Lafayette College Image Labeling Game User Manual

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A. Introduction:

During the completion of the Senior Project course, our team was given the opportunity to build a software solution for a customer. Our team follows an agile software methodology process to complete this task for our customer. After completing a survey, our team has been assigned a project which involves developing a web application that adds labels to around 2000 undigitized and uncategorized photographs in the most recent Lafayette College art collection.

Within the past two years, Lafayette College has acquired about 1500 contemporary photographs that represent a range of topics from the 19th to 21st century. In addition to these 1500 new photographs, Lafayette College also has about 500 older photographs in their collection. These photographs are neither cataloged digitally nor physically, meaning that they have no associated labels. As a result, faculty and students have no effective mechanisms to access these photographs for research or educational purposes. In fact, most students are not even aware that such resources are available. If interested in a photograph, one must contact Michiko Okaya, the director of art galleries and collections of Lafayette College, who searches through archival boxes based on generic information. In order to make this process more effective for all parties, our team will design a system that utilizes a game that assigns labels and keywords to each photograph. By creating a game interface, we can incentivise students, faculty and staff to label each photograph by rewarding them with points and rankings. This game will allow players from a wide range of backgrounds to create an account and play the game by labeling photographs which our team will utilize to determine label relevance.

# B. Lafayette College Image Labeler:

This manual will serve as a guide for users, developers or administrators to reference prior to accessing the web application. This manual will display each functionality found within the web application and discuss its use. The technical discussion and access steps can be found in the Developer Manual, as this document serves more to display our final working product.

1. Accessing the Page:

To access the web application, one can either use the development server or the production server. The development server is hosted by the Django web development server and steps for running this can be found in Section C4 of the developer manual. The production server is hosted by the Apache web server and can be access by typing 139.147.9.239 into your browser. A brief background: this is the IP address that our web application resides on, which is hosted by Lafayette College. The best browser to use for accessing the web application is Google Chrome, as it is the most compatible.

2. Main Page:

The first web page that one will see when they navigate to 139.147.9.239 will be the home page, as seen in *Figure 1*. The purpose of the home page is to serve as an introduction to our web application. The navigation bar at the top of the page and the footer at the bottom of the page will remain there throughout the web application. As an unregistered user, one only has access to the home page, the about page, the leaderboard page and the user authentication portal.
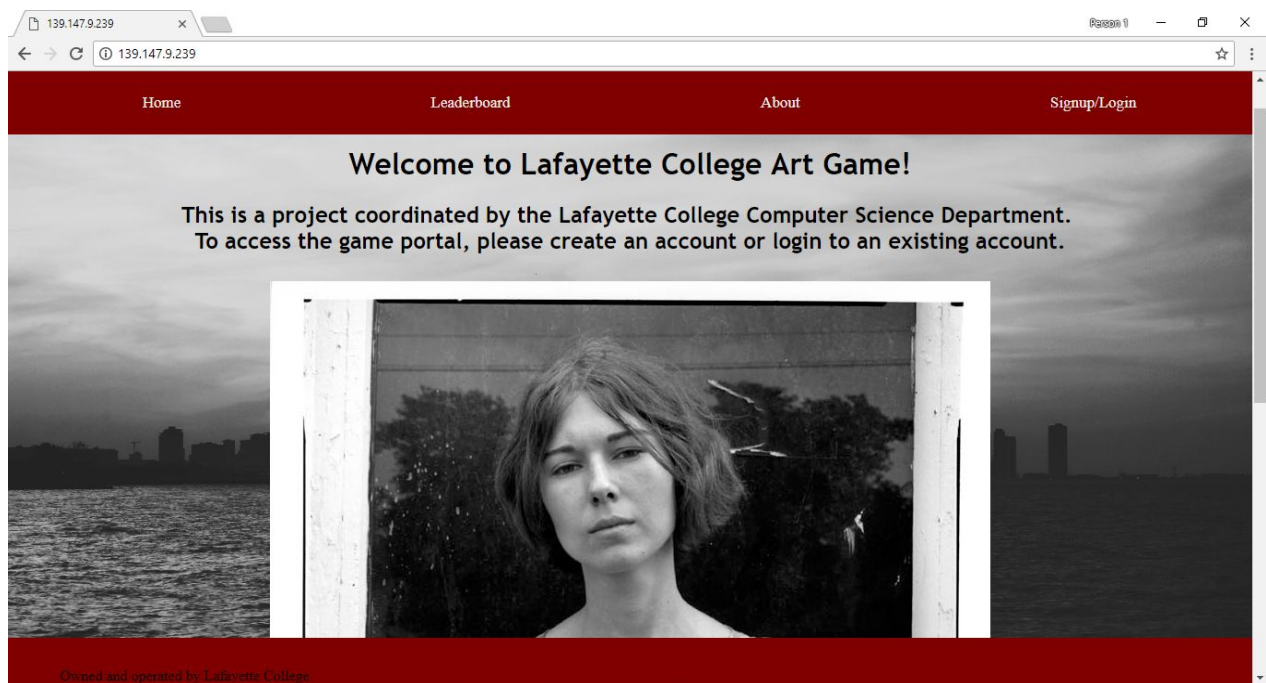
Figure 1: Home Page

3. About Page:

The about page can be accessed by clicking on the 'about' tab on the navigation bar or by navigating to 139.147.9.239/about/. As seen in *Figure 2*, the about page contains static information regarding the background of this product, an about us section and a thank you section for our advisor and mentor, Professor Ordille. This page serves as a reference for users.
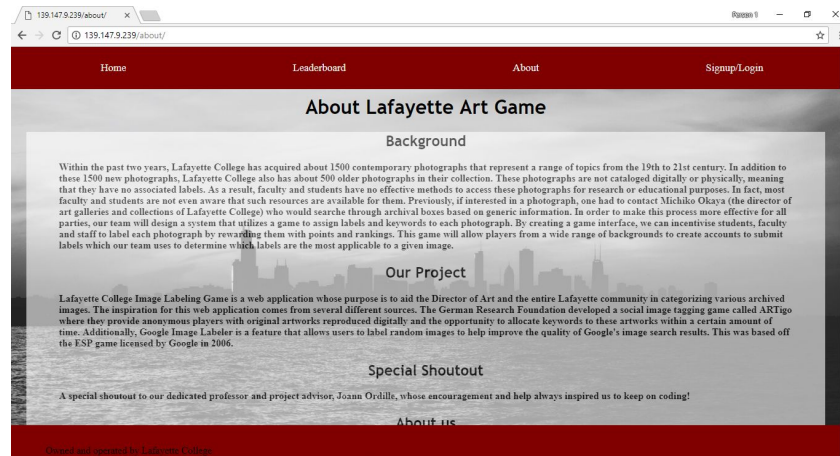
Figure 2: About Page

4. Leaderboard:

The leaderboard page can be accessed by clicking on the 'leaderboard' tab on the navigation bar or by going to 139.147.9.239/leaderboard/. As seen in *Figure 3*, the leaderboard page displays the top 10 current players on the website. This gets updated as players earn points and move up within the ranks. This page serves as a motivation mechanism for players.


Figure 3: Leaderboard Page

5. Login:

To login to an already existing account, the login page can be accessed by clicking the 'Signup/Login' tab on the navigation bar or by going to 139.147.9.239/accounts/login/. As seen in *Figure 4*, the login page allows a current user to type in the username and password that they registered with. This page serves as a mechanism to allow users to login to their accounts in order to resume their activity on the web application. Once a user has correctly logged in, the web application will automatically navigate to the game portal to allow the user to continue to label photographs, earn points and boost their position on the leaderboard.

Currently, if a user forgot their username of password, there is no way to recover that information on the web application. They must either remember, create a new account or access the administrator of the web application to access their information stored in the database. A password reset mechanism has been implemented within the source code, but was not pushed to the production server as a result of linking error.
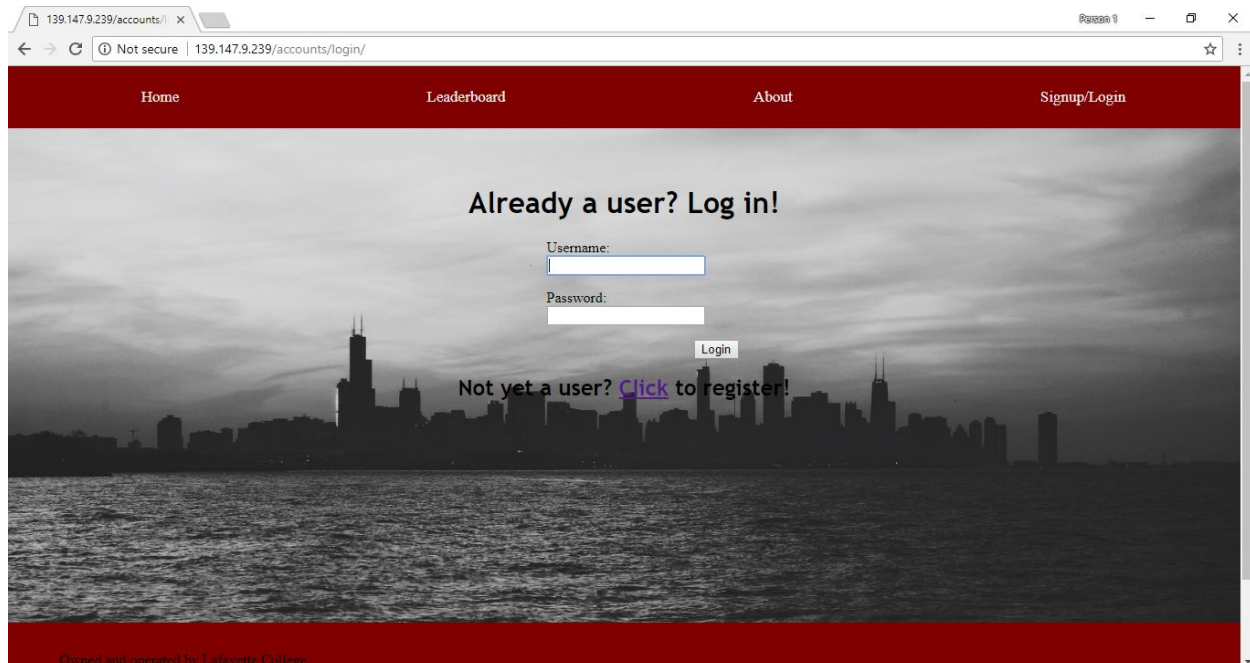

Figure 4: User Login Page

6. New User Registration:

To create a new account, the registration page can be accessed from the login page by clicking on the 'click to register' link as seen in the middle of *Figure 4* or by going to 139.147.9.239/register/. As seen in *Figure 5*, the registration page allows a new user to input a desired username that will be displayed on their profile and leaderboard, a Lafayette College associated email address and a password of choice. It is encouraged that the chosen username matches the username found in ones Lafayette email address. This page serves as mechanism for a user to create an account with this web application in order to start playing.

Once a user has created an account, they will be automatically redirected to the game portal. A registered or logged in user has more access capabilities than an unidentified user within the site. For example, an authenticated user can access the game portal, their profile and the logout functionality. On the contrary, an unauthenticated user cannot access the game portal for legal reasons concerning the property rights of the photographs. These photographs were purchased by Lafayette College, thus are under their ownership and are available for Lafayette students, faculty and administrators.
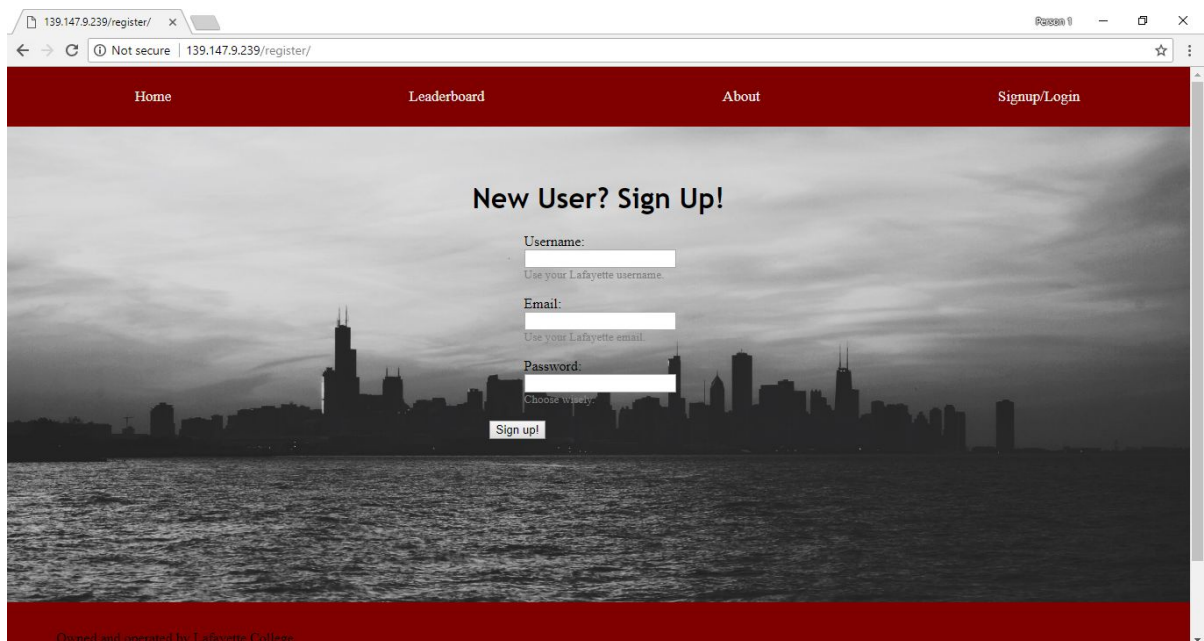
Figure 5: User Registration Page
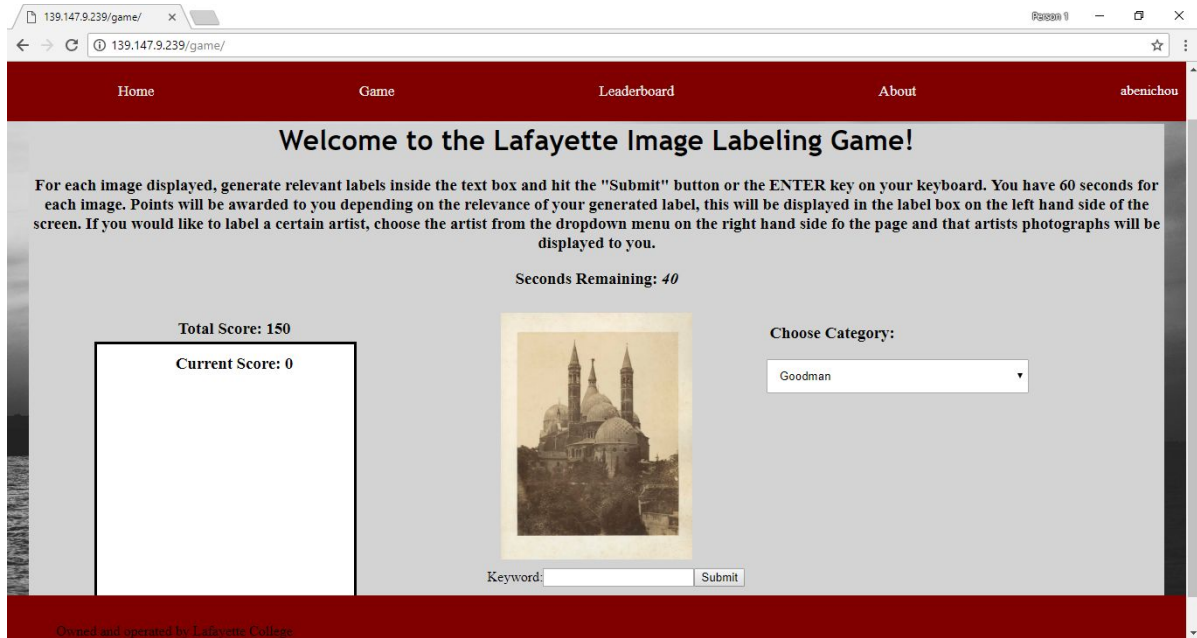
7. Playing the Game

The game page can be accessed by clicking on the 'game' tab on the navigation bar once you have logged in or register an account, or by going to 139.147.9.239/game/. As seen in *Figure 6*, the recently logged in or register user will be prompted by the Google Chrome browser to re-enter their credentials. From *Figure 6*, one can see the game portal without the actual photograph. This is because the web application wants to ensure that the user is authenticated before displaying the photograph. Just enter your credentials and click 'Sign In.'
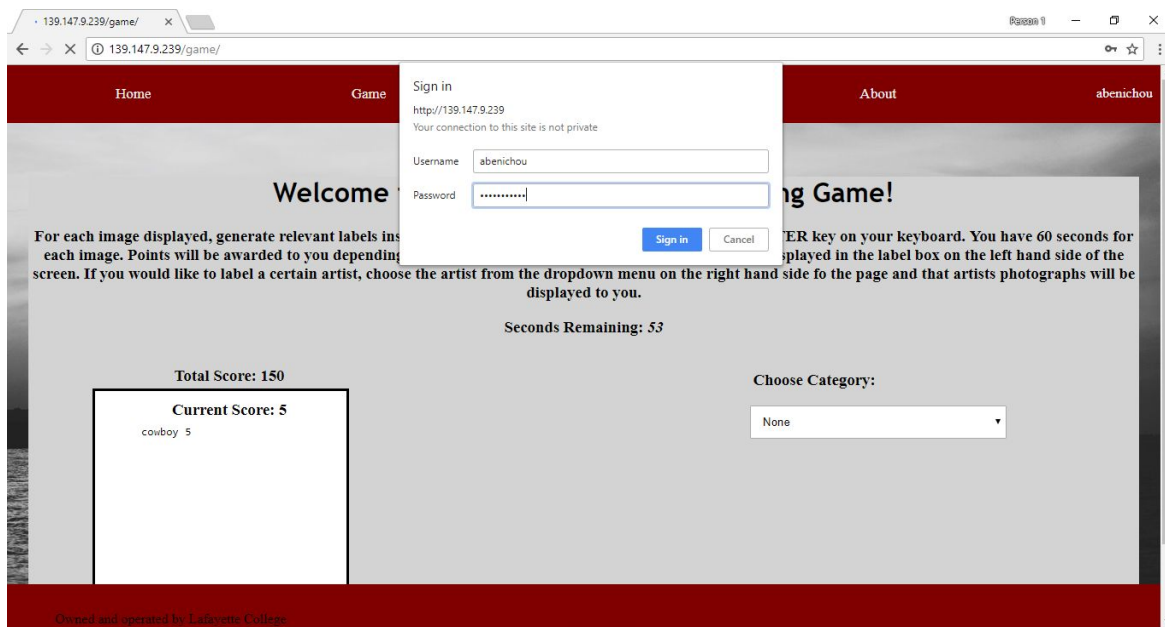
Figure 6: Prompted to re-enter credentials

Now that your credentials have been verified, the game portal will display a photograph and you can play the labeling game. The game portal can be seen in *Figure 7* with instructions, a timer, the current photograph, your current score, the total score and a drop down menu to selected a category.

Figure 7: Game Portal

Starting with the top of the page, there are brief instructions for playing the game. There is a 60 second timer that starts counting down when the photograph first gets displayed to the player. The player views the displayed photograph and the goal is to generate as many labels that they feel are associated with the photograph. These labels should be entered, one by one, into the input tab that is below to the displayed photograph. They can submit a label by hitting the adjacent submit button or by pressing ENTER. Once a label has been generated, it will be pinned to the box on the left hand of the screen, as shown in *Figure 8*. The generated label is assigned a certain number of points, depending on what percentile it falls under. If the label has been previously generated for this photograph by another user, then it gets more points then if it is the first time that this label has been associated with this photograph. For each displayed photograph, the current score shown inside the box continues to add up. As you continue to generate labels for the image, the current score will continue to increase. When the timer finishes and a new photograph is displayed, the current score is appended to the total score and wiped so that it starts at 0 points for the next image displayed. The total score, shown on top of the box, keeps track of all the points you have ever accumulated.

Figure 8: Generating labels

There are certain labels that the game does not accept. If you generate the same label for the same photograph, an error message will occur on the right hand side of the screen. This message indicates to the user that there generated label cannot be reapplied to the same photograph, therefore they will not be earning any points for this label. An example of this error message can be seen in *Figure 9*.

Figure 9: Duplicate keyword error message

Other situations in which the game portal will not accept the label include if the generated label is considered 'unsavory' or if the label contains numbers, symbols or spaces. There is a list of words that are considered inappropriate or offensive that was pulled from Google that each generated label is checked against. Similarly, labels must not contain numbers, symbols or spaces as keywords are expected to be a single word. The message displayed for these errors are found within the same location but with different error messages.

The final features that the game portal has is the ability for the user to select a category of photographs they would like to label. These categories are split up into photographer names that were associated with the images at the time of their upload to the web application. This categorization can be found in a drop down menu, as shown in *Figure 10*. This feature allows user to select a certain photographer, depending on preference, knowledge or purpose. Categories are added to the drop down menu as images are uploaded to the website.
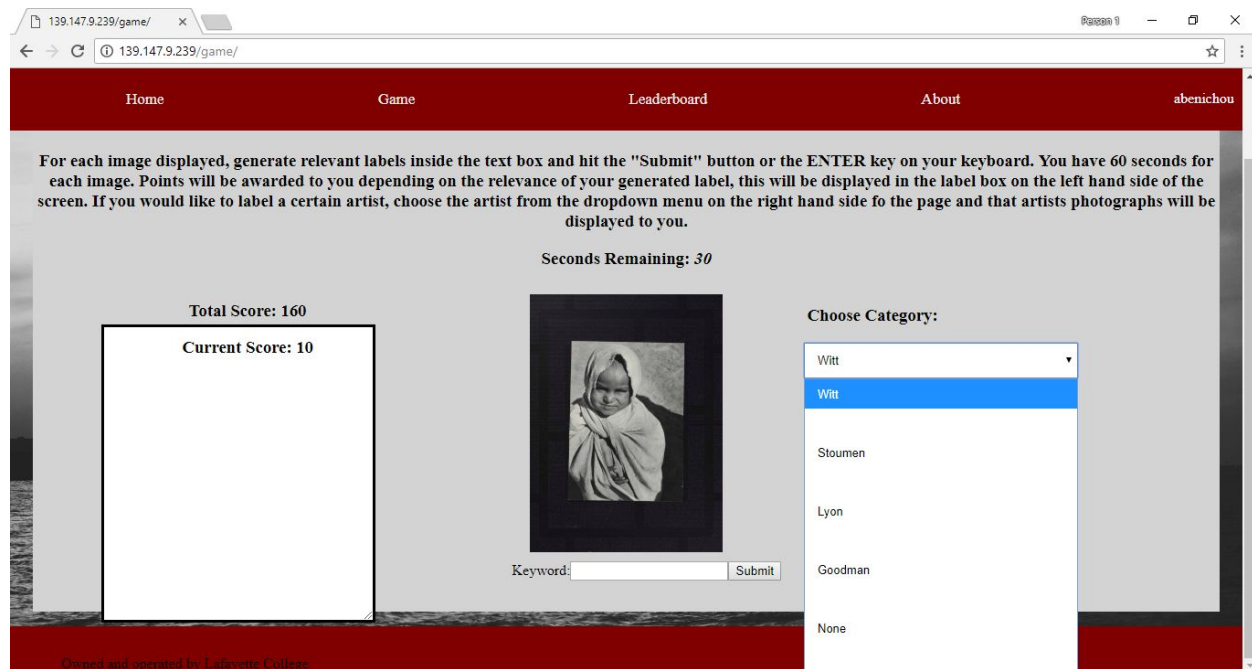

Figure 10: Categorization drop down menu

8. Profile:

The users profile page can be accessed by clicking on the 'profile' option on the navigation bar when an authenticated user hovers over the tab that is displaying their username or by going to 139.147.9.239/profile/. As seen in *Figure 11*, the profile (and logout functionality) can be accessed by hovering over the tab that displays the username. *Figure 12* shows what the users profile currently looks like. This page serves as a reference point for the player to view their progress, highest scores and achievements.
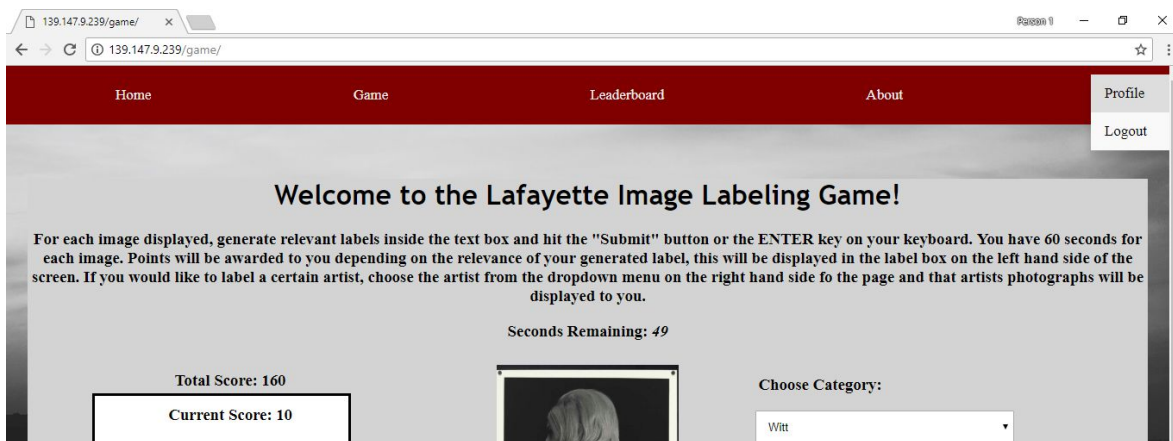
Figure 11: Accessing the profile functionality
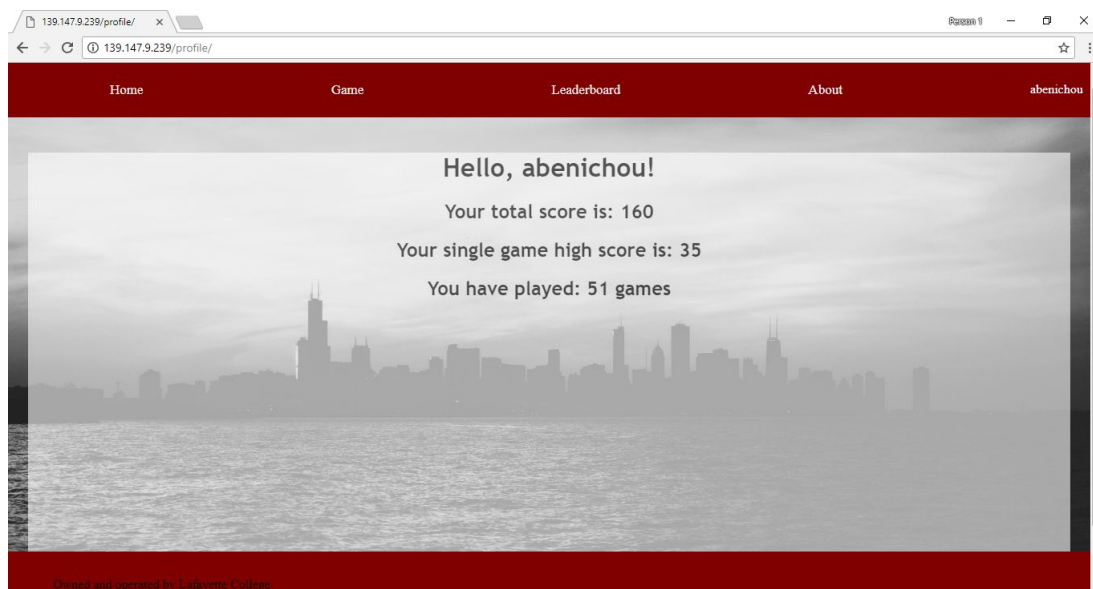
Figure 12: The User Profile

C. Admin Functionality:

The static files associated with the admin page (CSS files most importantly) are not yet configured to be delivered by the Apache server. The simplest solution appears to be creating a symlink to the the files from within the project directory (/usr/Artgame). To enable admin static file serving in an Apache environment, follow this link:

https://docs.djangoproject.com/en/2.0/howto/deployment/wsgi/modwsgi/#serving-the-admin-files .

To create an admin account, the command 'createsuperuser' must be given to the manage.py file. You will then be prompted to enter a username and password. These credentials are used when signing on to the admin page at {site-name}/admin. Or the following credentials may be used:

Username: lafayetteadmin
Password: lafayetteadmin470

The admin page is designed for ease of use. The home view displays all accessible database models. Within these models, the information relevant to the title is stored. Clicking a model name brings the admin to a view which can modify specific entries within a model or, using the button at the top right, add entries.

1. Uploading Images:

Individual images can be uploaded by accessing the Artwork model within the admin page and using the Add button. Currently, images are only designed to be uploaded individually.

2. Viewing Keywords:

Keywords inputted in the system can be viewed by clicking the Keyword model. To process the final dataset, it is recommended the user access the models through the PSQL shell.

D. Licenses:

This project uses the MIT license.

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E. Terms of Agreement:

By creating a profile, the user realizes that information that they provide to the system (such as any profile pictures they upload, personal information they submit, and all keywords provided) is available to the public.

F. Secrets:

Everything described in the User Manual should be sufficient to the user's understanding of how the art labeling game system works.