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| SWE 573 Fall 2022  Final Project Report |
| ShareIt - Link Sharing Web Application |
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| **Mehmet Ali OZCAN – 2021719111**  **03.01.2023**  **Git Repository:** [**https://github.com/mehmetozcan-zz/SWE573**](https://github.com/mehmetozcan-zz/SWE573)  **Git Tag Version:** [**https://github.com/mehmetozcan-zz/SWE573/releases/tag/0.9**](https://github.com/mehmetozcan-zz/SWE573/releases/tag/0.9)  **Deployment URI:** [**http://44.204.78.50:8000/**](http://44.204.78.50:8000/)  **Instructions:** Anyone who wants to use the application can visit <http://44.204.78.50:8000/> and complete registration on their own. If access to admin pages is required, **username: root, password: Mali1984** can be used for login. |
|  |

Honor Code:

Related to the submission of all the project deliverables for the Swe573 2022 Fall semester project reported in this report, I, Mehmet Ali Ozcan, declare that:

* I am a student in the Software Engineering MS program at Bogazici University and am registered for Swe573 course during the 2022 Fall semester.
* All the material that I am submitting related to my project (including but not limited to the project repository, the final project report, and supplementary documents) have been exclusively prepared by myself.
* I have prepared this material individually without the assistance of anyone else with the exception of permitted peer assistance which I have explicitly disclosed in this report.

Name:

Signature:

İçindekiler

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# Overview

* 1. **General Description:**

In this project, it is aimed to prepare a web application which enables its users to share noteworthy website links about their desired topics. Besides, it will also be possible to save desired posts under the personal space, search about desired topics, filter out desired posts by tags, and follow desired users.

* 1. **Personas and Use Cases:**

1. **Ahmet**

Ahmet is a Bogazici University - Computer Engineering undergraduate student. He is 21 and in his last year. He is interested in following software development and technology communities in fields like blockchain, game development, cloud computing etc. He is also fan of Galatasaray and constantly following the news about the team. Since there are many social media platforms, he is a member of, he would like to have a private space that he can access to all social media platforms for only the topics he is interested in easily.

1. **Ayşe**

Ayşe is a senior marketing manager of an e-commerce company. She is 40 and has an extensive work experience in the marketing space. Regarding her responsibilities at work, she must follow social media trends, influencers, competitors etc. to run successful online commercials and campaigns. Considering the fact that there are many accounts and topics to follow, it is almost impossible catch every crucial happening on the Internet. It is needed for her to have an application that consolidates the posts of interest and presents her in a user-friendly way.

1. **Mustafa**

Mustafa is retired history teacher at the age of 65. He is an intellectual and has many interests in history, politics, literature, and archeology. His relationship with common technologies widely used today is very limited and therefore he is not a pro user for social media platforms. He needs an easy-to-use platform where he follows his interests in a classified way. Besides, he does not like to lose anything noteworthy.

# Software Requirements Specification

## Functional Requirements

### Registration and Login

* As a user, I want to register by choosing my own credentials, so that I can use the application.
* As a user, I want to login to the application, so that I can access my personal space.
* As a user, I want to logout from the application, so that I can be sure someone else using the same computer cannot access my private space.
* As a user, I want to be able to set my password if I forget it, so that I can keep accessing my personal space.

### User

* As a user, I want to access my profile, so that I can change my username, email address and profile picture.
* As a user, I want to follow the desired users on the platform, so that I can see their posts on my personal space.
* As a user, I want to unfollow the desired users on the platform, so that I will not see their posts on my personal space.
* As a user, I want to filter out the posts of a specific user, so that I can see the posts of desired user in a grouped way.

### Posts

1. As a user, I want to write a post, so that I can share an information with other users about the topic I want.
2. As a user, I want to edit any post that I have shared in the past, so that I can correct the content of my post.
3. As a user, I want to delete any post that I have shared in the past, so that I can remove a content that I don't want to be present.
4. As a user, I want to add external web urls to my posts, so that my posts can direct users of the platform to the related content.
5. As a user, I want to edit external web urls of my posts, so that I can change the url if I made a mistake or I found a more appropriate web page.
6. As a user, I want to add some tags for my posts, so that my posts can be filtered out by specifiying the tags on it.
7. As a user, I want to edit tags of my posts, so that my posts can be filtered out by specifiying the desired tags on it.
8. As a user, I want to save a specific post, so that I can take a look at it later.
9. As a user, I want to unsave a specific post, so that I can keep my saved posts space neat.
10. As a user, I want to see the preview of the shared urls on the platform, so that I can see if the link will direct me to a web page that is worth visiting.
11. As a user, I want to give my comments to the desired posts, so that others can see my opinion about the topic.

### Space and Homepage

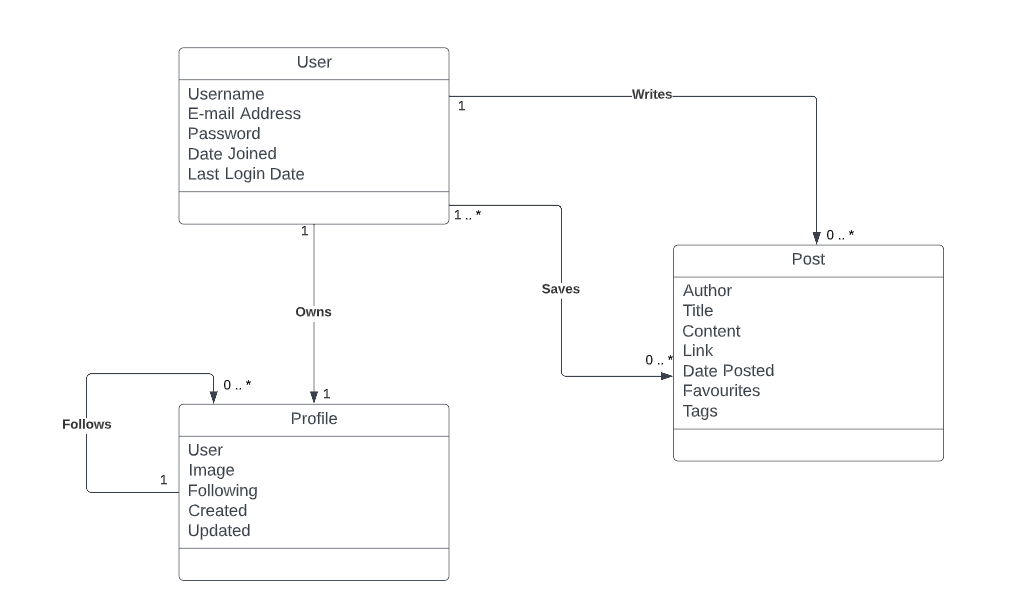
* As a user, I want to see the posts of the users that I follow, so that I will not be distracted by the posts that I am not interested in.
* As a user, I want to see the posts recently shared by all users, so that I will be able to catch up with the popular topics.
* As a user, I want to filter out the posts of a specific user, so that I will be able to see the desired user's posts in a grouped way.
* As a user, I want to reach my saved posts, so that I don't forget something important for me.
* As a user, I want to filter out the posts with respect to a desired tag, so that I will be able to see the posts about similar topics together.
* As a user, I want to search for the posts including a desired keyword, so that I will be able to filter out the posts having a specific keyword.
* As a user, I want to see other's comments on the shared posts, so that I can read what others think about the topic.
* As a user, I want to like / unlike a post, so that I can encourage other users about sharing valuable content and enable users of the platform to be aware of valuable sharings.

## Non-functional Requirements

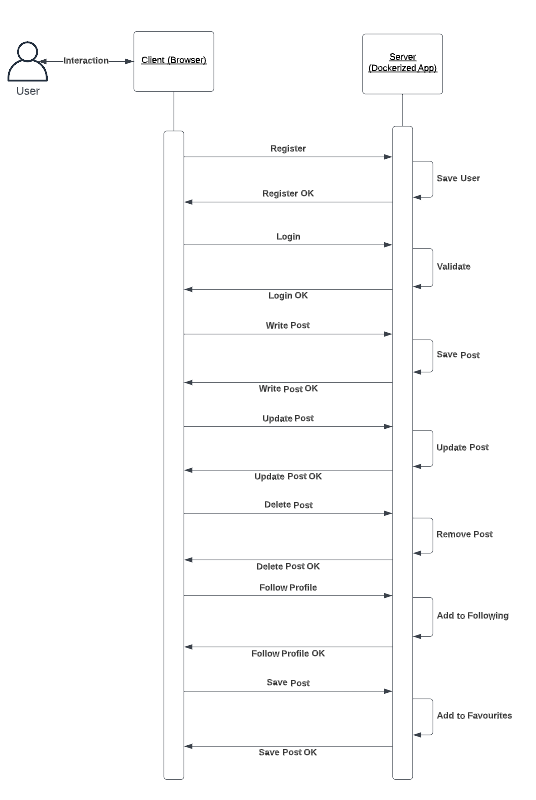
* Passwords shall be kept encrypted in the database, so that anyone cannot reach users' passwords even if a data leak occurs.
* The application shall be dockerized, so that it can be deployed and run on any platform easily.
* The application shall be deployed to cloud and assigned a public IP, so that it can be reachable over the internet.
* Error logs shall be tracked in the system, so that the developer can investigate any problem that occurs in the system.
* Register, login, post counts shall be reachable, so that the succeess of the the app can be tracked.

# Design

* 1. **UML Class Diagram**

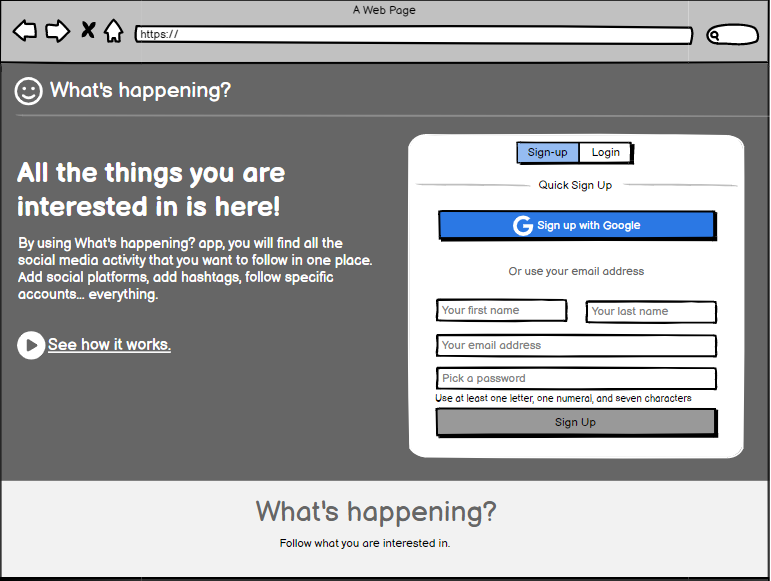


* 1. **UML Sequence Diagram (only main functions)**

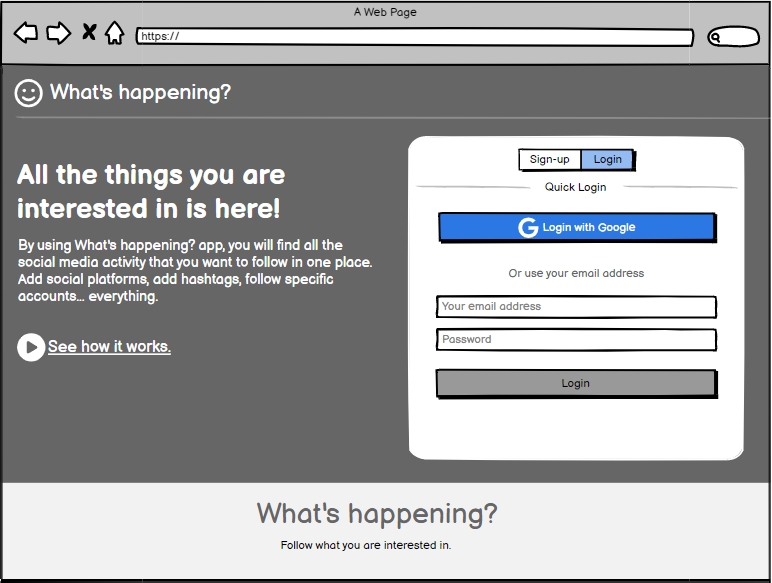


* 1. **Mockups (prepared at the beginning of the semester using Balsamiq)**

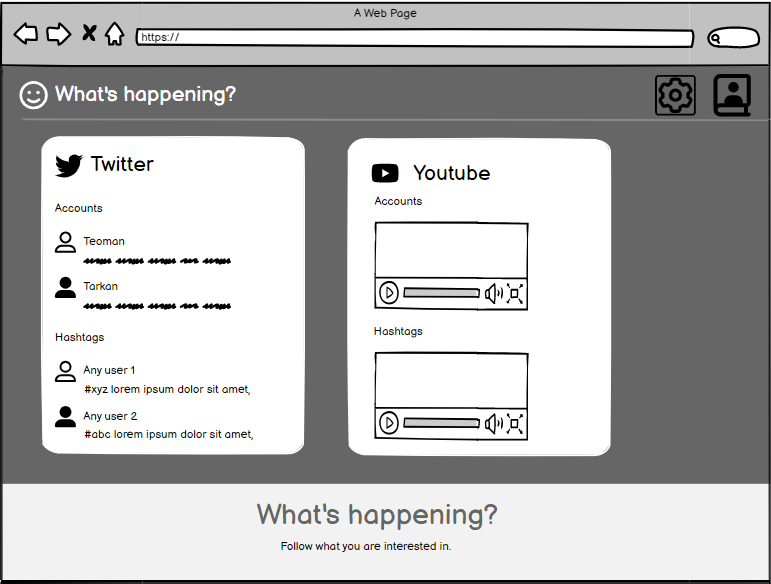
## Sign-Up Page



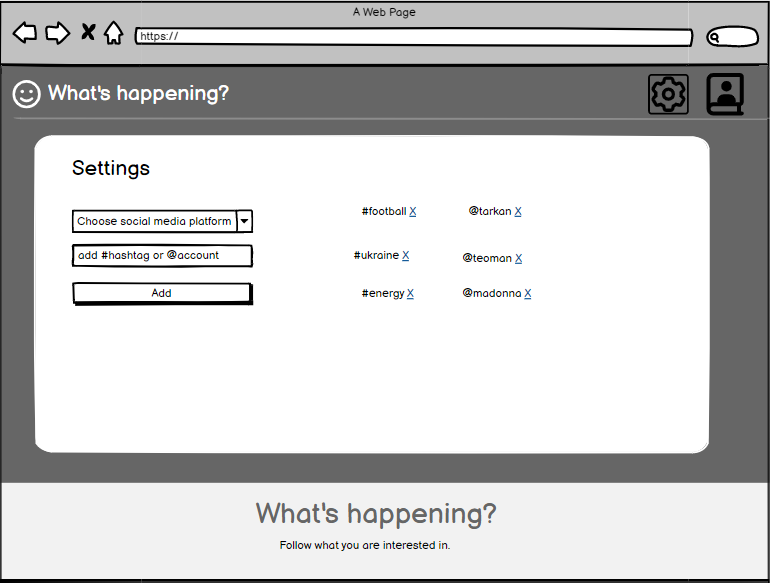
## Login Page



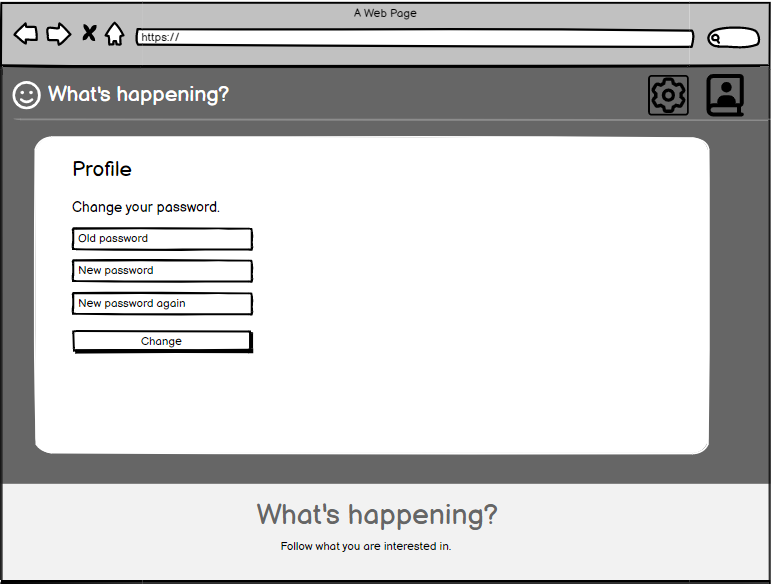
## Homepage



## Settings



## Profile



# Status of the Project

|  |  |
| --- | --- |
| **Functional Requirements** | **Status** |
| Registration and Login |  |
| As a user, I want to register by choosing my own credentials, so that I can use the application. | OK |
| As a user, I want to login to the application, so that I can access my personal space. | OK |
| As a user, I want to logout from the application, so that I can be sure someone else using the same computer cannot access my private space. | OK |
| As a user, I want to be able to set my password if I forget it, so that I can keep accessing my personal space. | OK |
| User |  |
| As a user, I want to access my profile, so that I can change my username, email address and profile picture. | OK |
| As a user, I want to follow the desired users on the platform, so that I can see their posts on my personal space. | OK |
| As a user, I want to unfollow the desired users on the platform, so that I will not see their posts on my personal space. | OK |
| As a user, I want to filter out the posts of a specific user, so that I can see the posts of desired user in a grouped way. | OK |
| Posts |  |
| As a user, I want to write a post, so that I can share an information with other users about the topic I want. | OK |
| As a user, I want to edit any post that I have shared in the past, so that I can correct the content of my post. | OK |
| As a user, I want to delete any post that I have shared in the past, so that I can remove a content that I don't want to be present. | OK |
| As a user, I want to add external web urls to my posts, so that my posts can direct users of the platform to the related content. | OK |
| As a user, I want to edit external web urls of my posts, so that I can change the url if I made a mistake or I found a more appropriate web page. | OK |
| As a user, I want to add some tags for my posts, so that my posts can be filtered out by specifiying the tags on it. | OK |
| As a user, I want to edit tags of my posts, so that my posts can be filtered out by specifiying the desired tags on it. | OK |
| As a user, I want to save a specific post, so that I can take a look at it later. | OK |
| As a user, I want to unsave a specific post, so that I can keep my saved posts space neat. | OK |
| As a user, I want to see the preview of the shared urls on the platform, so that I can see if the link will direct me to a web page that is worth visiting. | OK |
| As a user, I want to give my comments to the desired posts, so that others can see my opinion about the topic. | NOK |
| Space and Homepage |  |
| As a user, I want to see the posts of the users that I follow, so that I will not be distracted by the posts that I am not interested in. | OK |
| As a user, I want to see the posts recently shared by all users, so that I will be able to catch up with the popular topics. | OK |
| As a user, I want to filter out the posts of a specific user, so that I will be able to see the desired user's posts in a grouped way. | OK |
| As a user, I want to reach my saved posts, so that I don't forget something important for me. | OK |
| As a user, I want to filter out the posts with respect to a desired tag, so that I will be able to see the posts about similar topics together. | OK |
| As a user, I want to search for the posts including a desired keyword, so that I will be able to filter out the posts having a specific keyword. | OK |
| As a user, I want to see other's comments on the shared posts, so that I can read what others think about the topic. | NOK |
| As a user, I want to like / unlike a post, so that I can encourage other users about sharing valuable content and enable users of the platform to be aware of valuable sharings. | NOK |
| **Non-functional Requirements** |  |
| Passwords shall be kept encrypted in the database, so that anyone cannot reach users' passwords even if a data leak occurs. | OK |
| The application shall be dockerized, so that it can be deployed and run on any platform easily. | OK |
| The application shall be deployed to cloud and assigned a public IP, so that it can be reachable over the internet. | OK |
| Error logs shall be tracked in the system, so that the developer can investigate any problem that occurs in the system. | OK |
| Register, login, post counts shall be reachable, so that the success of the the app can be tracked. | OK |

# Status of Deployment

Project is dockerized and deployed to AWS EC2 instance on 27.12.2022. All the functions that have status OK are available on the deployed application.

<http://44.204.78.50:8000/>

# System Manual

* 1. **Local Environment**
  2. Docker should be installed on your local machine. <https://www.docker.com/products/docker-desktop/>
  3. Extract the 0.9 tagged release file that is available in my github page, and the USB that I provide.
  4. In the project root directory, where the Dockerfile resides, run *docker-compose up* command.
  5. From Docker Desktop or terminal screen, see that both web application and mysql database containers are running. From terminal, *docker ps* command can be used.
  6. If a problem encountered about listening to the 3306 or 8000 ports while starting the containers, kill the other applications that listens to those ports.
  7. From your web browser, go to <http://127.0.0.1:8000> link.
  8. **Cloud Environment**
  9. Create an EC2 Linux instance on AWS:

<https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2_GetStarted.html>

* 1. Connect the EC2 instance using one of the methods described here:

<https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AccessingInstances.html>

* 1. Install docker on the Linux EC2 instance: <https://docs.docker.com/engine/install/ubuntu/>
  2. Transfer the project folder to the EC2 instance: <https://asf.alaska.edu/how-to/data-recipes/moving-files-into-and-out-of-an-aws-ec2-instance-windows/>
  3. Run docker-compose up command in EC2 under the project folder.
  4. Set inbound and outbound security rules, so that the application can be reached over the internet: <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/authorizing-access-to-an-instance.html>
  5. Check your EC2 instance’s IP address: <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-instance-addressing.html#using-instance-addressing-common>
  6. Visit http://<ec2ipaddress>:8000

# User Manual

**Homepage:**

1. When you visit <http://44.204.78.50:8000/> link, and you are not previously logged in, you will see the Homepage of the application where all posts published listed in descending order with respect to date and time. Accessing the homepage is also possible through top navigation.
2. If there are more than 5 posts entered, you can go back and forth via pagination module at the bottom of the page.
3. If you click on the author of one of the posts, you will be redirected to a page where you see the posts of the clicked user only.
4. When you click on a tag, you will be directed to a page where all the posts having the same tag are listed.
5. When you click on the title of a post, you will be redirected to a login page if you are not already logged in. If you click on it while you are logged in, you will see the post detail page where you can add a desired post to favourites if it is written by another user, or update / delete it if it is your own post.
6. When you mouseover on a link of a post, the preview of the related webpage will be loaded on the right side of the post. For some links, preview may not be available since some websites don’t have proper headers and images.
7. When you click on a link of a post, you will open the related webpage in separate browser tab.

**Top Navigation (Not logged in state):**

1. Top Navigation, while at not logged in state, has the links below and they will direct you to the related page.

* **ShareIt** (also directs to homepage)
* **Homepage**
* **About**
* **Login**
* **Register**

**Top Navigation (Logged in state):**

1. Top Navigation, while at logged in state, has the links and fields below and they will direct you to the related page.

* **ShareIt** (also directs to homepage)
* **Homepage**
* **About**
* **Keyword Search**
* **MySpace**
* **Create a Post**
* **Profile**
* **Users**
* **Logout**

**About:**

1. This page only tells that this website is created for SWE573 project.

**MySpace:**

1. When you visit <http://44.204.78.50:8000/> link, and you are previously logged in, you will see the MySpace where all posts published by you and the users you follow in descending order with respect to date and time. Accessing the MySpace is also possible through top navigation.
2. If you click on the author of one of the posts, you will be redirected to a page where you see the posts of the clicked user only.
3. When you click on a tag, you will be directed to a page where all the posts having the same tag are listed.
4. When you click on the title of a post, you will see the post detail page where you can add a desired post to favourites if it is written by another user, or update / delete it if it is your own post.
5. When you mouseover on a link of a post, the preview of the related webpage will be loaded on the right side of the post. For some links, preview may not be available since some websites don’t have proper headers and images.
6. When you click on a link of a post, you will open the related webpage in separate browser tab.
7. At the right side of the page, there is the Favourites link. Once clicked, you will be redirected to a page where you see all the posts that you have added to favourites.

**Create a Post:**

1. This the page where you enter a new post having below fields.

* Title (mandatory)
* Content (mandatory)
* Link (mandatory)
* Tags (optional)

**Profile:**

1. This is the page where you can see your current username, e-mail address, and profile picture, and it is possible to change them.

**Users:**

1. This is the page where you list all users registered to platform.
2. By click on a specific user, you are going to be redirected to a page where you can follow / unfollow that user.
3. Followed users’ posts will be listed under MySpace.

**Search:**

1. When you enter a keyword and click on the Filter button, you will be redirected to a page where all the matching posts are filtered.
2. Entered keyword is searched in title and content of the posts.

**Login:**

1. This link is visible only in the not logged in state and lets you to securely log on the website with your username and password.
2. If you don’t remember your password, you can request a password reset by clicking on the link *Forgot Password?*
3. This link will redirect you a page where you should enter your registered email address and submit the request.
   1. **Important Note:** Normally, I can send an email to provide password reset link, but instead, I am creating a file under sent\_emails folder of the project. You can open the created file and see the email content that is supposed to be sent to the email address you provided. I implemented this way to prevent sending undesired emails because the application does not confirm provided contact information currently.

**Register:**

1. You can register to the application by filling out the fields below.

* Username (mandatory)
* Email (mandatory)
* Password (mandatory)
* Password Confirmation (mandatory)

**Logout:**

1. This link is visible only in the logged in state and lets you to securely log out of the website.

# Test Results

All requirements having the status OK under *4. Status of the Project* section is tested manually.

Additionally, below user tests are performed.

|  |  |  |
| --- | --- | --- |
| **Id** | **Scenario** | **Status** |
| 1 | Login with a wrong username is impossible. | OK |
| 2 | Login with a wrong password is impossible. | OK |
| 3 | It is impossible to register with an existing user information. | OK |
| 4 | It is impossible to choose an easy password at registration. | OK |
| 5 | It is impossible to register without confirming password correctly. | OK |
| 6 | Users can only update their own posts. | OK |
| 7 | Users can only delete their own posts. | OK |
| 8 | Creating a post only possible after login. | OK |
| 9 | Users can only update their profile information. | OK |
| 10 | MySpace is only available after login. | OK |
| 11 | Search is only available after login. | OK |
| 12 | Users of the app can be listed only after login. | OK |
| 13 | Users that have not been followed can be followed. | OK |
| 14 | Users that have been followed can be unfollowed. | OK |
| 15 | Adding a post to favourites only possible after login. | OK |
| 16 | It is impossible to see other users' favourites. | OK |

# Video Demonstration

Here is the link to project demonstration video: <https://youtu.be/Ccmx6yMizfs>

# References

1. Django documentation: <https://docs.djangoproject.com/en>
2. Django - Getting Started, a YouTube series by Corey Schafer: <https://www.youtube.com/playlist?list=PL-osiE80TeTtoQCKZ03TU5fNfx2UY6U4p>
3. Docker documentation: <https://docs.docker.com/get-started/>
4. AWS documentation: <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2_GetStarted.html>
5. Transfer the project files to AWS EC2: <https://asf.alaska.edu/how-to/data-recipes/moving-files-into-and-out-of-an-aws-ec2-instance-windows/>