswordFailMessage').collapse('hide');
36      }, 2000);
37    }
38  },
39 });
40
41 //Events
42 Template.loginSignupUI.events({
43   //Close modal
44   'click .closeLogin'(event){
45     //Close Login
46     $('#loginModal').modal('hide');
47   },
48   //Logout
49   'click .logout'(event{
50     event.preventDefault();
51     Meteor.logout();
52   },
53   //Login functionality
54   'submit #loginForm' (event) {
55     event.preventDefault();
56     var loginUser = event.target.loginEmail.value;
57     var loginPassword = event.target.loginPassword.value;
58     //Callback error and catch information to give user feedback on fail.
59     Meteor.loginWithPassword(loginUser, loginPassword, function(error) {
60       if (Meteor.user()) {
61         $('#loginEmailText').removeClass('has-danger');
62         $('#loginPasswordText').removeClass('has-danger');
63         $('#loginFailMessage').collapse('hide');
64       } else {
65         var message = "There was an error logging in: <strong>" + error.reason + "</strong>";
66         $('#loginFailMessage').html(message);
67         $('#loginEmailText').addClass('has-danger');
68         $('#loginPasswordText').addClass('has-danger');
69         $('#loginFailMessage').collapse('show');
70         window.setTimeout(function(){
71           $('#loginEmailText').removeClass('has-danger');
72           $('#loginPasswordText').removeClass('has-danger');
73           $('#loginFailMessage').collapse('hide');
74         }, 2000);
75       };
76       return;
77     });
78   },
79   //Change password event
80   'submit #changePassword' (event) {
81     event.preventDefault();
82     var newPassword = event.target.newPassword.value;
83     var oldPassword = event.target.oldPassword.value;
84     var newPasswordConf = event.target.newPasswordConf.value;
85   //Check if new passwords match
86   if (newPassword !== newPasswordConf) {
87     var message = "Passwords must match!";
88     $('#changePasswordFailMessage').html(message);
89     $('#changePasswordFailMessage').collapse('show');
90     window.setTimeout(function(){
91       $('#changePasswordFailMessage').collapse('hide');
92     }, 2000);
93   } else {
94     //Change passwords if new passwords match
95     Accounts.changePassword (oldPassword, newPassword, function (error) {
96       if (error) {
97         console.log(error.reason);
98         var message = "There was an error changing passwords: <strong>" + error.reason + "</strong>";
99         $('#changePasswordFailMessage').html(message);
100        $('#changePasswordFailMessage').collapse('show');
101        window.setTimeout(function(){
102          $('#changePasswordFailMessage').collapse('hide');
103        }, 2000);
104      } else { //Show success on no error.
105        $('#successResetPass').collapse('show');
106        window.setTimeout(function(){
107          $('#successResetPass').collapse('hide');
108        }, 2000);
109      }
110    });
111  },
112  },
113  },
114  //Forgot password event, sends email of registered user
115  'submit #forgotPasswordForm' (event) {
116    event.preventDefault();
117    var emailResetDest = event.target.forgotEmail.value;
118    Accounts.forgotPassword({email: emailResetDest}, function (error) {
119      if (error) {
120        var message = "There was an error sending the email: <strong>" + error.reason + "</strong>";
121        $('#forgotPasswordFormFail').html(message);
122        $('#forgotPasswordFormFail').collapse('show');
123        window.setTimeout(function(){
124          $('#forgotPasswordFormFail').collapse('hide');
125        }, 2000);
126      } else {
127        var message = "The email was sent!";
128        $('#forgotPasswordFormSuccess').html(message);
129        $('#forgotPasswordFormSuccess').collapse('show');
130        window.setTimeout(function(){
131          $('#forgotPasswordFormSuccess').collapse('hide');
132        }, 2000);
133      }
134    });
135  },
136  //Signup form event
137  'submit #signUpForm' (event) {
138    event.preventDefault();
139    var formName = event.target.formName.value;
140    var userName = event.target.inputUsername.value;
141    var userEmail = event.target.inputEmail.value;
142    var userPassword = event.target.inputPassword.value;
143    var passWordConf = event.target.inputPasswordConf.value;
144    if (userPassword === passWordConf) {
145      Accounts.createUser ({username: userName, email: userEmail, password: userPassword, profile: {name: formName}},
146        function (error) {
147          if (error) {
148            var message = "There was an error signing up: <strong>" + error.reason + "</strong>";
149            $('#signUpFail').html(message);
150            $('#signUpFail').collapse('show');
151            window.setTimeout(function(){
152              $('#signUpFail').collapse('hide');
153            }, 2000);
154          } else {
155            $('#signUpFail').collapse('hide');
156          }
157        });
158    } else {
159      var message = "Passwords must match!";
160      $('#signUpFail').html(message);
161      $('#signUpFail').collapse('show');
162      window.setTimeout(function(){
163        $('#signUpFail').collapse('hide');
164      }, 2000);
165    }
166  }
167 });
168 });

pg. 35
```

The form validation code checks every Login/Signup form entry and ensures that the information handed to the server is valid and correct for processing. These checks provide the user with feedback if they've entered anything wrong or entered invalid information.

A couple of the many examples of this feedback is given below:

The red text and bold writing give the user a clear indication of what was wrong with the information they entered or the fact that they forgot to enter information at all. An example of positive feedback to the user is also prevalent, when a user does something right and the server is doing something, they need to be told that the server is not frozen and that stuff is happening in the background or that their entry was a success.

Overall feedback from peers concluded that the login/signup was easy to use and polished. Especially with the implementation of feedback to the client.

Your email

 randomemail@unkownemail.com

Your password



LOG IN ➔

There was an error logging in: **User not found.**

Send a password reset email:

Account Email
 [REDACTED]@gmail.com

SEND ➔

Change your password:

 Old Password

 New password

 Confirm new password

CHANGE PASSWORD

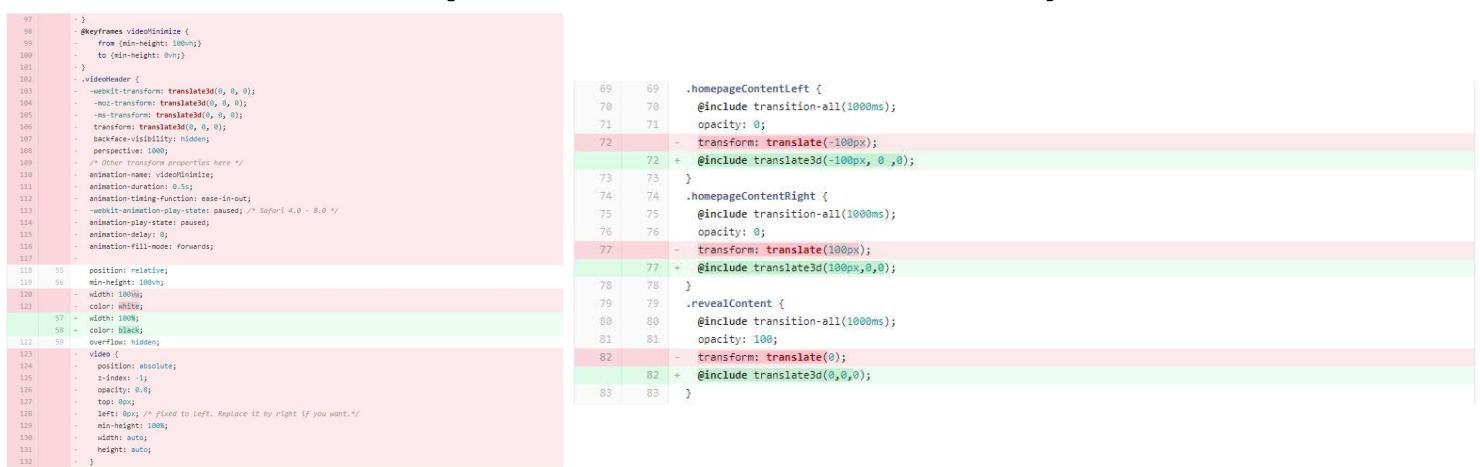
The email was sent!

There was an error changing passwords: **Password may not be empty.**

Jitter Problems and Homepage Design Update

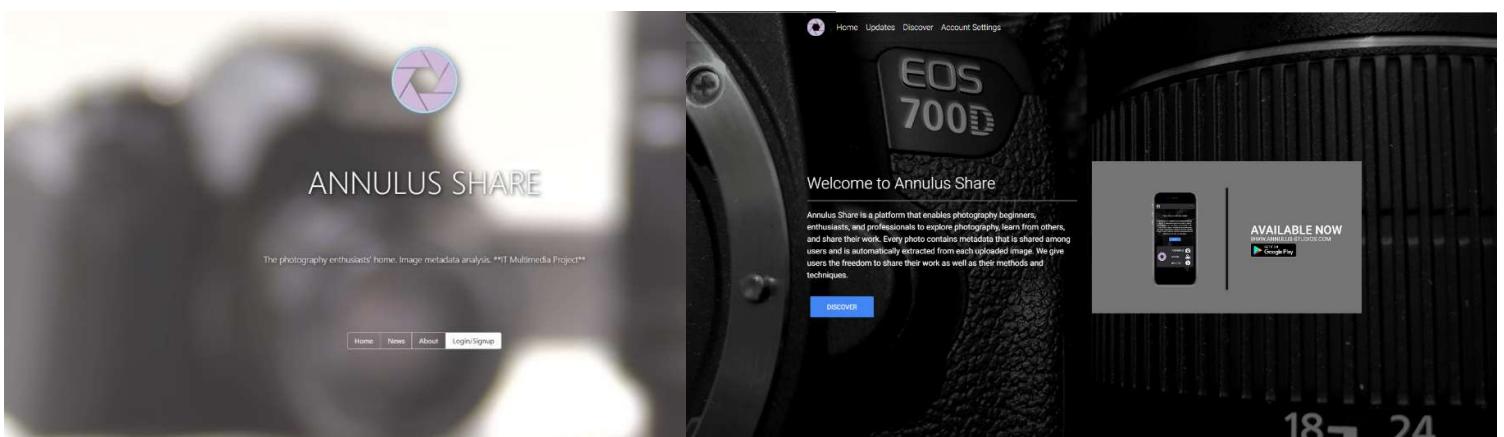
As the production progressed and the homepage and login/signup UI was completed, I encountered a problem. The homepage background was animated to change its height as the user scrolls from the top of the page. However, this caused too many HTML repaints, as explained in research, can cause the rendering engine to "lag" and cause jittery motion on the website. This produced an unprofessional effect and made the website seem unpolished. Although, I was not able to find a solution.

As a result, I spent many hours on a section of the website that was already complete in terms of content. However, I was persistent on fixing the issue, therefore, I resulted to removing the use of height animations and switch to a more sensible use of CSS3 animations. Consequently, I set out to update the design of the homepage without having to rewrite all the HTML. I achieved this by heavily editing the CSS of the homepage. First, I began by removing the height based animations and replaced them with translate and fading animations.

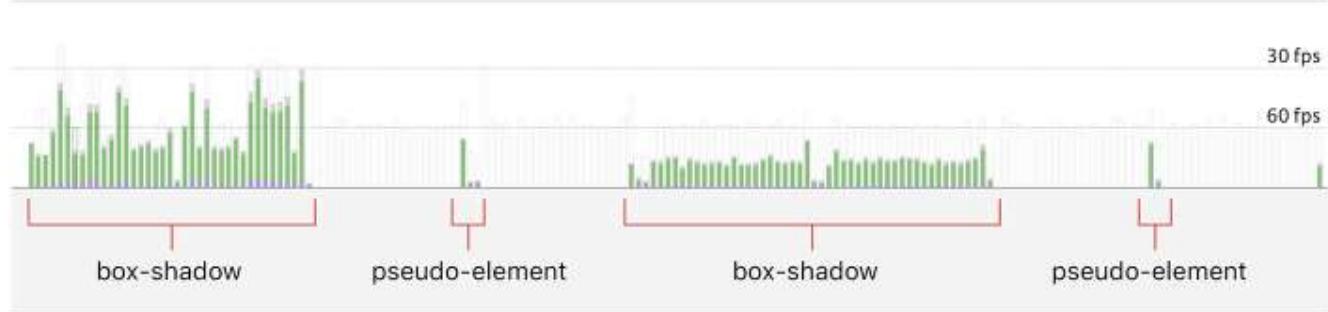


```
97 - }
98 - @keyframes videoIndie {
99   from {min-height: 100vh;}
100  to {min-height: 80vh;}
101 }
102 .videoHeader {
103   -webkit-transform: translate3d(0, 0, 0);
104   -ms-transform: translate3d(0, 0, 0);
105   -o-transform: translate3d(0, 0, 0);
106   transform: translate3d(0, 0, 0);
107   backface-visibility: hidden;
108   perspective: 1000;
109   /* Other transform properties here */
110   animation: videoIndie;
111   animation-duration: 8.8s;
112   animation-timing-function: ease-in-out;
113   -webkit-animation-play-state: paused; /* Safari 4.0 ~ 8.0 */
114   animation-play-state: paused;
115   animation-delay: 0;
116   animation-fill-mode: forwards;
117 }
118 .videoHeader {
119   position: relative;
120   min-height: 100vh;
121   width: 100vh;
122   color: white;
123   width: 100vh;
124   color: black;
125   overflow: hidden;
126   video {
127     position: absolute;
128     z-index: -1;
129     opacity: 0.8;
130     top: 0px;
131     left: 0px; /* Fixed to left. Replace it by right if you want.*/
132     min-height: 100vh;
133     width: auto;
134     height: auto;
135   }
136 }
137
138 .homepageContentLeft {
139   @include transition-all(1000ms);
140   opacity: 0;
141   -transform: translate(-100px);
142   + @include translate3d(-100px, 0 ,0);
143 }
144 .homepageContentRight {
145   @include transition-all(1000ms);
146   opacity: 0;
147   -transform: translate(100px);
148   + @include translate3d(100px,0,0);
149 }
150 .revealContent {
151   @include transition-all(1000ms);
152   opacity: 100;
153   -transform: translate(0);
154   + @include translate3d(0,0,0);
155 }
```

In the above examples, the removal of complex and unoptimized use of video backgrounds to a static image with optimized use of "translate3D" improved the responsiveness of the website dramatically. Although, I didn't want to compromise having no video at all, as a result, I conceded to having the right content a promotional video for the site. Even though I introduced an animated video element, the use of translate utilises the GPU to enable smoother animation.



Furthermore, I tweaked the animations of the card promotional sections of the site from animating box shadow to utilising pseudo-elements. This causes less repaints of the HTML and consequently, higher FPS (smoother) motion within the animation. An example (taken from Chrome Developer Tools) shows the difference in repaints between box-shadow animation and pseudo-element animation.



Clearly, in both cases (when the animation is triggered and reversed) there are significantly less amount of repaints when utilising pseudo-elements compared to box-shadow. As a result, a smoother and less "jittery" animation is achieved. All of this with a negligible amount of time taken and complexity of the code.

```
.make-it-slow {
  box-shadow: 0 1px 2px rgba(0,0,0,0.15);
  transition: box-shadow 0.3s ease-in-out;
}

/* Transition to a bigger shadow on hover */
.make-it-slow:hover {
  box-shadow: 0 5px 15px rgba(0,0,0,0.3);
}
```

VS.

```
.box {
  position: relative;
  display: inline-block;
  width: 100px;
  height: 100px;
  background-color: #fff;
  border-radius: 5px;
  box-shadow: 0 1px 2px rgba(0, 0, 0, 0.1);
  border-radius: 5px;
  -webkit-transition: all 0.6s cubic-bezier(0.165, 0.84, 0.44, 1);
  transition: all 0.6s cubic-bezier(0.165, 0.84, 0.44, 1);
}

.box::after {
  content: "";
  border-radius: 5px;
  position: absolute;
  z-index: -1;
  top: 0;
  left: 0;
  width: 100%;
  height: 100%;
  box-shadow: 0 5px 15px rgba(0, 0, 0, 0.3);
  opacity: 0;
  -webkit-transition: all 0.6s cubic-bezier(0.165, 0.84, 0.44, 1);
  transition: all 0.6s cubic-bezier(0.165, 0.84, 0.44, 1);
}

.box:hover {
  -webkit-transform: scale(1.25, 1.25);
  transform: scale(1.25, 1.25);
}

.box:hover::after {
  opacity: 1;
}
```

Changing the Colour Scheme and Design Language

After the implementation of optimizations and the change to a different background image for the homepage, I felt the white and bright colour scheme of the website didn't match the feel and flow precedent set by the dark background. As a result, I decided to change the colour scheme of the bootstrap elements by moving to a modified version of Bootstrap known as Material Design Bootstrap. This changed the design language of a lot of the smaller elements such as the buttons and form elements. Although, I could adjust the colour scheme of the site by modifying the original CSS. Consequently, to maintain consistency of the design language, I conformed to a colour palette for the design of the page as outlined by the example below. This produced a "darker theme".



Furthermore, the changes to the bootstrap elements required tweaks to form elements, especially with the introduction of a package of icons known as "font-awesome". This package contains a collection of free to use icons that conform to the material design language set out by Google. These icons were used in the form elements as depicted below:

Follow Users



Username

FOLLOW

The use of complementary icons such as the ones depicted provide a professional and polished feel to the site. This outcome was reflected within the evaluation and feedback provided by students. Furthermore, this didn't add as much time to the production as I was already familiar with the font-awesome package.

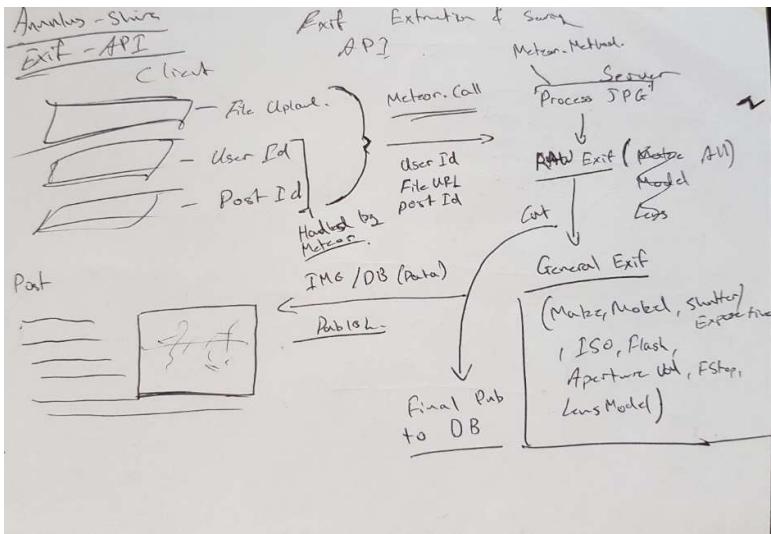
```
<i class="fa fa-lock prefix"></i>
```

Justification:

I believe that the change to a more consistent design language and colour scheme provided the website with the professionalism and polish that it needed. Furthermore, the utilization of different CSS3 animation techniques provided better performance of the website on lower-power devices as well as improved smoothness and the removal of jittery movements with the introduction of GPU optimized animations. I was pleased with the changes and believed the sacrifice of time and extended effort to redo some of the work was necessary to provide a much cleaner product.

Discover Page and Image Uploading

The intended design for the profile page was relatively simple, it needed to have a fixed header (for navigation) and a feed of the latest posts. The planning of the uploading API's needed to be implemented first before the UI could be implemented efficiently. To achieve this functionality, I planned a rough flow diagram for what information would go where and which information will be saved into the intended databases.



would need to save the location of the image on the server, the EXIF metadata extracted from that image, the user that uploaded it then save that information to a collection within the database. By doing so, the post can be searched for by ID and found by the server to display it to the user. This also allowed for a following function as the posts could be filtered by the user that uploaded it.

The programming for these functions are extremely lengthy (1000+ lines of code) but the following is a snapshot of the image uploading functionality. This method checks for filetype, file size and initiates the upload to the fileserver as well as the saving of the image data (location) to the database.

```
// Import astrio:files lib
import { FilesCollection } from 'meteor/astrio:files';

Posts = new Mongo.Collection('posts');
// Export FileCollection instance, so it can be imported in other files
export const Images = new FilesCollection({
  collectionName: 'Images',
  allowClientCode: false, // Disallow remove files from Client
  onBeforeUpload(file) {
    // Allow upload files under 20MB, and only in jpg/jpeg formats
    if (file.size <= 20485760 && /jpg|jpeg/i.test(file.extension)) {
      if (this.userId) {
        return true;
      } else {
        return 'Please log in. Only logged in user may upload.';
      }
    } else {
      return 'Please upload a JPG/JPEG image with size equal or less than 20MB';
    }
  },
});
```



The flow consisted of a collection of information taken from the form entries within the posting form, the Users ID and the image file that was uploaded. Then, within the backend of the platform, the uploaded image

The first iteration of this feature provided a crude but functional UI with the ability to upload an image with a title, description and the image preview (areas blacked out are confidential information displayed for testing).

- wefwefwef
- wefwefw
- [REDACTED] 15:16:48 GMT+1000 (AUS Eastern Standard Time)
- [REDACTED]
- [REDACTED]
- yihklhkyuiy
- hkuhkuhuk
- [REDACTED] 15:31:05 GMT+1000 (AUS Eastern Standard Time)
- [REDACTED]
- img_1771.jpg
- adwadwaa
- dwawdawd
- [REDACTED] 15:43:55 GMT+1000 (AUS Eastern Standard Time)
- [REDACTED]
- [REDACTED]
- ersgferge
- egrerge
- [REDACTED] 16:20:19 GMT+1000 (AUS Eastern Standard Time)
- [REDACTED]
- img_1771.jpg



I furthered this design by structuring the data more appropriately. The structuring made use of the wider screen real-estate while still being reactive to the screen width.

Upload

Title

Description

Choose File

No file chosen

Upload

Your Posts

efesfs

wsefaedfs

Uploaded: [REDACTED] 17:14:48 GMT+1000 (AUS Eastern Standard Time)

User: [REDACTED]

File-name: img_1771.jpg

Make:



Then the first image that had some EXIF data extracted from it was uploaded. It was tested with the make of the camera.

Your Posts

srgjo

jgfosrf

Uploaded: [REDACTED] 23:27:26 GMT+1000 (AUS Eastern Standard Time)

User: testing

File-name: img_1771.jpg

Make: Canon



This is just a small portion of the EXIF extraction method, but the key pieces of information are extraction within this section of the code.

```
metadata: {
    make: parsedExif.exMake,
    model: parsedExif.exModel,
    lens: parsedExif.exLens,
    copyright: parsedExif.exCopyright,
    exposure: parsedExif.exExposure,
    iso: parsedExif.exISO,
    aperture: parsedExif.exAperture,
    flash: flashVal,
    date: parsedExif.exDate,
    width: parsedExif.exResX,
    height: parsedExif.exResY,
    imageID: imageID,
    pixelResX: parsedExif.imagePixelResX,
    pixelResY: parsedExif.imagePixelResY,
```

With the available database information such as the file location, and the file ID and post ID I could add more information to the post itself. This included a download and a delete button where users can download the images and delete their own posts (and not others). I also structured the EXIF information within a table to provide a more complete and easy to read look.

Furthermore, I reused the floating header navigation bar for the page to allow the user to navigate the page.

Finally, with the selection of metadata being obtainable and saving it to the database, I could post a photo and have the following information presented.

Your Posts

eofijwoej

rohwogfhw0r

Uploaded: Fri Jul 14 2017 23:34:14 GMT+1000 (AUS Eastern Standard Time)

User: [REDACTED]

File-name: example_image1.jpg

EXIF Information:

Camera Make: Canon

Camera Model: Canon EOS 600D

Copyright: [REDACTED] 2015 ([REDACTED]@gmail.com)

Exposure Time/Shutter Speed: 0.01

ISO: 200

Aperture/fNumber: 2.5

Flash: 16

Taken: 2017:02:24 22:12:08

Orig. Width: 300

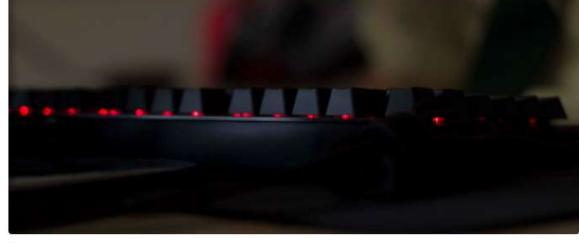
Orig. Height: 300

Annulus Share

Home News About Profile Account Settings

Choose File No file chosen Upload

Your Posts



testin
— Uploaded: [REDACTED] GMT+1000 (AUS Eastern Standard Time)

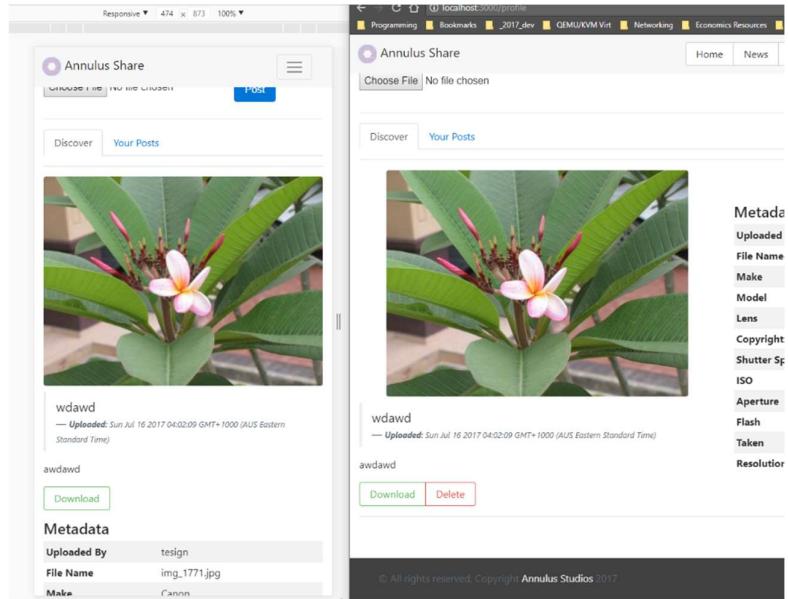
tesing

Download Delete

Metadata

Uploaded By	[REDACTED]
File Name	example_image1.jpg
Make	Canon
Model	Canon EOS 600D
Lens	EF50mm f/1.8 II
Copyright	[REDACTED] ([REDACTED])
Shutter Speed	0.01(s)
ISO	200
Aperture	f/2.5
Flash	Off, Did not fire.
Taken	2017:02:24 22:12:08
Resolution	300ppi

The following capture is a depiction of how the post appears to different user accounts, where other users do not have the option to delete other people's posts. This also depicts the scalability of the site on mobile views and smaller displays (left image).



The final touches and changes based on the design language and colour scheme needed to be integrated to polish the look of the posting functionality. As mentioned previously, the addition of these changes appropriated more time to production but were worth the extra work to provide a consistent design.

Desktop	Mobile
<p>Posts</p> <p style="text-align: center;">Discover Following Your Posts</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> Metadata User: [REDACTED] Make: Canon Model: Canon EOS 700D Lens: EF-S18-55mm f/3.5-5.6 IS STM Copyright: [REDACTED] Shutter Speed: 0.0333333333333333(s) ISO: 400 Aperture: f/5.6 Flash: Off, Did not fire. Taken: 2017-07-30 17:56:31 Resolution: (N/A)x(N/A) (240 pixels/inch) </div> </div> <p>Old Tap</p> <p>— Uploaded: Sun [REDACTED] 2017 18:01:51 GMT+1000 (AUS Eastern Standard Time)</p> <p>DOWNLOAD DELETE</p>	<p>Posts</p> <p style="text-align: center;">Discover Following Your Posts</p> <div style="display: flex; align-items: center;">  </div> <p>Old Tap</p> <p>— Uploaded: Sun Jul 30 2017 18:01:51 GMT+1000 (AUS Eastern Standard Time)</p> <p>SHOW DATA DOWNLOAD DELETE</p>

Upload Form

Desktop

Want to remove someone you followed?

Choose File No file chosen

POST

Note: We only accept JPEG images at this time.

Posts

Discover	Following	Your Posts																
		<p>Metadata</p> <table border="1"> <tr><td>User</td><td>[REDACTED]</td></tr> <tr><td>Make</td><td>Canon</td></tr> <tr><td>Model</td><td>Canon EOS 700D</td></tr> <tr><td>Lens</td><td>EF-S18-55mm f/3.5-5.6 IS STM</td></tr> <tr><td>Copyright</td><td>[REDACTED]</td></tr> <tr><td>Shutter Speed</td><td>0.0333333333333333(s)</td></tr> <tr><td>ISO</td><td>400</td></tr> <tr><td>Aperture</td><td>f/5.6</td></tr> </table>	User	[REDACTED]	Make	Canon	Model	Canon EOS 700D	Lens	EF-S18-55mm f/3.5-5.6 IS STM	Copyright	[REDACTED]	Shutter Speed	0.0333333333333333(s)	ISO	400	Aperture	f/5.6
User	[REDACTED]																	
Make	Canon																	
Model	Canon EOS 700D																	
Lens	EF-S18-55mm f/3.5-5.6 IS STM																	
Copyright	[REDACTED]																	
Shutter Speed	0.0333333333333333(s)																	
ISO	400																	
Aperture	f/5.6																	

Mobile

Follow Users

Username

FOLLOW

Want to remove someone you followed?

Create

Title

Description

Choose File No file chosen

POST

Note: We only accept JPEG images at this time.

The above forms also include the following feature which was added during the development of the upload form. This feature allows the users to specify what posts they want to see. As a result, the following tab shows the posts of users that you are following. This was done with the addition of another collection that tracks the followings of each user and their respective ID's.

Following Call:

Find user ID from username and follow that user.

```
'followUser' (username) {
  check(username, String);
  if (!Meteor.user()) {
    throw new Meteor.Error('Unauthorized, please log-in.');
  } else {
    var userId = Meteor.users.findOne({username: username})._id;
    Meteor.call('brewhk:follower/follow', userId);
  }
},
```

Form Output:

Follow Users

Username

FOLLOW

Want to remove someone you followed?

Success! You're now following Kid2399.

Evaluation/Justification of Uploading and Post Page

Evaluation

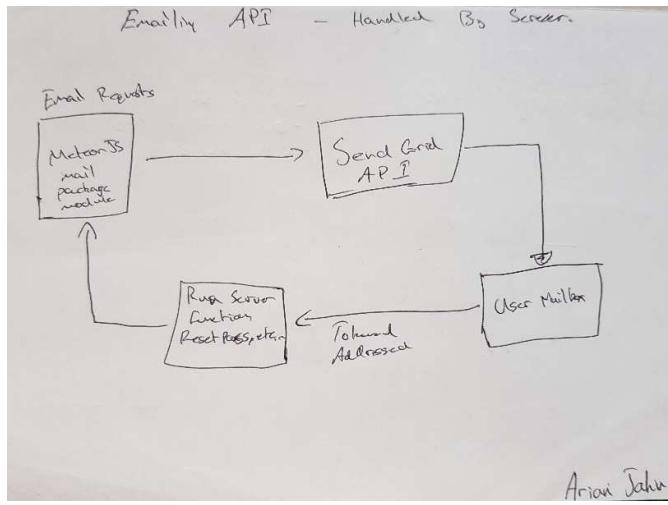
Good	Bad	Final Comment
<ul style="list-style-type: none">• Fresh and clean design.• Use of Google's material design language.• Good user feedback when submitting forms.• Uploading animation loading.• Simple and easy to use.• Easy to navigate and clear distinction between posts.• Extensive amount of information about the photograph.	<ul style="list-style-type: none">• Extensive amount of time and work to implement.• Long loading on slow networks.• Information can be overwhelming for beginners.• Only accepting JPEGS.	The implementation ate an extensive amount of time in the production process, but it is the core function of the website. The structure of the information was clear and the amount of information was adequate in learning how the photograph was taken. As discussed in the research, it was intended to have compatibility with other image formats (RAW) but this was simply not possible with the technology at hand.

Justification:

I was overall very pleased with the work that I had put in to produce the uploading and posting functionality. The feedback and evaluation proved overall positive with only a few small problems that existed due to the nature of the application. The long load times could be fixed with on the fly compression of images, although, this is out of my skills to implement and wouldn't be completed on time. Furthermore, the mentioning of the overwhelming information for beginners stemmed from the lack of understanding of photographic terms. This is fixed with the quick video that I produced that explains some of these terms.

Application API's

Email API (w SendGrid) Flow



The email API was relatively simple on paper, but it took a bit of work to get production ready in the platform. SendGrid allows the use of SMTP servers to send email using their service. Luckily, MeteorJS comes with this functionality built in. Therefore, just by adding some server-side code to the application, I could redirect Meteor Email module to the SendGrid service. The Meteor Email module also allows me to set a template for each email. The password recovery email was my priority because by this point I had finished the rest of the Login/Signup functionality. This is what the recovery email looked like:

How to reset your password on Annulus-Share

Annulus-Share Password Reset no-reply@annulus-studios.com via sendgrid.net
to me

Hello,

To reset your password, simply click the link below.

https://annulus-studios.com/#/reset-password/KEk4bBVZF2ShpSPFv46NCGxW0CsOuq0uLdEgWfZIL_Z

Thanks.

It seemed like a lot of work for a small outcome, but this was worth it since it greatly improves the client experience by enabling them to easily and securely reset their password if it were ever forgotten. The reset password token takes the user to a blank page with a form that asks them for a new password.

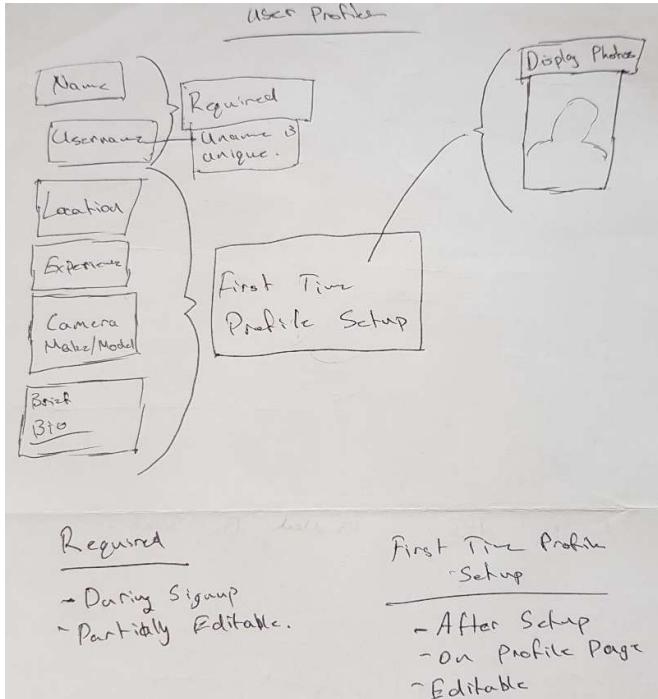
Reset Password

New Password
Confirm Password
<input type="button" value="Reset Password"/>

© All rights reserved, Copyright Annulus Studios 2017

After resetting, the user is then redirected to the homepage, being also logged in automatically.

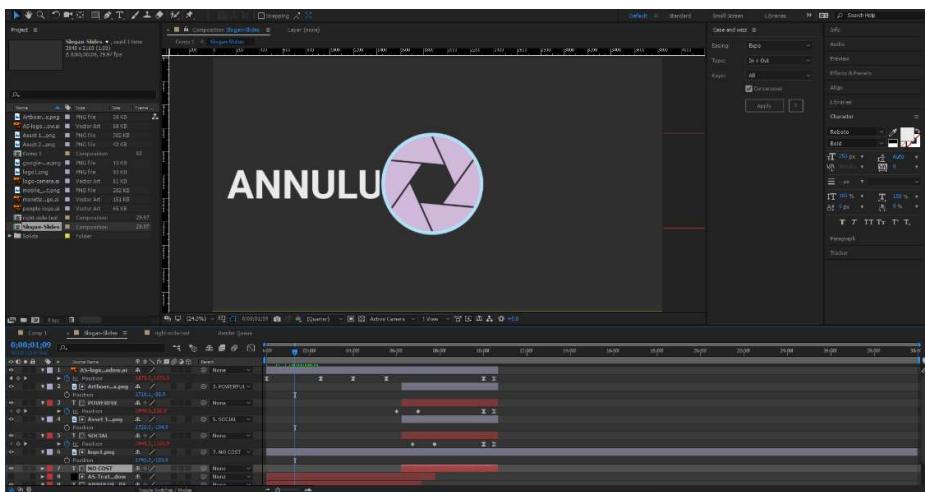
User Profile Setup



Unfortunately, this was an idea that was left out of production. I was aware that a user might want to apply a profile picture and some more personal information about themselves to display publicly. Although, this idea had further implications in that I would have to implement and integrate systems where people can showcase this data, edit it, and possibly hide it for privacy concerns. There was simply not enough time to implement intricacies such as a personalised profile page. Therefore, I decided to scratch this idea and focus on the fundamentals of the website.

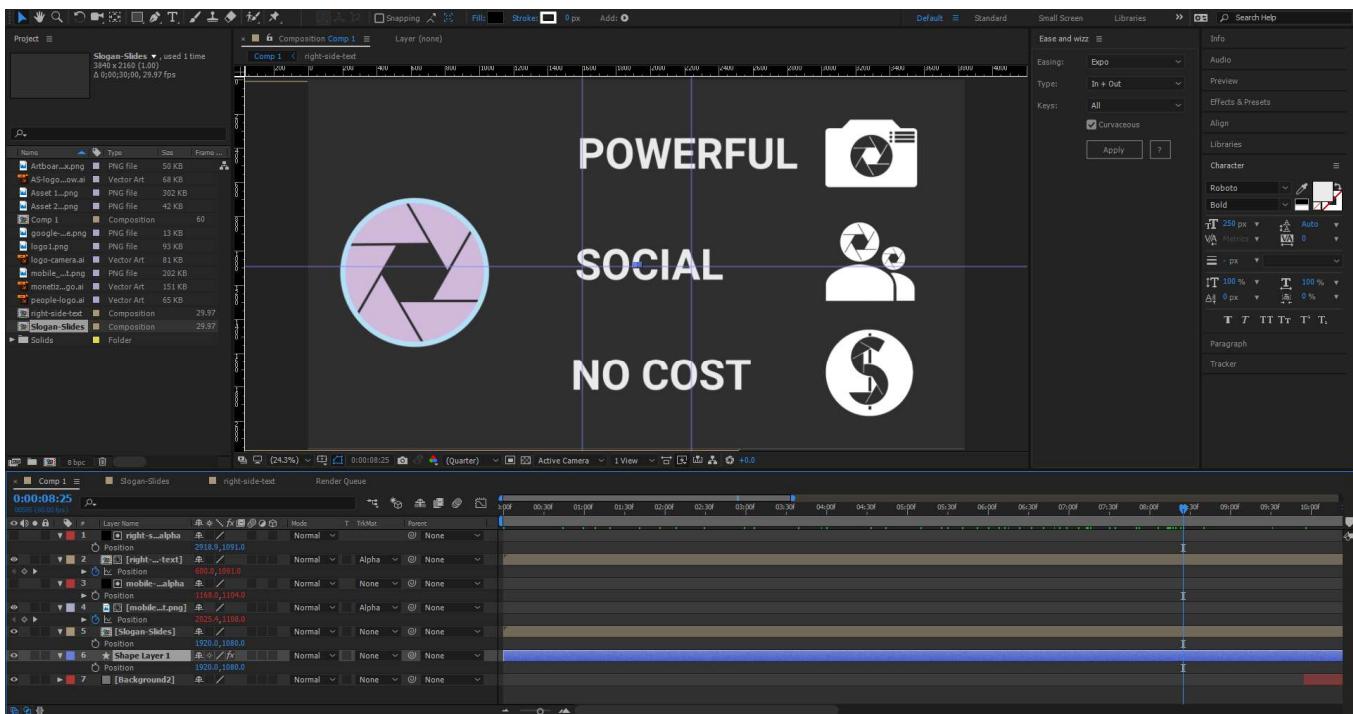
Promotional Video Production

In the promotional video production, I utilised my skills that I had obtained in previous year within Adobe After Effects to produce an animated promotional trailer for my website. I used tweening animation effects and "eaze and wizz" effects to produce smooth animations that reveal and hide content and information. The Annulus logo and the card promotional icons were used in the animation.

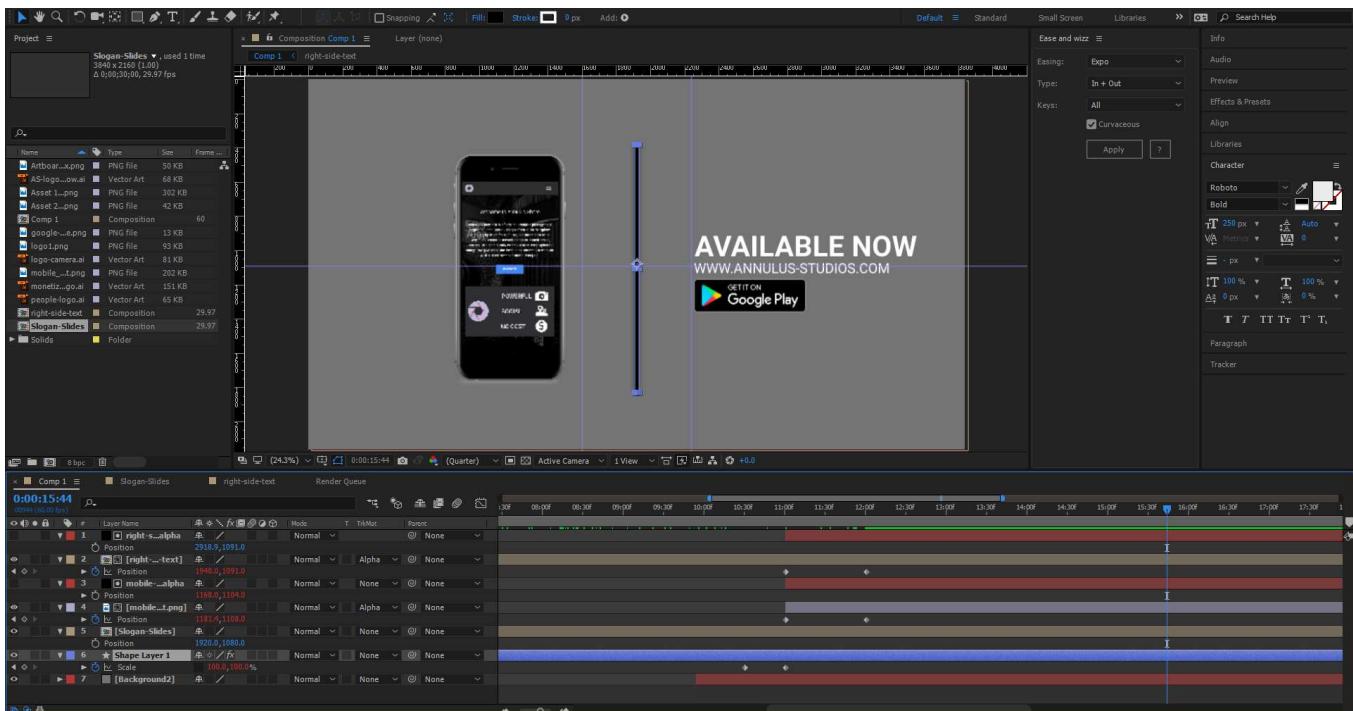


By using key frames, I could produce anchor points of movement then use the "eaze and wizz" effect to smoothen the motion between the keyframes.

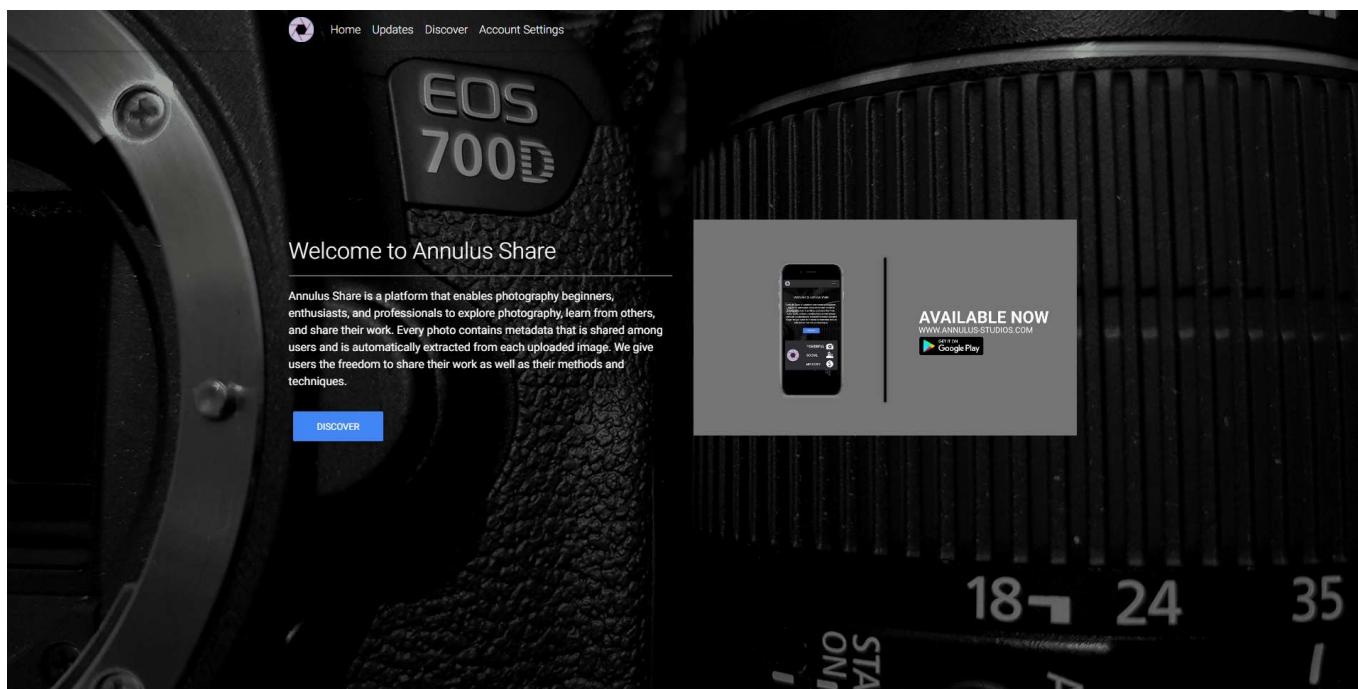
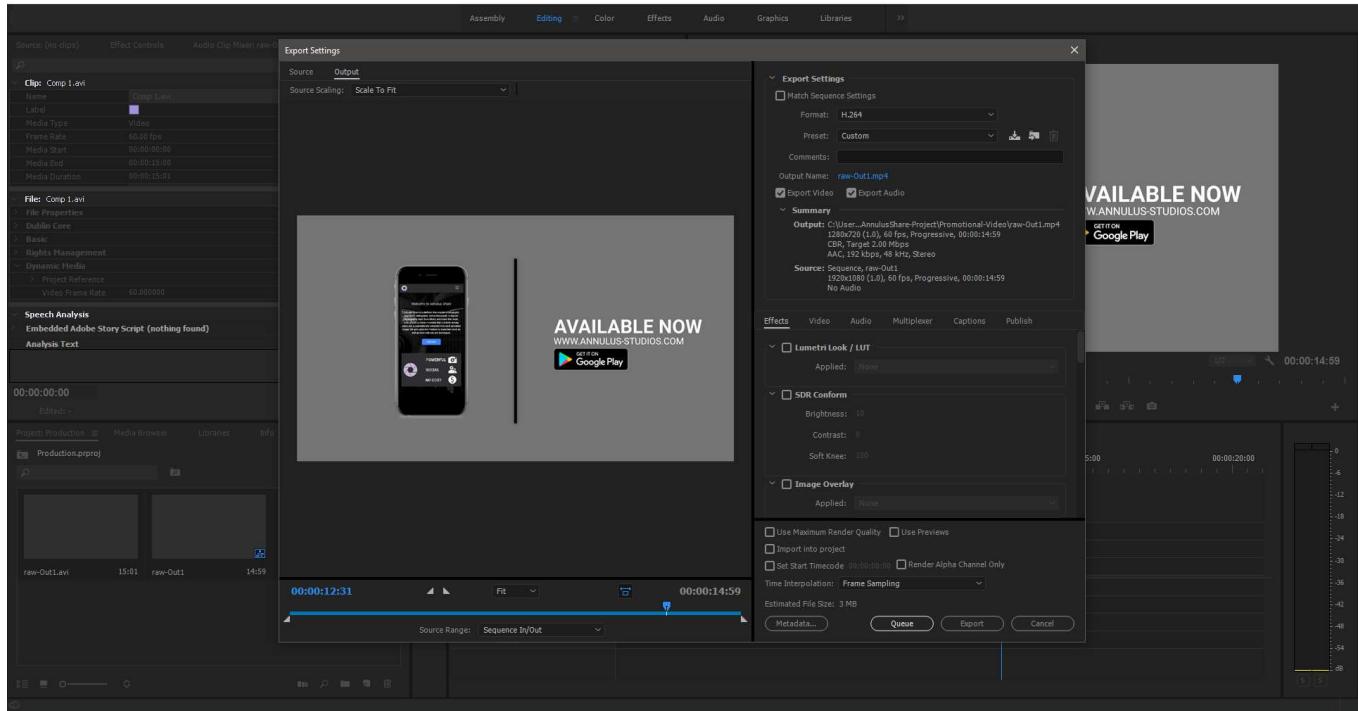
Pre-compositions were also used to organise the video production workspace to make it easier to follow and keep track of.



I then used the ending frame of the promotional video to showcase the android app and that it was available on the Google Play Store. This was perfect for the web as the last frame was what the video paused on when the video was done playing automatically. As a result, it was an advertisement for the Android App while still being aesthetically sound.



Finally, the video was exported at a 720p (1280 x 720) resolution at 60FPS (frames per second) to ensure the animations remained smooth. This was then compressed in Premier Pro and uploaded to the website.



Promotional Video Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none"> Smooth and clean design. Use of high frame rate animations. Complements the front page well. Adds more liveliness to the front page and provides a more striking and capturing feel. Brings attention to the existence of the Android application. 	<ul style="list-style-type: none"> Longer amount of time and work to implement. Long loading on slow networks. Auto playing video seen as annoying by some users. 	The implementation of the promotional video added a much-needed liveliness to the front page of the website. It added more animation and motion to the site giving a more exciting look. The promotional content also helps reiterate some of the core concepts of the website.

Justification:

I was pleased with the addition of the promotional video to the front page of the site. It gave it a better look and feel and helped fill the gap of the right-side content. The promotional video could now be reused in many different places as the project files were initialized in 4k resolution. Peers and the teachers also appreciated the promotional video and thought it added a more polished look to the front page of the website.

Porting the Android Application

With the core functionality of the website ready and the consistent focus on compatible UI design for all screen sizes, I was eager to push out an android application to showcase the website in another form. Although the app could be accessed by the phones mobile browser, the Cordova wrapper for the website provided the same effect but with more control and flexibility. As well as the added benefit of exposure on the Google Play Store. Otherwise, the app behaved the same as it did on the web although slightly smoother on the app as it had direct access to the hardware. However, porting to Android meant that more graphics were needed to be made, therefore I made some splash screen graphics and redid the logo for the different sizes needed.

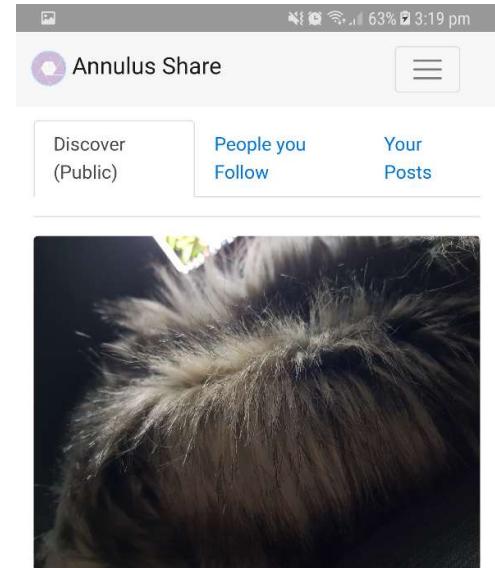
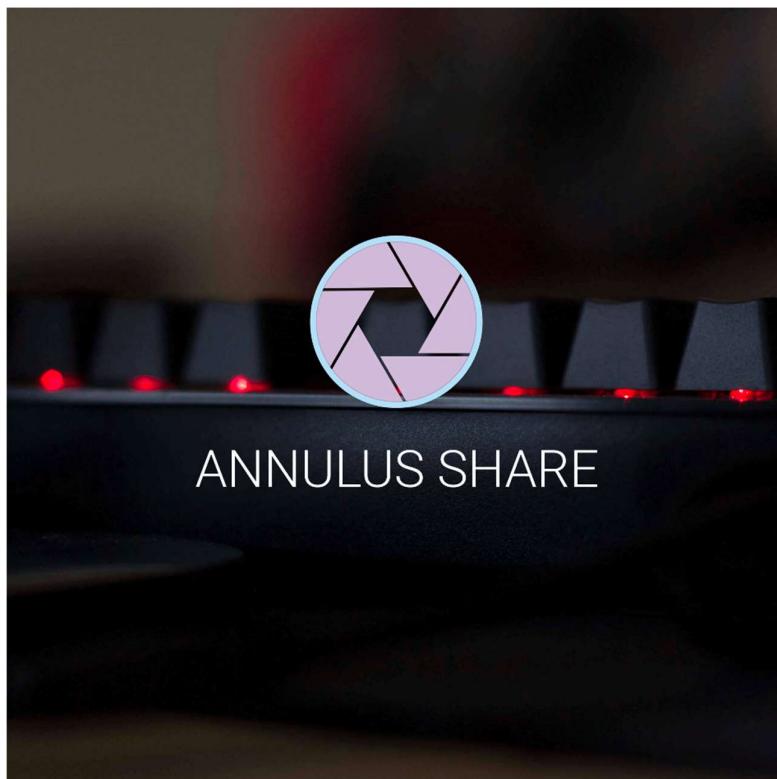
Furthermore, a Cordova configuration was needed to tell the compiling process of the app that the splash screen graphics and icon graphics needed to be bundled with the app. This configuration also provided some metadata about the app itself.

```

2 App.info({
3   id: 'com.annulus_studios.annulus_share',
4   name: 'Annulus Share',
5   description: 'Photo sharing and image metadata analysis.',
6   author: 'Annulus Studios',
7   email: 'annulus.studios@gmail.com',
8   website: 'https://www.annulus-studios.com/',
9   version: '0.1.0',
10  buildNumber: '32'
11 });
12 // Set up resources such as icons and launch screens.
13 App.icons({
14   'android_mdpi': 'androidAssets/icons/android/icon-48-mdpi.png',
15   'android_hdpi': 'androidAssets/icons/android/icon-72-hdpi.png',
16   'android_xhdpi': 'androidAssets/icons/android/icon-96-xhdpi.png',
17   'android_xxhdpi': 'androidAssets/icons/android/icon-144-xxhdpi.png',
18   'android_xxxhdpi': 'androidAssets/icons/android/icon-192-xxxhdpi.png',
19   // More screen sizes and platforms...
20 });
21 App.launchScreens({
22   'android_mdpi_portrait': 'androidAssets/splashes/android/screen-mdpi-portrait.png',
23   'android_mdpi_landscape': 'androidAssets/splashes/android/screen-mdpi-landscape.png',
24   'android_hdpi_portrait': 'androidAssets/splashes/android/screen-hdpi-portrait.png',
25   'android_hdpi_landscape': 'androidAssets/splashes/android/screen-hdpi-landscape.png',
26   'android_xhdpi_portrait': 'androidAssets/splashes/android/screen-xhdpi-portrait.png',
27   'android_xhdpi_landscape': 'androidAssets/splashes/android/screen-xhdpi-landscape.png',
28   // More screen sizes and platforms...
29 });
30 // Set PhoneGap/Cordova preferences.
31 App.setPreference('HideKeyboardFormAccessoryBar', true);
32 App.setPreference('Orientation', 'default');
33

```

The splash screens consisted of the Annulus logo on a background of a photograph shot I had. Although Android needs the same splash screen in many sizes, they were all based on the following: (and a screenshot of the app successfully running on Android)



Mobile Upload
— Uploaded: Tue Jul 18 2017 04:13:06 GMT+1000 (AEST)

Testing this from the app running in Android.

[Download](#) [Delete](#)

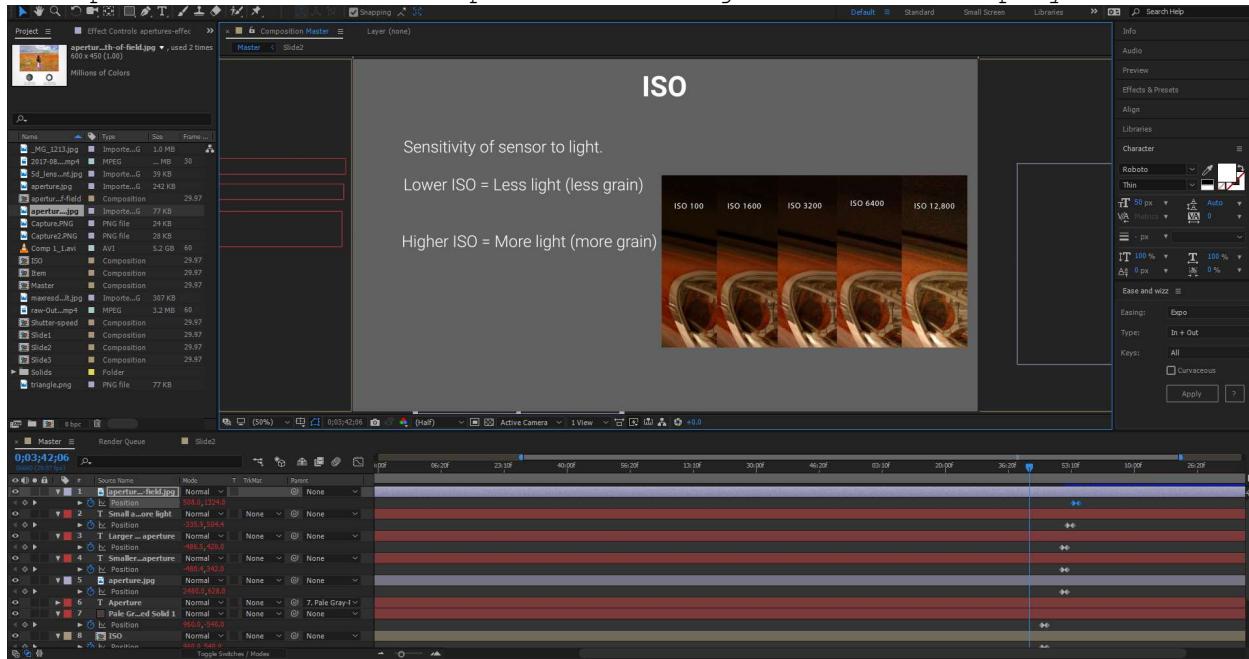
The screenshot shows the Google Play Store interface. The left sidebar is open, showing categories like 'My apps', 'Shop', 'Games', 'Family', and 'Editors' Choice'. Below that is a section for account management with links for 'Account', 'Redeem', 'Buy gift card', 'My wishlist', 'My Play activity', and 'Parent Guide'. The main content area displays the 'Annulus Share' app page. The app icon is a purple circle with a white camera lens graphic. The title 'Annulus Share' is followed by 'Annulus Studios' and 'Photography'. It has a rating of 3 stars from 3 reviews. A note says 'This app is compatible with your device.' There are 'Add to Wishlist' and 'Install' buttons. Below the main image are two smaller screenshots of the app's interface, one showing a camera icon and the other showing a photo upload screen with metadata details like 'File Name: 15031112382/935666218.jpg' and 'Make: samsung'. A descriptive text block below the screenshots states: 'Annulus Share is a platform that enables photography beginners, enthusiasts, and professionals to explore photography, learn from others, and share their work. Every photo contains metadata that is shared among users and is automatically extracted from each uploaded image. We give users the freedom to share their work as well as their methods and techniques.'

Android Application Evaluation

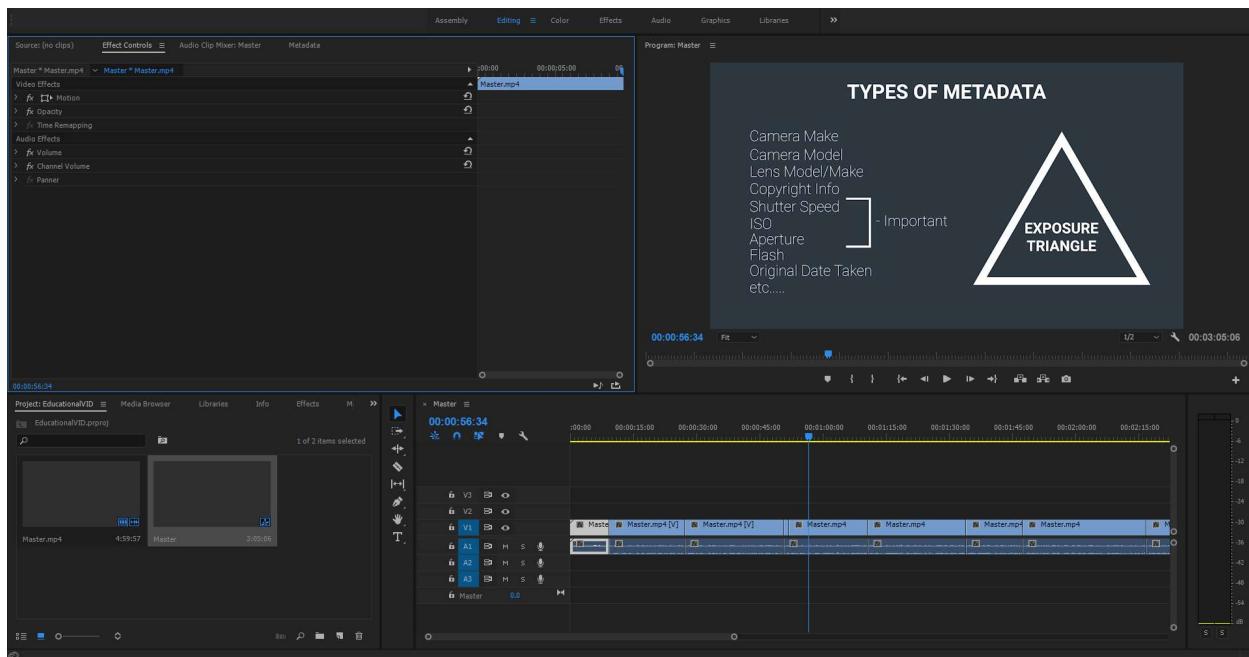
Good	Bad	Final Comment
<ul style="list-style-type: none"> • Easy to use and setup. • Easy to find on the Google Play Store. • Works better than the Android browser version. • Quicker and easier to get to. • Integrates well with Android and scales for all device widths. 	<ul style="list-style-type: none"> • Longer amount of time and work to implement. 	<p>The implementation of the Android application was an intriguing learning experience but it also helped the website grow onto another platform easily. The overarching goal was also to make it usable on all devices, the production of an application helps this immensely.</p>

Tutorial Video Production

As mentioned in the statement of intent, I wanted to produce a quick video to explain some of the photography terms and what they mean. I was able to do this with the same animation style as the promotional video. I then used a voice over to explain some of the concepts while having the animations play in the video.

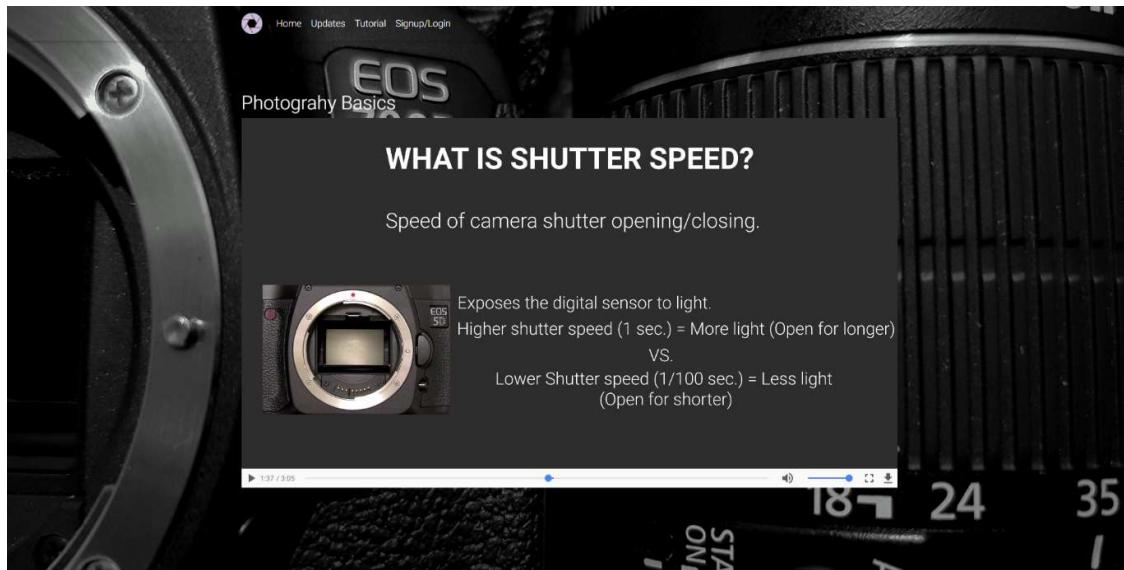


I also utilised some stock images to represent some of the concepts I was explaining in more detail. Furthermore, I did some quick editing in Premier Pro to ensure the video wasn't too long.



Unfortunately, I had run out of time to give the tutorial production a proper polish. As a result, the cuts in the video are quite crude as I also didn't get the chance to master the audio.

I then made a dedicated page on the website to showcase this tutorial video.



Tutorial Production Evaluation

Good	Bad	Final Comment
<ul style="list-style-type: none"> Informative and detailed knowledge provided. Smooth animations 60FPS tweening makes it very visually appealing Clean and professional layout of information 	<ul style="list-style-type: none"> Crude and unpolished jump cuts. Unmastered and low volume audio. Large video file size. 	<p>The implementation of the tutorial video was a bit rushed, although I was overall happy with the ability to explain the main concepts and terms about photography. This would help beginners and novices that don't already have a concrete understanding of photography.</p>

Justification:

I was pleased with the informative nature of the video, as well as the animations and smooth 60FPS tweening. However, through better time management I would have been able to polish the video much more and iron out some of the quality issues that it had. The voiceover took many iterations to get right, this took considerable amount of time making it impossible to effectively master the audio.

OHS and Safe Working Practices



GOOD

- Office chair is placed close to the table.
- Keyboard and mouse are both placed on the same flat surface and are level.
- The top of the screen is at eye level and is arm's length away when seated properly.
- Chair has ability to move up/down and tilt up to 150 degrees.
- The armrests fold up to allow free movement of the chair.
- Elbows are commonly rested on table.
- Headset is available for comfortable audio listening sessions.
- Mouse has simple ergonomic shape that fits my hand well and I use it with my wrist straight to avoid wrist strain.
- Plenty of movement space for both keyboard and mouse.

BAD

- Table has a fixed height and the top is quite thick, this sometimes interferes with the leg space.
- Lack of foot rest.
- Second monitor at a bad angle and at a closer distance than the other
- Having to turn head instead of looking straight for the smaller monitor.

A Bad WHS Habit

I have a strong passion when developing software, because of this, I can sit at the computer chair for extended periods of time (7+ hours) without getting up. This is especially true when I encounter a problem I cannot solve and just throw time at it. This has serious implications on a person's health. It can cause increase chances for blood clots and a sore back from the inevitable slouching. This is a definite problem I need to focus on to make my work ethic healthier.

Final Evaluation

I believe that the Annulus Share website was a successful production. I completed all the core functionalities of the website. While I did run out of time to satisfy one of the points in my statement of intent, specifically, the production of a tutorial video for photography beginners. Although, I believe, I achieved a great amount of work in this production especially with the implementation of an Android application. I was happy to see that, throughout the productions I was able to satisfy all of the technical and design criteria. I was able to utilise the technologies that I had researched about and I learned an immense amount of knowledge on web development and its place in the Multimedia industry.

By producing this application, I feel that I have already achieved some of the intentions made in the statement of intent, that being, to allow photographers to share their work and showcase it to the world. I am also glad that I was able to adopt the Google Material design language as it provides a sense of professionalism and polish within the website. I was able to stay on task for the timeline of the project but I am disappointed that I had run out of time to sufficiently polish the tutorial video. I was able to accomplish the main goal of animation but I was unable to properly edit and master the audio voiceover.

The consistent positive feedback from peers and mentors indicated that I was on the right track throughout the production process, and it is through their feedback that I was able to re-evaluate ideas, concepts, and production decisions and evolve such ideas to produce a superior production to the one initially envisioned.

All in all, I believe I have successfully completed my production and although some envisioned ideas were changed significantly or scrapped completely, I was able to churn out the core concepts and aims of the project within the limited timeframe.

Extra ICT Skills

- Using Resilio-Sync Custom cloud syncing servers for backups, this also allows me to sync my progress with several other devices as I frequently switch between my laptop and my desktop computer.
- Using VLOOKUP and other calculation functions in Excel to produce an efficient and accurate budget. This allows me to structure and represent the data from my Excel table efficiently, it also allows me to edit the cost tables with ease with the following values of the table updating automatically making the whole process much easier.
- Using Adobe Photoshop CC for image and screenshot polishing. The screenshots for each of the images had to be cropped and touched up in some places.
- Using the whole page screen shot plugin for Google Chrome to take screenshots of complete web pages for depictions in this document.
- Using Trello web service to plan and save ideas that can be revisited. I stopped using this as I switched to using Gitlab issues and suggestions to keep track of needed and upcoming features/changes.
- Using an online video conversion platform <http://video.online-convert.com/> to convert to other video formats for testing and evaluation of shots. This helped me troubleshoot compatibility on some web browsers.

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