ASSIGNMENT COVERSHEET

Prague College

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Class: BSc Computing Project	
Assignment: LensLab: Photography Study Platform	
Lecturer: Bohus Ziskal, Mohamed Bettaz	Semester: 2301
Due Date: 14.03.2023	Actual Submission Date: March 13, 2023

Evidence Produced (List separate items)	**Location (Choose one)**	
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LensLab: Photography Study Platform

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BSc Computing Project

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Word Count:

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1 Introduction

A lot of newcomers or people who are not familiar with photography frequently struggle to learn the fundamental abilities needed for this kind of activity. There are a lot of resources where people can learn the theoretical knowledge of photography, but the need to get practice still remains. Regarding the practical component of photography, it is also impossible not to mention the fact that many people use smartphones as their main gadget for taking photos, and many also do not have any cameras.

These aspects help to formulate the main problem: **Most of online resources are limited to study basic photography from both theoretical and practical perspectives.**

As a result, a solution was developed that should assist beginners in mastering photography. The main goal of this project is to implement a training platform for photographers that combines theoretical and practical photography skills and can quickly and simply explain all the information required to begin taking photographs.

1.1 Project Choice Justification

The Lumiere Society of Photographers at PCU University is a potential client for this project. Currently, there are a lot of new members in this club who want to learn the fundamentals of photography. Noting that the author of this work has been a photographer for eight years and is a prominent member of this community is also a good motivation of creating this project. This platform could help this club in the development of new talents.

1.2 Project Specifications

The main component of Lens Lab is a web application that offers users the chance to complete various training courses based on a DLSR camera simulator. The simulator itself is a stand-alone component of the platform and can be used as both a training ground and a sandbox for users to experiment with the camera's features.

2 Project Background Research

This project is an evolution of an earlier web application with a similar idea at its core; the finished artifact only had a few features that fell short of meeting all the requirements for learning for beginning photographers. However, this foundation is great for enhancing and expanding the pool of potential users. Therefore, when developing the problem, new requirements were taken into account:

- The platform should be created for a wide range of users, which implies easy accessibility, adaptability on different devices, as well as a simple interface.
- Since the project will deal mainly with beginners, all training materials should be as simple as possible, but contain all the most necessary information.
- The number of training sessions shouldn't be excessive, but they also shouldn't be insufficient to provide a strong foundation for beginning photographers.
- Since the project will be used by a large number of people, it makes sense to use a special framework to create it, which will be responsible for the stability of the simulator.

These requirements were formulated based on the work on the artifact, however, in order to test and prove many beliefs, a survey was created among the students of the Lumiere Club.

2.1 Research Survey

The survey's primary goals were to examine the pool of potential users, learn about their preferences, and spot any potential issues before further product development. 13 people have currently participated in this survey. Each of them has some connection to photography, whether it be as a pastime or a line of work.

2.1.1 User Age Pool

The main sample is users from 20 to 30 years old, which affects the overall style of the project and its promotion.

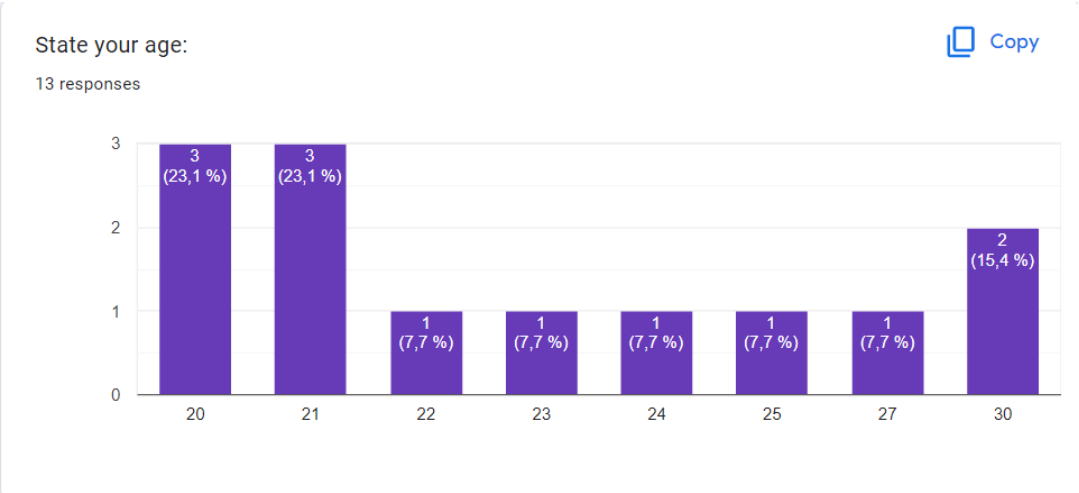

Figure 1: Age Diagram

2.1.2 Level Of Proficiency

It has also been confirmed that most people are amateurs or beginners in photography who have very few skills or are just starting to study photography at all.

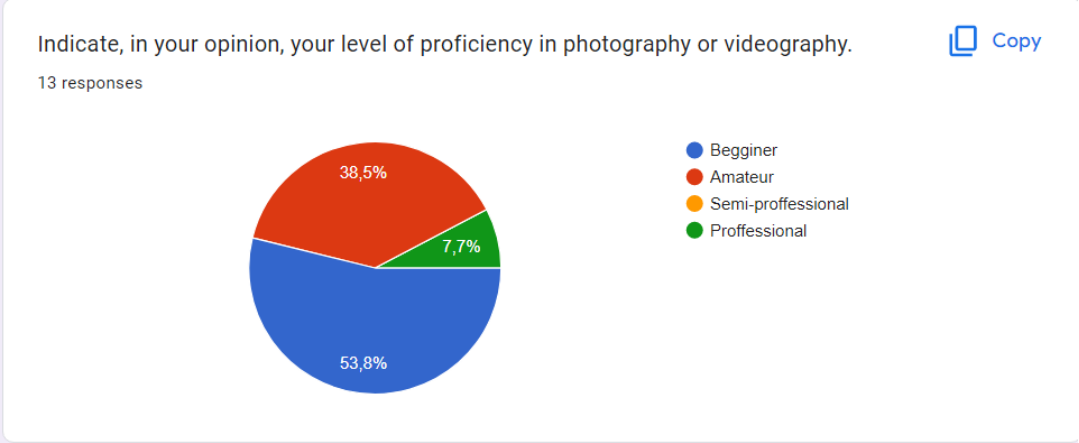

Figure 2: Level of Proficiency Diagram

2.1.3 Photo Device

There is also an obvious confirmation that most people take pictures on their phone. The question does not specify the presence of any camera, but it can be concluded that most people still choose a phone if they do not have any other option.

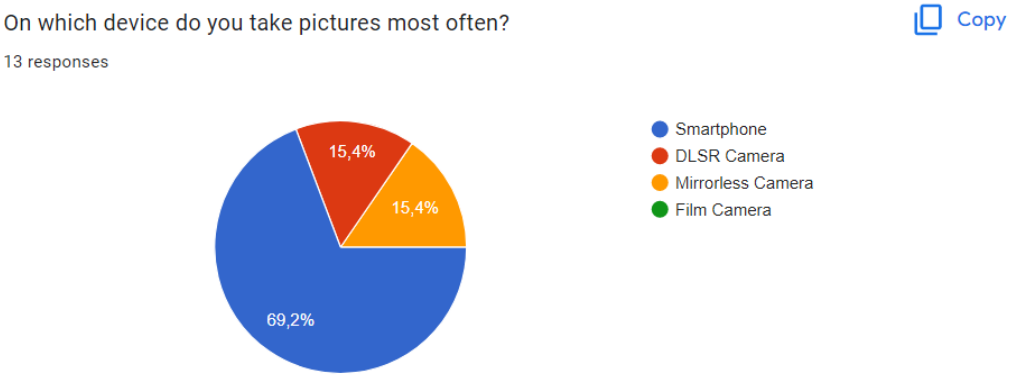

Figure 3: Most Popular Photo Device

2.1.4 Photography Study Methods

It is also crucial to acknowledge that while the majority of photographers prefer to learn through practice, the theoretical aspect cannot be entirely disregarded. As a result, the project's initial focus is on imparting knowledge in its theoretical aspect, with the potential for immediate application

in a DSLR camera simulator. Also, in addition to this topic, a more extensive research paper was considered on the choice between practice and theory in the study of photography (Abrahmov and Ronen, 2008).

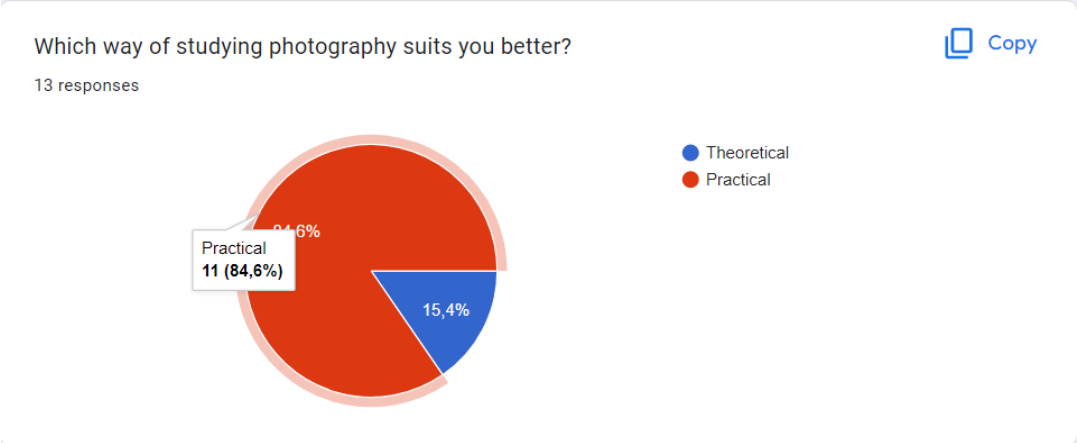

Figure 4: Different Types Of Studying Photography Diagram

2.1.5 Survey Evaluation

Summing up the results of this survey, most of the initial decisions were confirmed statistically. However, it is worth noting that this survey was originally created as a UX survey in order to study the user base and understand their needs in the interface, simulator functionality, as well as the amount of necessary material to study.

2.2 Scientific Papers

Also, research was done to find previously written scientific publications on virtual cameras and instructional techniques for photographers. As a consequence, a number of works were chosen to serve as the primary sources for LensLab's development.

- "Effectiveness of photography training simulator during covid-19." by Abidin et al. (2021)
- "Design and development of 3d virtual dslr camera based on vrml and javascript" by Sun et al. (2010)
- "3D DSLR learning platform" by Cheah (2013)

2.3 Existing Analogues

At the moment, there are two analogues of LensLab that can be used as good references during development. Each of them has its own strengths and weaknesses; however, in functional terms as

well as one of the implementation options, these projects are beneficial.

2.3.1 CameraSim

CameraSim is a shareware web application that is a sandbox where the user can use different camera settings to achieve the correct image. As soon as the user takes a photo, the system displays the result and also informs whether the settings were set correctly and which of the elements can be changed to achieve a better result. Also, the service recently added a section to familiarize users with the camera functions, presented as a text briefing. At the moment, the service is developing and it is known that there is a more advanced version of the application that needs to be installed on the computer. This application is distributed on a paid model.

Figure 5: Interface of the CameraSim web application

2.3.2 Exposure Simulator

Exposure Simulator is another web application based on a different idea, where users can study the work of exposure and how it can be influenced by camera settings. The service is designed with the simplest possible functions, but this is already enough to give a little understanding of the camera's operation. Also, the result, unlike CameraSim, is in the form of real-made photos that adjust to the camera settings.

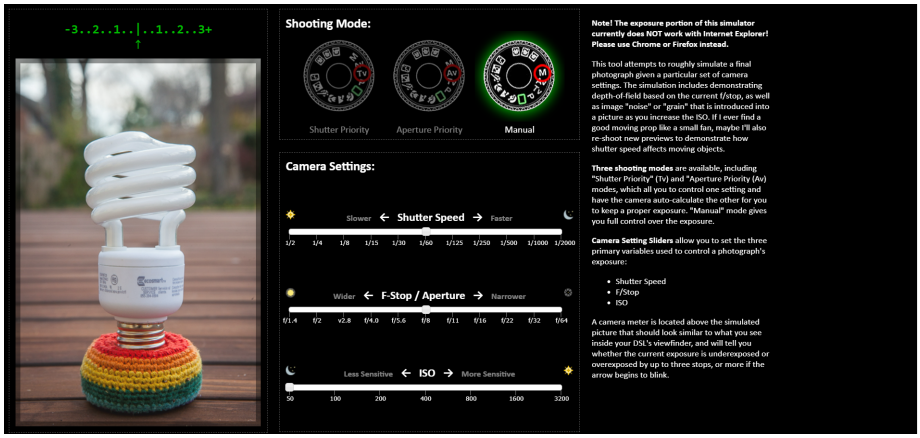

Figure 6: Interface of the Exposure Simulator web application

3 Project Scope Analysis

This project requires an integrated approach to development, so the waterfall method was chosen to develop, test, and bring all the elements of the platform to the required level for a potential group of users. The waterfall method is a linear and sequential approach to software development that involves completing each phase before moving on to the next. It is ideal for projects with well-defined requirements and a clear understanding of the end product.

3.1 Gantt Chart

A Gantt chart was also created to track the LensLab development process, which shows all the key stages of development with deadlines. The Gantt chart helps to ensure that the project stays on track and meets its deadlines, allowing for efficient and effective management of resources. By utilizing both the waterfall method and a Gantt chart, the LensLab development can be ensured to be conducted in a systematic and organized manner.

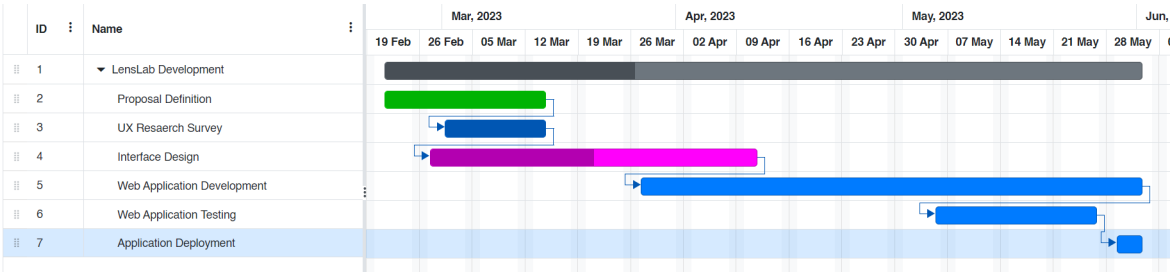

Figure 7: Project Development Gantt Chart

3.2 Future Project Investigation

In this section, we will talk about future research on this project. The research will include both elements of code development and the creation of an interface that meets all the criteria. The code development research will focus on improving the efficiency and scalability of the system, while the interface research will aim to enhance user experience and accessibility.

3.2.1 The Software Part Of The Project

Since the development will be carried out for a web application, it makes sense to explore the market for the necessary frameworks to create a stable service. At the moment, Alpine.js is being considered, which is a relatively new and minimalistic framework that is ideal for updating information on the frontend side. There is also an alternative use case for React.js or Express.js, which are large libraries with a good reputation and a lot of training material. Ultimately, the choice of framework will depend on the specific needs and goals of the project. It is important to carefully evaluate each option and consider factors such as scalability, ease of use, and community support before making a final decision.

3.2.2 UI and UX Part Of The Project

The UX and UI of the application is also important, and since the pool of the users, their age, and the device they most often take pictures with are already known, the application interface will focus on the simplest, but understandable design that will not put users into a stupor, but will be able to graphically explain the principles of the camera.

As for the user experience, the application will need to be able to work with a large number of different users and therefore with a large audience. Therefore, every element of the experience of interacting with the application will be tested.

3.3 Project Testing

This project is planned to be tested on a special sample of users who are novice photographers. Since Lens Lab is being created for the Lumiere Society of Photographers, it will serve as the main source of feedback since it has not only beginners but also professional photographers whose feedback and experience can be very useful during testing.

4 Outcomes and Deliverables

This project involves the creation of a Standalone web application that will be stored on a separate server with its own domain name. The option of storing this application on a free hosting by type is also being considered Github.io open source.

In total, the result is two elements that will be the final deliverables: the landing page, which will serve as a brief presentation of the project as well as a place from which the user can choose training tasks, and a photo stimulator, which will be a separate web application.

Abidin, M., Alkaabi, E. and Razak, A. (2021), 'Proof of concept: Effectiveness of photography training simulator during covid-19.', *International Society for Technology, Education, and Science* .

Abrahmov, S. L. and Ronen, M. (2008), 'Double blending: online theory with on-campus practice in photography instruction', *Innovations in Education and Teaching International* **45**(1), 3–14. **URL:** *https://doi.org/10.1080/14703290701757385*

Cheah, W. K. (2013), 3D DSLR learning platform., PhD thesis, UTAR.

Sun, Y., Liu, L. and Li, Q. (2010), Design and development of 3d virtual dslr camera based on vrml and javascript, *in* '2010 5th International Conference on Computer Science Education', pp. 1380–1384.