Bilkent University

Department of Computer Engineering

CS 319 Project : *Xtrify*

Group No #10

Analysis Report

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1.Introduction

Xtrify is a web based note-taking application. This application is intended to record the user's notes and suggest related articles from his/her notes. The intention of developing Xtrify is to feel the lack of such an application since there is no similar note-taking application that serves as a recommendation system at the same time. Different from other note-taking applications, additionally, Xtrify has a recommendation function. Thanks to this function, the system suggests some articles related to the user's saved note that has been extracted. The user can find some beneficial articles from the suggested list. Also, Xtrify enables the users to intervene to the scope of suggestion. If the user wants to find some specific articles related to her/his note, s/he needs to add or delete the keywords that have been extracted by the system. Since the login is required to use application, the suggested lists are not lost, they are hold in the user's account, each time the user wants s/he can login and go back to her/his notes and their suggested article lists.

The purpose of this report is to give the basic explanation about the application by describing features. In this report, we will examine the requirements of the project which are functional, nonfunctional and pseudo requirements, scenarios, use case models and user interface of Xtrify.

2.Current System

There are dozens of note-taking apps for the people who are struggling to remember things. The apps like EverNote, Wunderlist and OneNote's main aims are to save anything that the user wants to. Also, these apps work like reminder in order to make people more organised. Different from these functions, Xtrify suggests to the user related articles from saved notes by applying keyword extraction. Also, user can be able to edit the keywords in order to find specific articles or to broaden the research scope.

3.Proposed System

3.1. Overview

Xtrify is a web based note taking application wherein users can reach their notes online from anywhere, with additional functions such as offering a social network to review others notes, extracting keywords automatically to recommend other related material.

3.2. Functional Requirements

3.2.1. Login/Register

In order to begin to use Xtrify, login is required since each time the user wants to look at her/his notes s/he can look at them through her/his account. If the user has already account namely, the user is returning user, s/he can login with her/his username and password. However, if the user does not have account yet, s/he has to create an account by determining username and password. After creating the account, the user can login to the system with the information that have determined before. If the username and password are entered correctly, the user can benefit from all the functions of Xtrify.

3.2.2. Extraction

Keywords are phrases in a text that points to the heart of a matter. In that respect we believe that any two text which contains the same keywords are very likely to discuss almost the same topics. Therefore, they can be used as a means to recommend related material. It is indeed possible to extract keywords computationally as discussed in [1].

3.2.3. Editing

Xtrify has function to edit the keywords. Extracted keywords that have been found one step before can be edited by the user. Thanks to this function, the user can add new keywords in order to find specific articles. Also, the user can remove the existing keywords in order to enlarge the range of results.

3.2.4. Suggestion

As mentioned, differently from other note-taking applications Xtrify has function to suggest the users to related articles about saved notes. This function can list related articles about corresponding note that have been extracted.

3.2.5. Settings

Settings is embedded in MyProfile Page. In MyProfile Page, users are able to change their passwords and usernames whenever they want. First of all, in order to change the password, they need to enter the existing password and new password twice to confirm the passwords are matched or not. If the existing password is wrong or the new passwords are not matched the system gives an error message. If the user enters her/his information correctly, then her/his password is changed successfully. Also, settings has a function to change username. The user can enter existing username and one step later s/he determines new username. The OK button is for saving the changes. The existing username is checking from database. If the user enters the existing username wrongly, the system gives an error message. In order to continue, the user can check the information which is entered. After the correction,

3.2.6. Logout

When the user wants to exit from Xtrify, s/he can log out by clicking Logout.

3.3. Nonfunctional Requirements

3.3.1. Usability

This project is a web-based application which means that it can be accessible from all platforms and operating systems. Even if you use different operating systems like Windows, Linux or Android, all you need to do is to access your browser and then you can easily use the program. Also on account of the fact that it is web-based, it does not occupy memory space in your system. Additionally, interface of the program has also simple pages and understandable buttons so users can adjust to the interface without using any tutorial or guidance.

3.3.2. Security

Xtrify provides register and login functions to protect the user's account and the user information. The users can create account with their desired usernames and passwords, and then they can change them if they want. By this way, the program protects the privacy of data entered into the software.

3.3.3. Performance

The project uses a very fast algorithm to extract keywords from added user notes. Especially, since the program generally used to save notes which are not even a very long text, it executes the extracting operation at high speed. Also it accurately matches keywords with information which is taken from the Internet database with a decent response time.

3.3.4. Supportability

Our project is adaptable with the new concepts which may be added to improve the system of the program. Remainders, a better profile management and note organisation systems can be handily included in the system and also users will not have problem when they are adapting with the changes. Secondly, because of the fact that it is web-based, it can deal with new technologies and operating systems, it is easy to adapt it for nearly every kind of system. Also language support can be added later.

3.4. Pseudo Requirements

-Program will be implemented with Python.
-It will support all operating systems which have an access to web-browser.
-Django framework will be used to make program web-based.
-Program language will be English.
-It does not need to occupy space on the computer, it will just use web browser.

3.5. System Models

3.5.1. Scenarios And Use Case Model

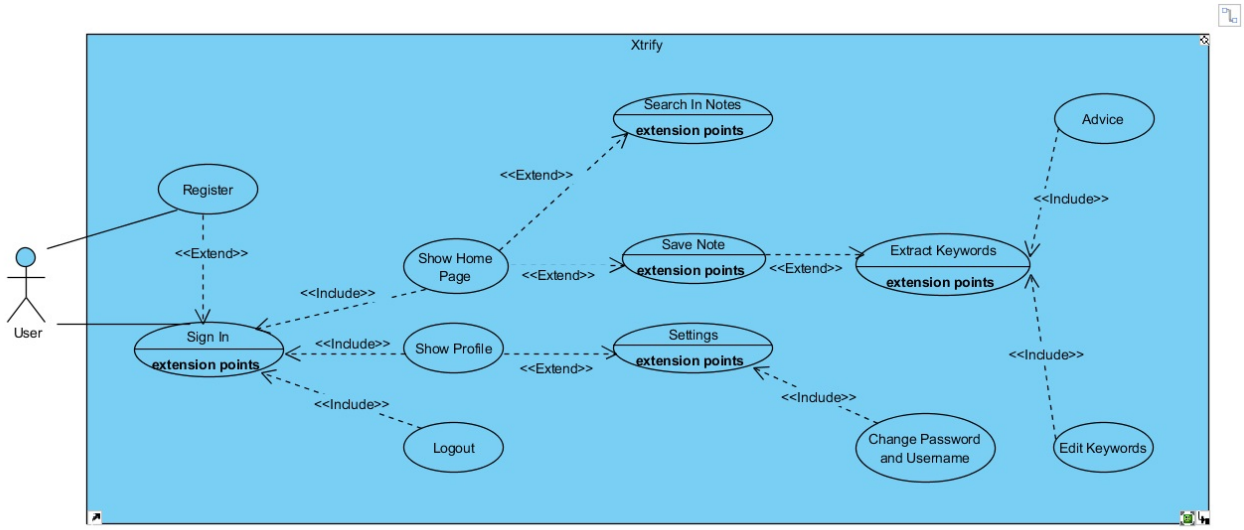

Figure 1: Use Case Diagram

First Scenario

Scenario Name: Change Username&Password

Participating Actor: Atakan:User

Flow of events: Atakan clicks on my profile button on the main menu. Not he can access change username and change password buttons. Firstly, he clicks on change username and change his username. Then he uses browser's back button to reach my profile page again. Secondly, he clicks on change password button and then change his password.

Second Scenario

Scenario Name: Save&Search Note

Participating Actor: Mehmet:User

Flow of events: Mehmet clicks on home page button on the main menu. He uses the plus sign at the left side of the page to add a new note. There is a yellow textfield which is used to write user notes. Mehmet writes his note to the textfield, then he saves is via orange save button under the textfield. Now he can see his newly added note at the left side of the home page. Then he adds several nodes with following the same process. Finally, he wants to reach a specific note so he searches for a related word with this note via search field on the left side.

Third Scenario

Scenario Name: Extract&Edit Keywords and Get Advice

Participating Actor: Ali:User

Flow of events: Ali follows the same process in second scenario to add new notes to his account. Then he wants to see keywords of one his notes. He simply search his notes like flow of the first scenario and select one of them. Ali clicks on orange extract button under the note textfield. Program redirects Ali to the extracted words page. Not he can separately see keywords in his selected note in a textfield. After that he wants to change a keyword from his list, he simply clicks on edit keywords button above the keyword textfield, program redirects him to edit keyword page.He change his desired keyword with use of a textfield and then he clicks on OK button. Finally, he wants to get research advices and information about his keywords. Ali clicks on advice button on the extracted keywords page. Now, program redirects him to the advice page which includes information about his keywords from the internet database.

3.5.2. Object Model

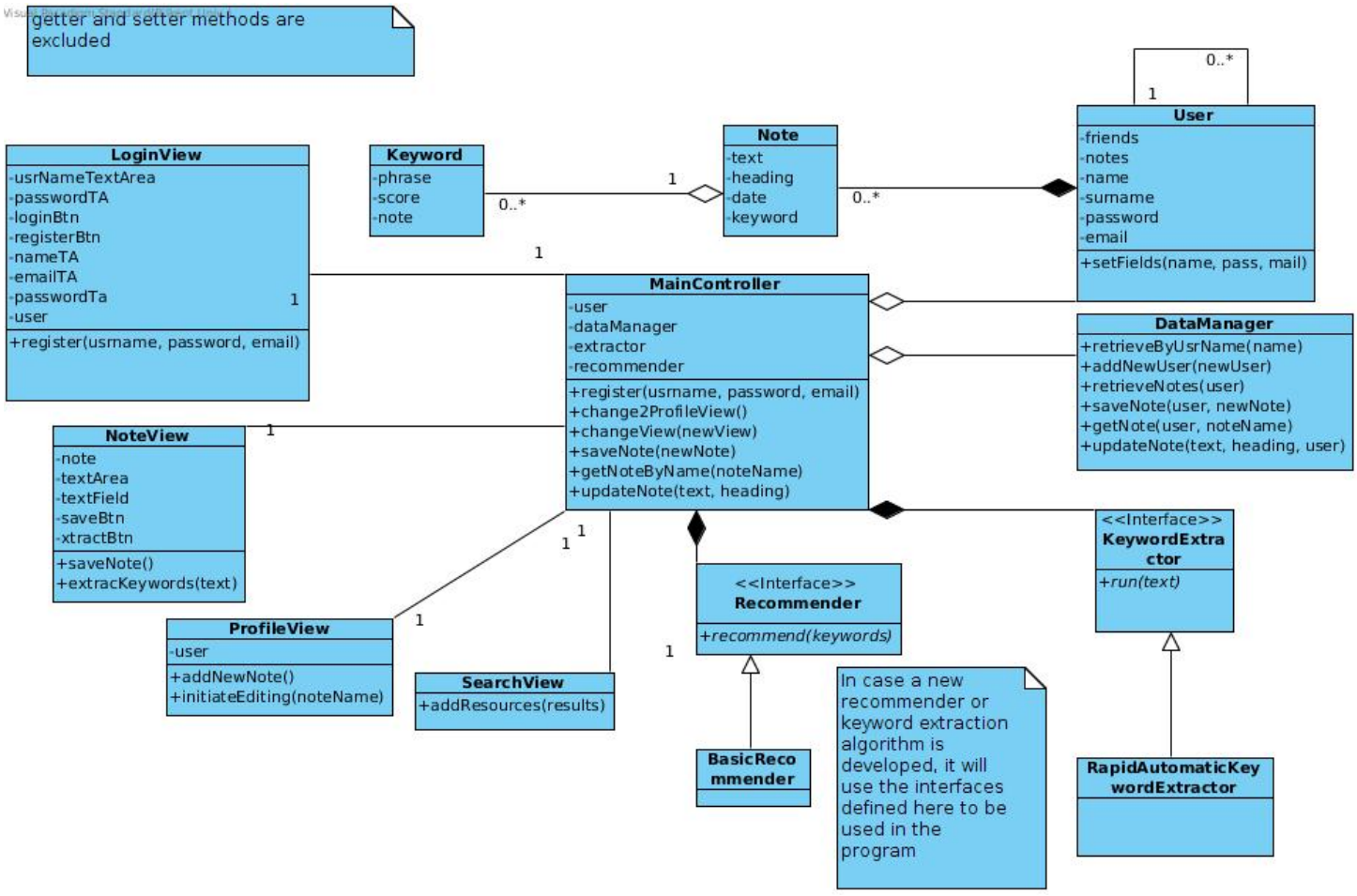

Figure 2: Class Diagram

The above is the problem domain class diagram.

Entity Objects: User, Note, Keyword are entity objects and as their name suggest they represent the information regarding user, note and keyword.

The classes whose name contain "..View" are used to change the view according to the logic of the program. They hold references to text areas, text field and buttons along with a couple of methods which initiate another method class in the MainController class. The user first interacts with these UI elements.

MainController class is basically responsible for the logic of the whole application. It acts as an intermediary between the UI elements and the core functionality. The fact that the MainController has references to the View classes help us to change between them whenever it is necessary. It also keep references to the keyword extractor, recommender and database management parts of the application. It is the class that involves other class' functions when it is necessary.

DataManager class is an intermediary between the database related software and our application. The persistency of the data is achieved through calling the methods of this class from MainController class.

Recommender and KeywordExtractor are interfaces. We have chosen the above design so as to ensure that whenever we come up with new ideas to implement new keyword extraction procedures or recommendation algorithms, the newly created classes will implement the aforementioned methods and our remainder of the system will hopefully run without changing one line of code.

3.5.3. Dynamic Model

3.5.3.1. Activity Diagram

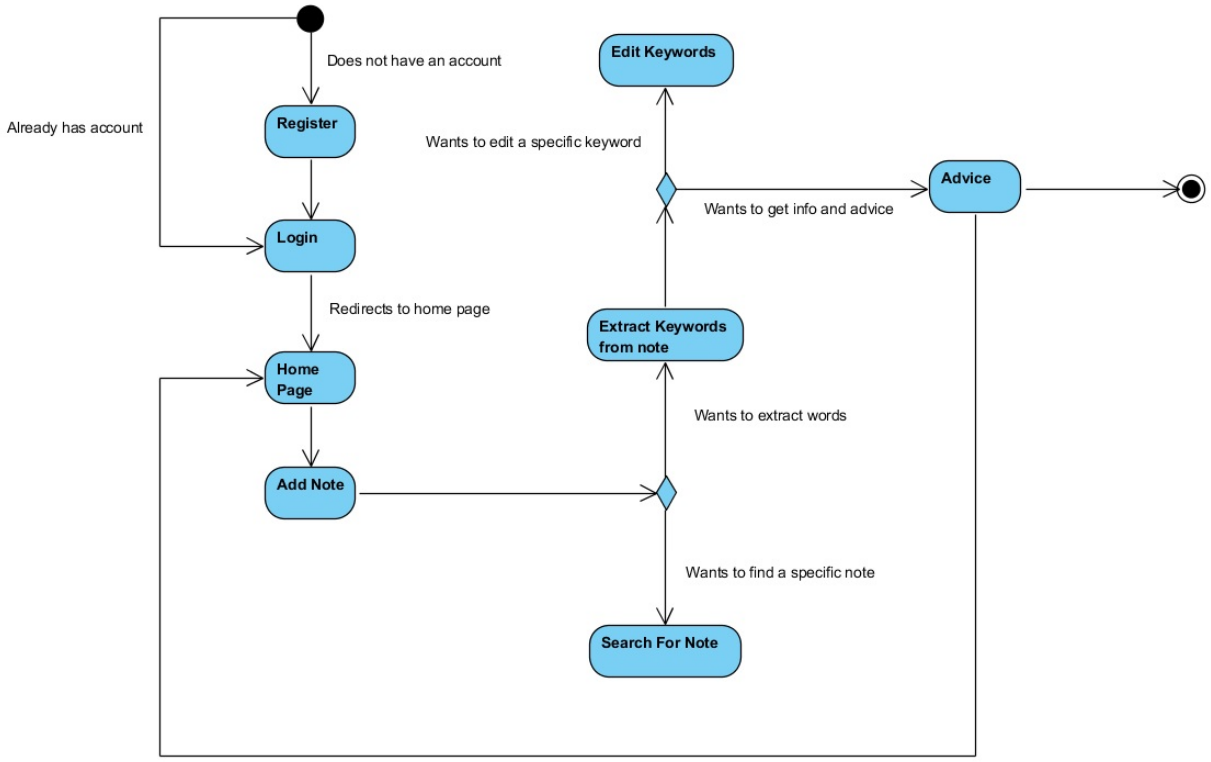

Figure 3: Activity Diagram

The user needs to register to the system if he/she does not have an existing account. The user needs to write a username and set a password to create an account, then program redirects the user to the login page so user can login to the system with his username and password. If the user has an existing account he/she can directly login to the system.

Secondly, home page should be accessed by the user to reach add notes function. After user writes a note and save it to the system, he/she have two options. One of them is about finding previously added notes with specific words, and the other one is about extracting keywords from a specific note. When user picks a note from his repository, extract keyword function can be selected. The system carry the program forward state which includes extracted words from the note. If user wants to change or modify these keywords, system redirects the program to the edit keywords page. Now, user can modify these keywords on his/her request. Finally, user can choose to get information and research advices about extracted keywords. The system uses extraction algorithm to get informations and advices about keywords from the Internet database and show them to user. After advice state, main purpose of the system is completed. If user wants, he/she

can turn back to the home page and repeat the same process or user can exit the program directly.

3.5.3.2 Sequence Diagrams

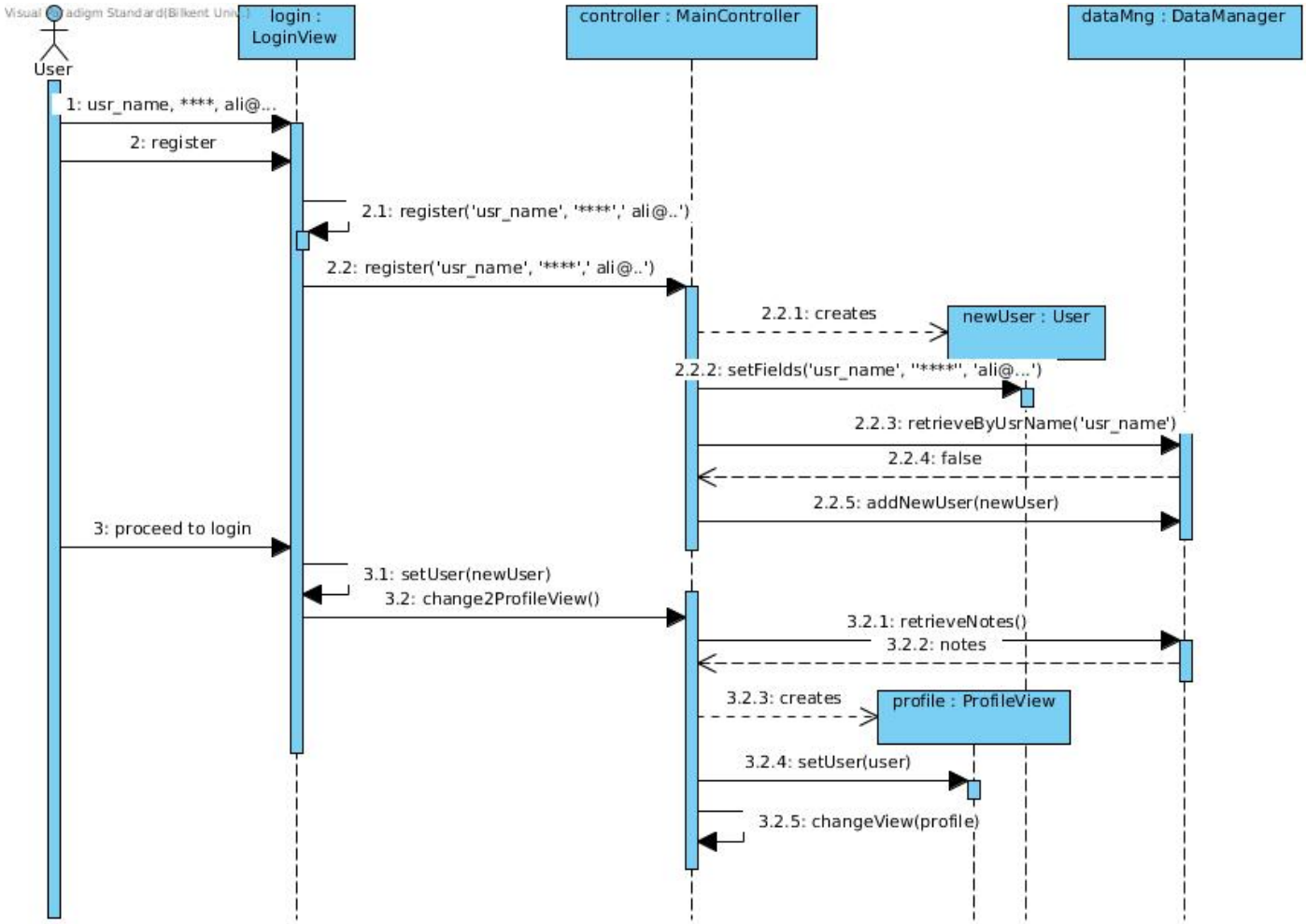

Figure 4: Sequence diagram for creating new account

Scenario: In this scenario, a new user decides to create a new account, after entering his or her credentials the user chooses to proceed to her profile.

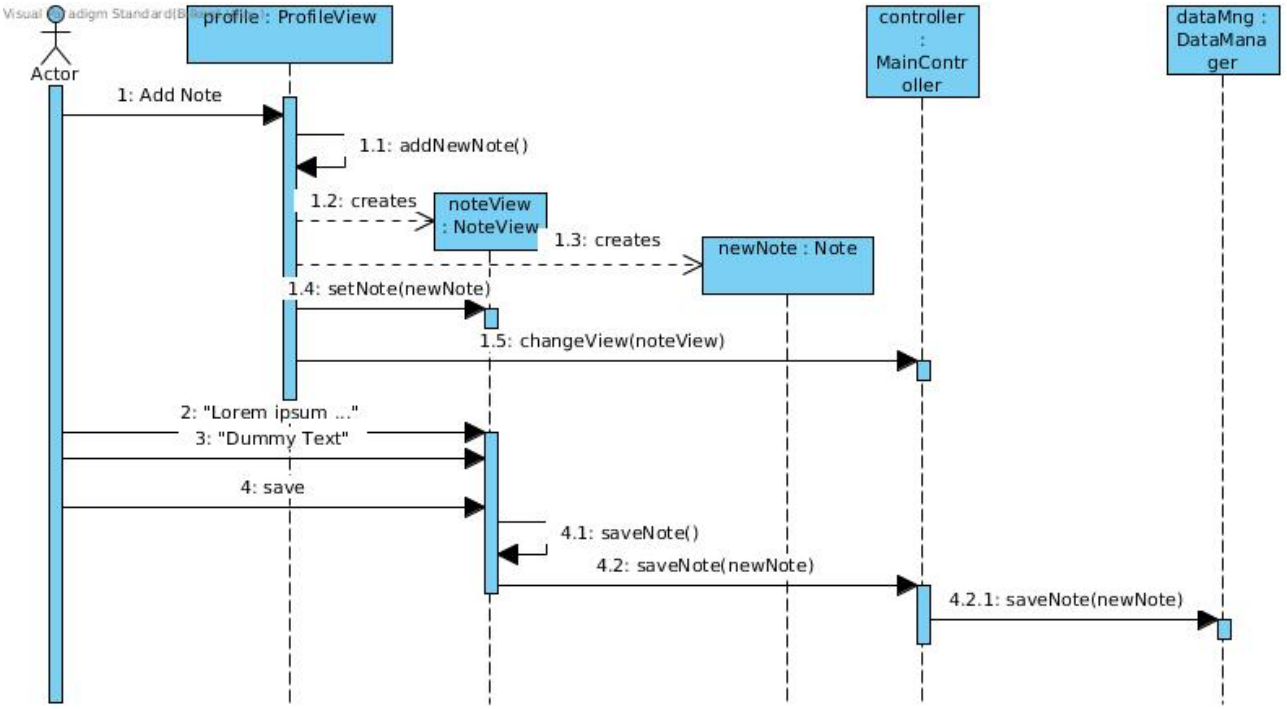

Figure 5: Sequence diagram for creating and saving notes

Scenario: In this scenario the user is already logged in and s/he decides to create and save a new note. The above diagram depicts how the models interact with each other to realise that.

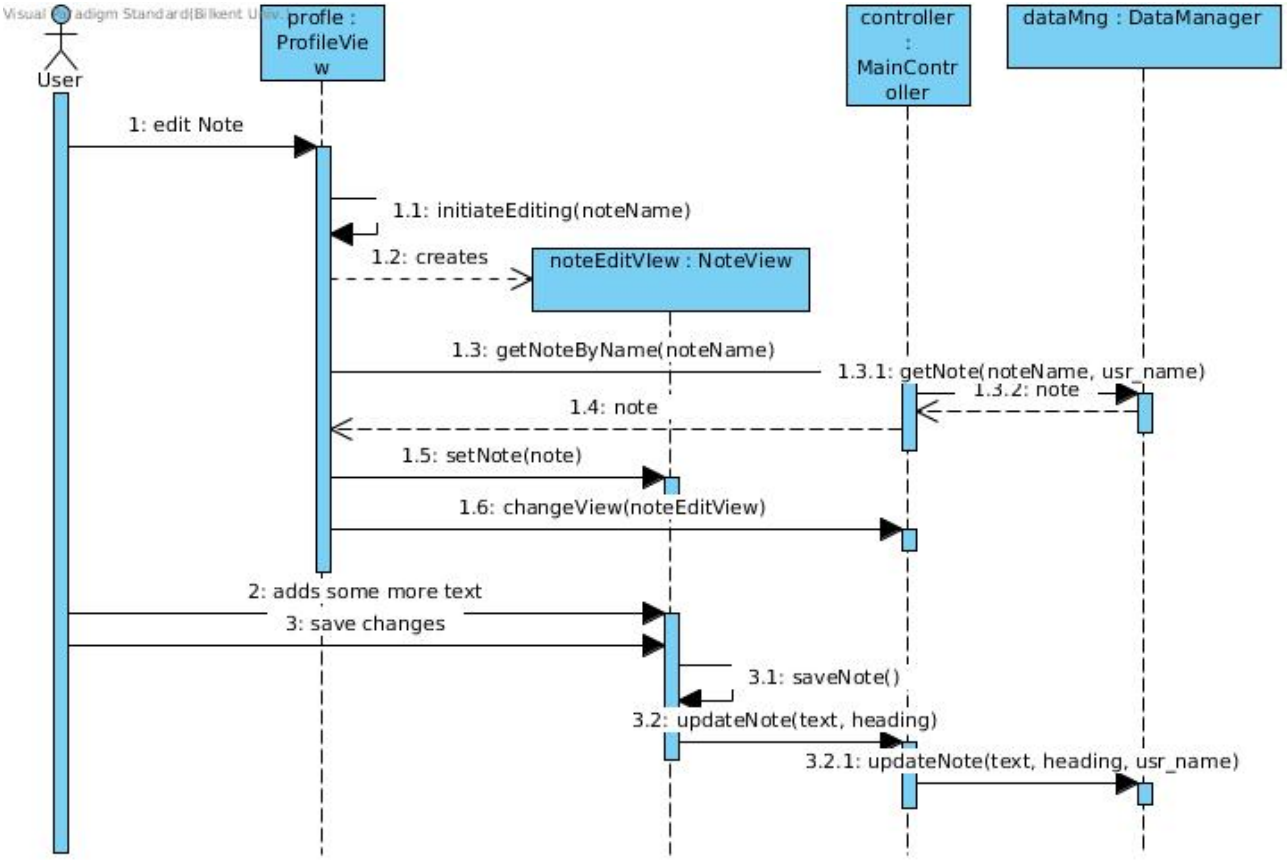

Figure 6: Sequence diagram for editing keywords

Scenario: This scenario may be deemed as a continuation of the earlier scenario. The user is already logged in and s/he decides to edit a note, and edit the changes.

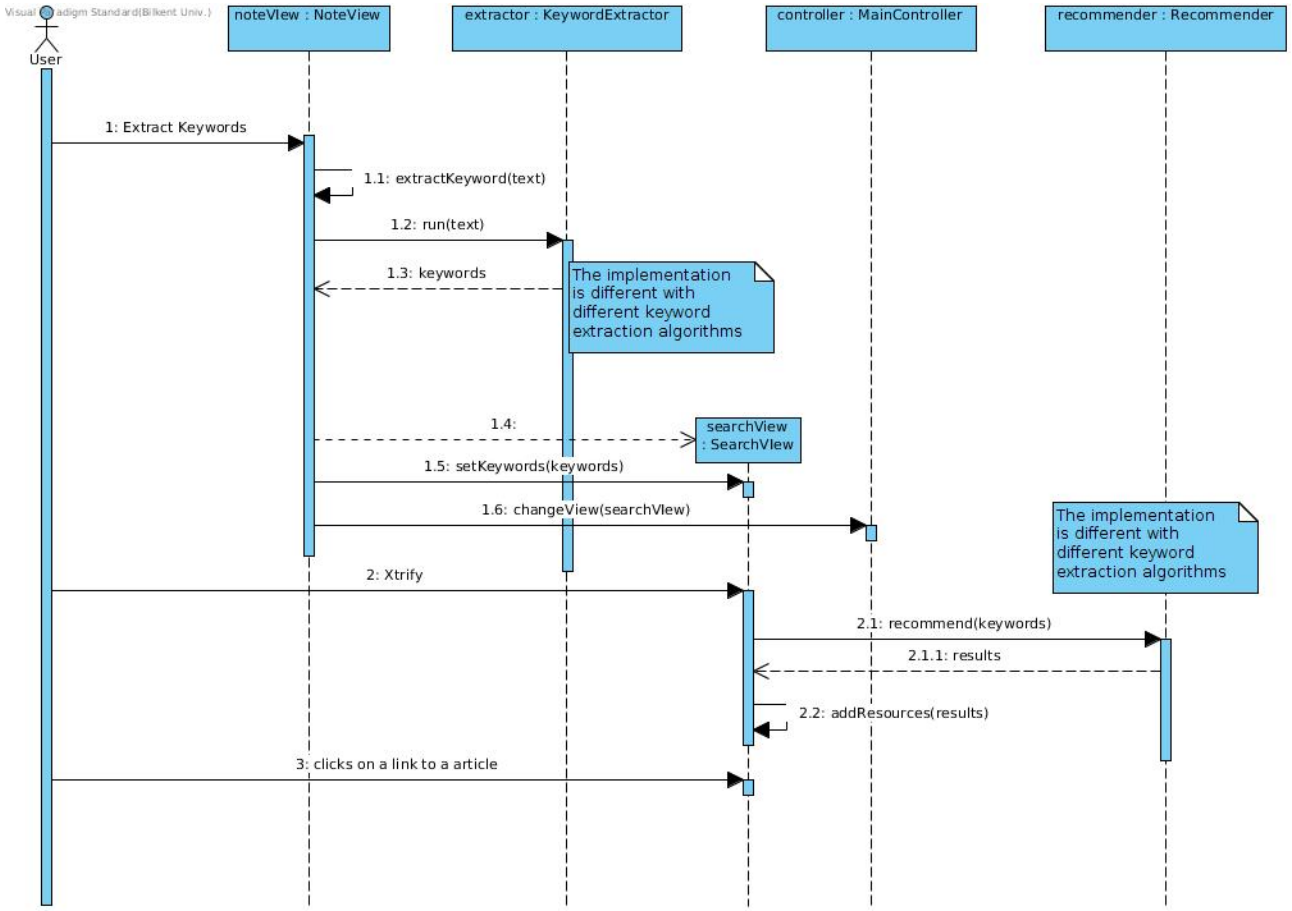

Figure 7: Sequence diagram for extracting keywords

Scenario: The user is already logged in. She chooses a note, the application leads her to a detailed note view. Then the user clicks on the “Extract” button, which lets the application run its algorithm, then opens up a new view where the keywords are listed. The user presses Xtrify button, upon which the recommended articles, books etc. are shown. Then the user selects one of the links recommended.

3.5.4 User Interface

The user interfaces of Xtrify will be examined in this part.

3.5.4.1. Login Page

When the user types the url of the website in a browser, the start screen that welcomes the user is Login Page. The login page is divided into two parts, left side is for current users and right side for the new users. Login requires a username and a password that have been determined by the user. If returning users want to login, they need to enter their information correctly. If that user does not have an account yet, the user has to register in order to begin using Xtrify. As mentioned, at the right side of the login page there is a register button to sign up. When the users click on it, the page brings them the sign up page. Also, on the page that the user is located, the name of it in the top bar is underlined.

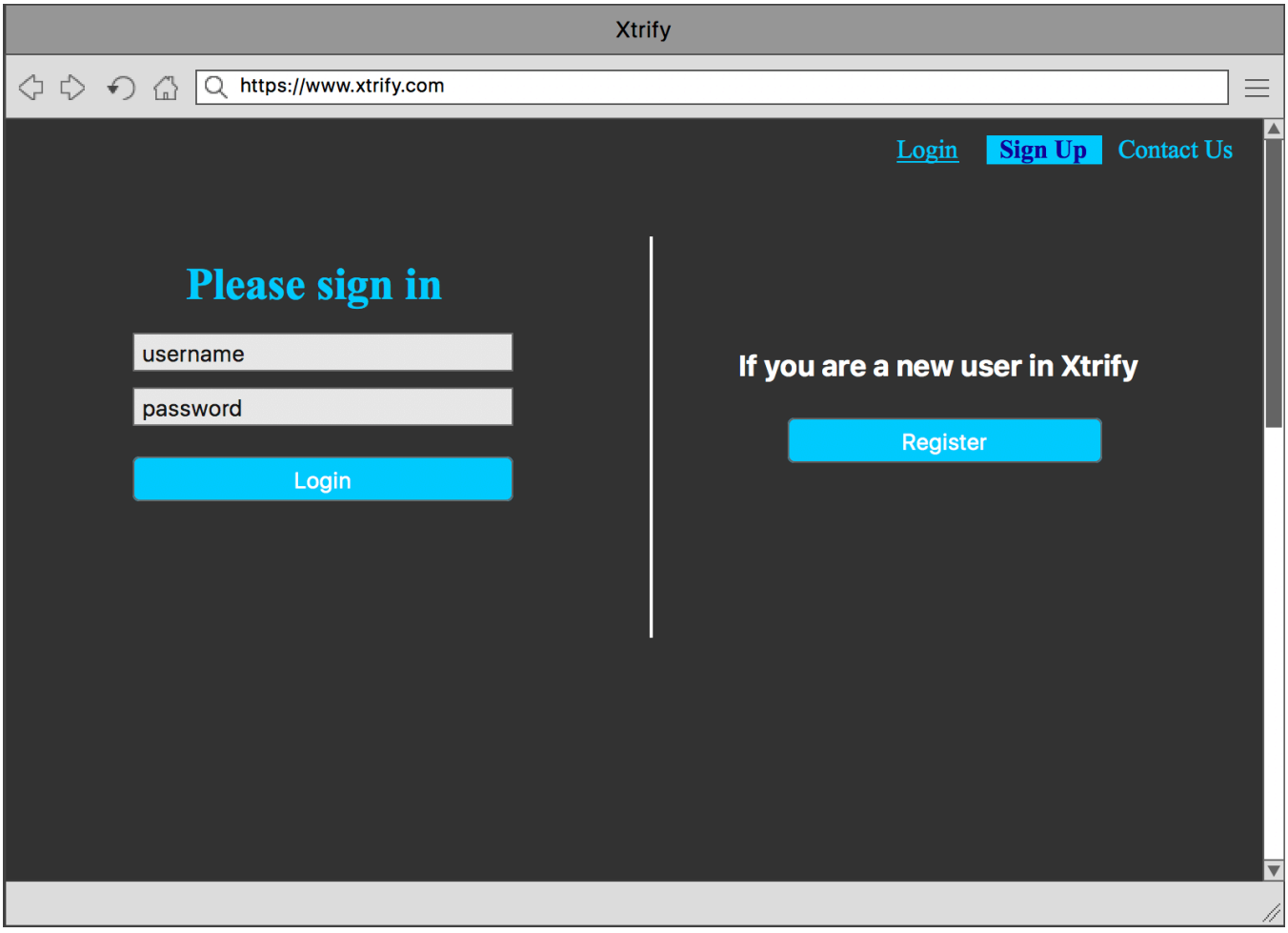

Figure 8: Login Page

3.5.4.2 Sign Up Page

When the user clicks on Register button on the login page or clicks on the Sign Up on the top right corner of the page, the user is redirected to Sign Up Page. In order to register to Xtrify, the user is required to enter username and password. In order to confirm whether the typed password is matched or not, he should enter password again. When the user types the information and clicks on the register button, the account has been created. If the confirm password does not match the password that was entered one step before, the error message “Entered passwords do not match” is shown.

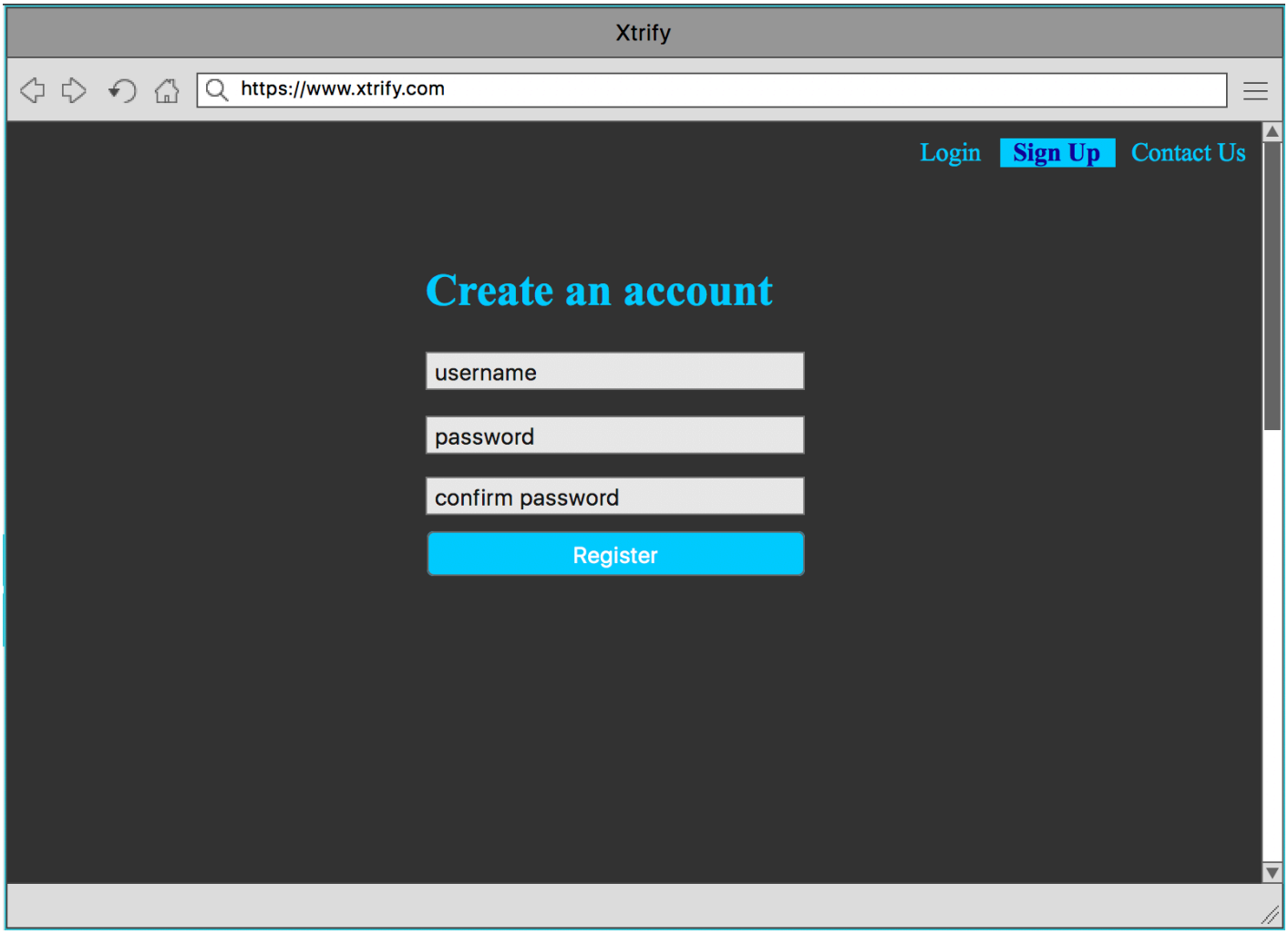

Figure 9: Sign Up Page

3.5.4.3 Home Page

Home Page consists of two parts. On the left side, there is one button which is represented as plus sign in order to create new notes and there is search button which is to find previous notes. Also, there is a panel which shows the previous notes. Scrollbar is the way to see the user's previous notes that was extracted before. In the middle of the main page, there is a text field which is a big yellow sticky note. The user writes down his/her notes and saves them using this field. This function enables users to look at their notes whenever they want. If the user wants to see the related articles about the corresponding note, first of all, s/he needs to click on Extract button. After clicking on it, user is redirected to another page where the user can edit the keywords which were extracted from the corresponding note.

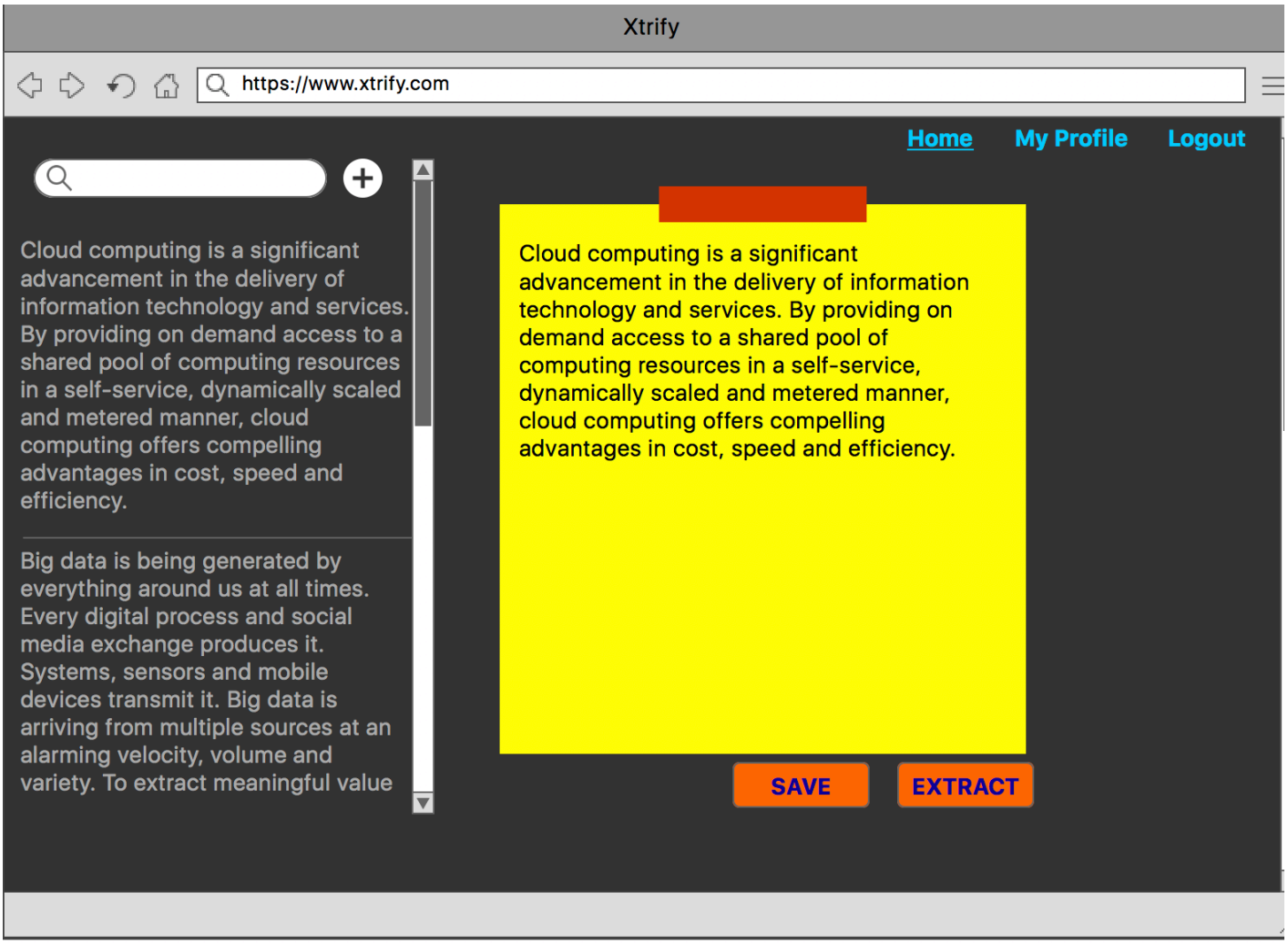

Figure 10: Home Page

3.5.4.4 Edit Keywords Page

Edit Keywords Page consists of one panel where the user can delete the existing keywords or add new ones. In order to edit the keywords, there is a button which is shown as a pen.

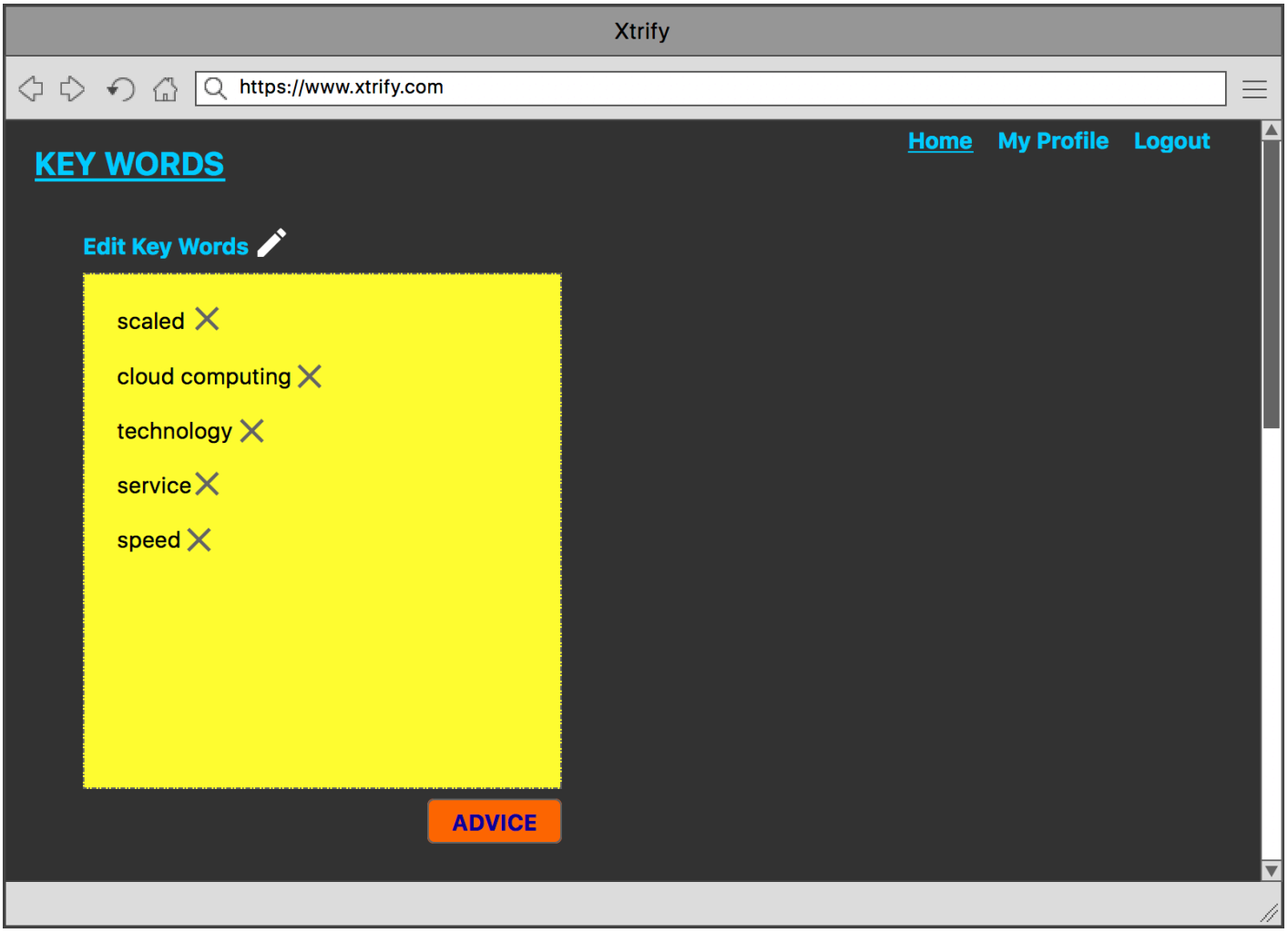

Figure 11:Edit Keywords Page

When the user clicks on the pen symbol, yellow panel becomes white and the extracted keywords are shown separated by commas. The user can easily delete the keywords, or add new ones. After s/he arranges the keywords, s/he needs to click on OK button to end the editing process.

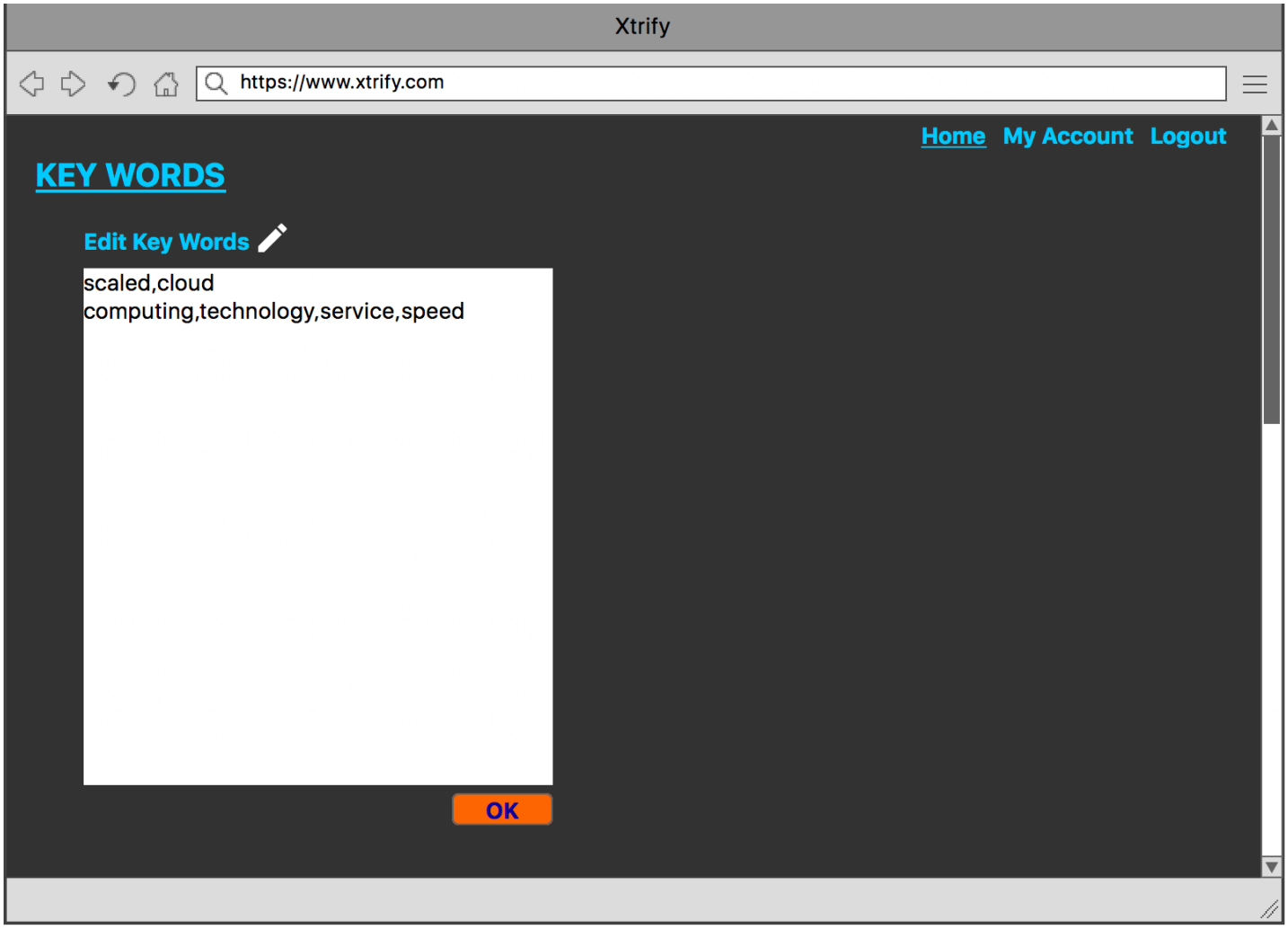

Figure 12: Edit Keywords Page while editing

3.5.4.5 Suggestion Page

After the user is done with editing keywords, s/he is redirected to Suggestion Page. Suggestion Page consists of two yellow panel. The left panel is for representing the note which has been extracted. At the right panel, the suggested articles are listed under the title of "Did you look at this?".

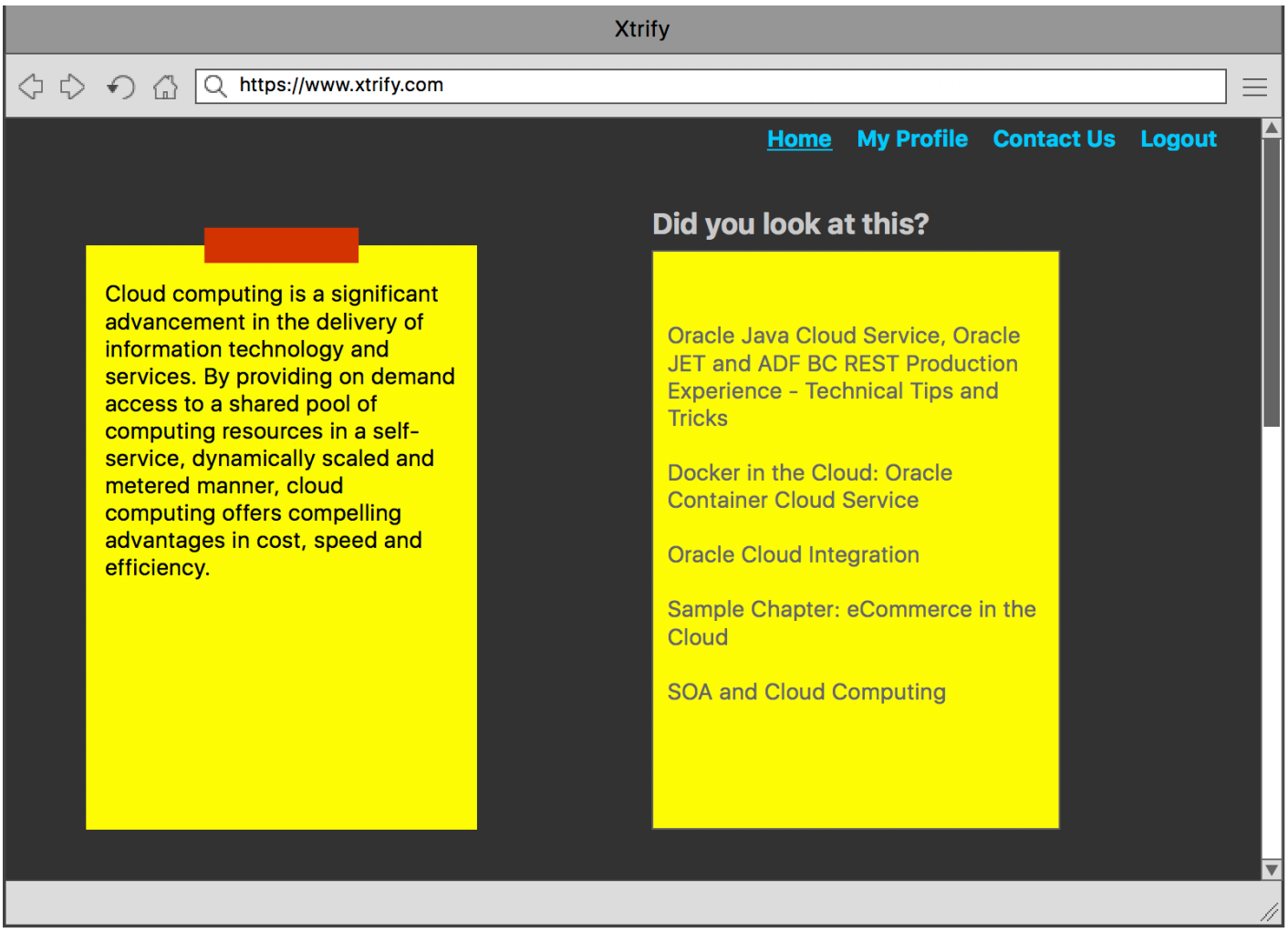

Figure 13: Suggestion Page

3.5.4.6 MyProfile Page

In this page, the users are able to change their password and username. This page consists of two yellow panel, the left one is for changing password and the right one is for changing username. In order to change the password, the user has to enter the existing password, then s/he can enter the new password twice. OK button is responsible for applying the change. If the given existing password is wrong, then the user gets an error message. After s/he corrects the existing password, the same procedure mentioned above should be followed. Thus, the operation of changing password is done.

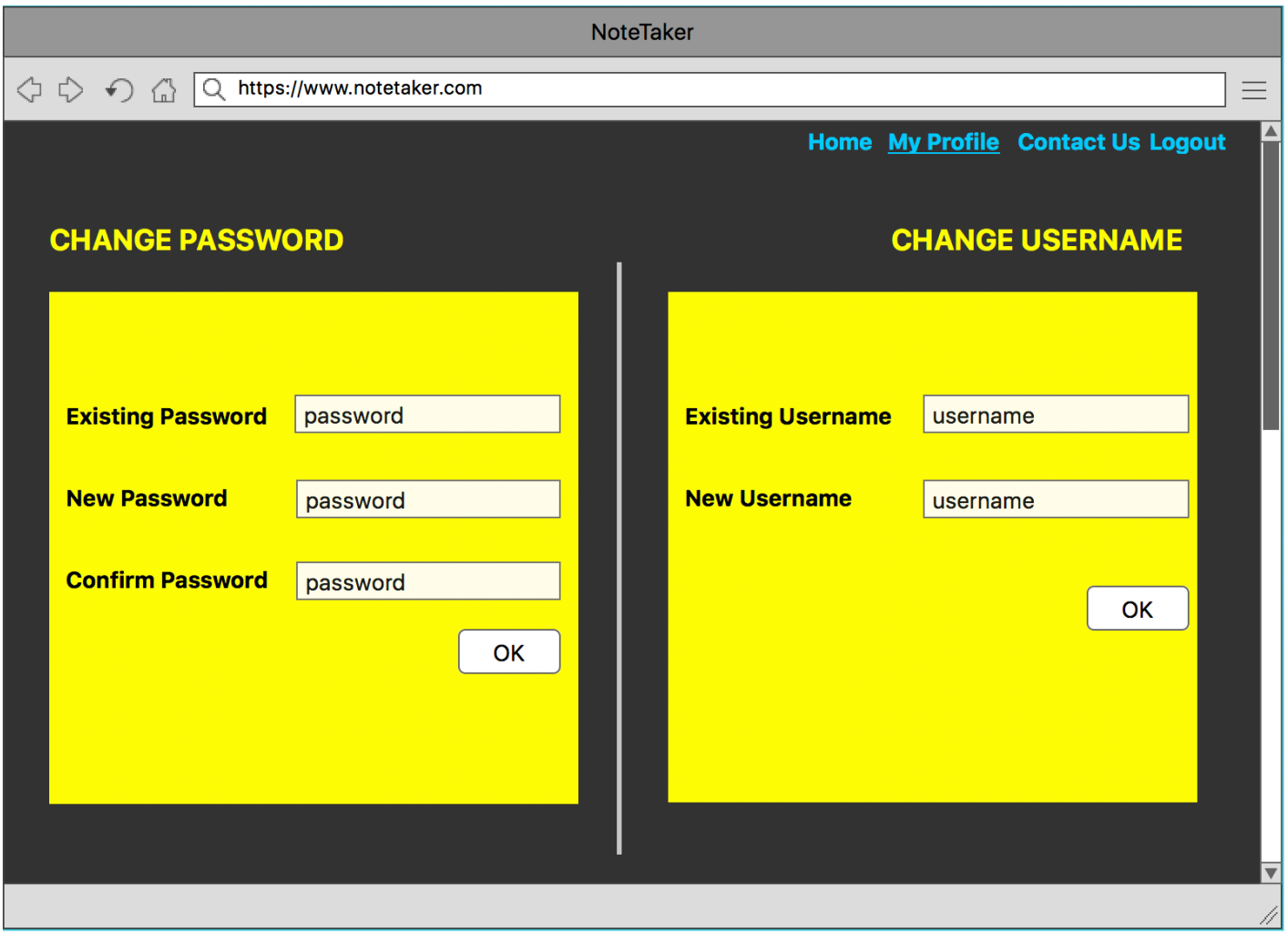

Figure 14: MyProfile Page

3.5.4.6 Logout Page

Where the user wants to exit Xtrify, s/he needs to click on Logout at the right top of the page.

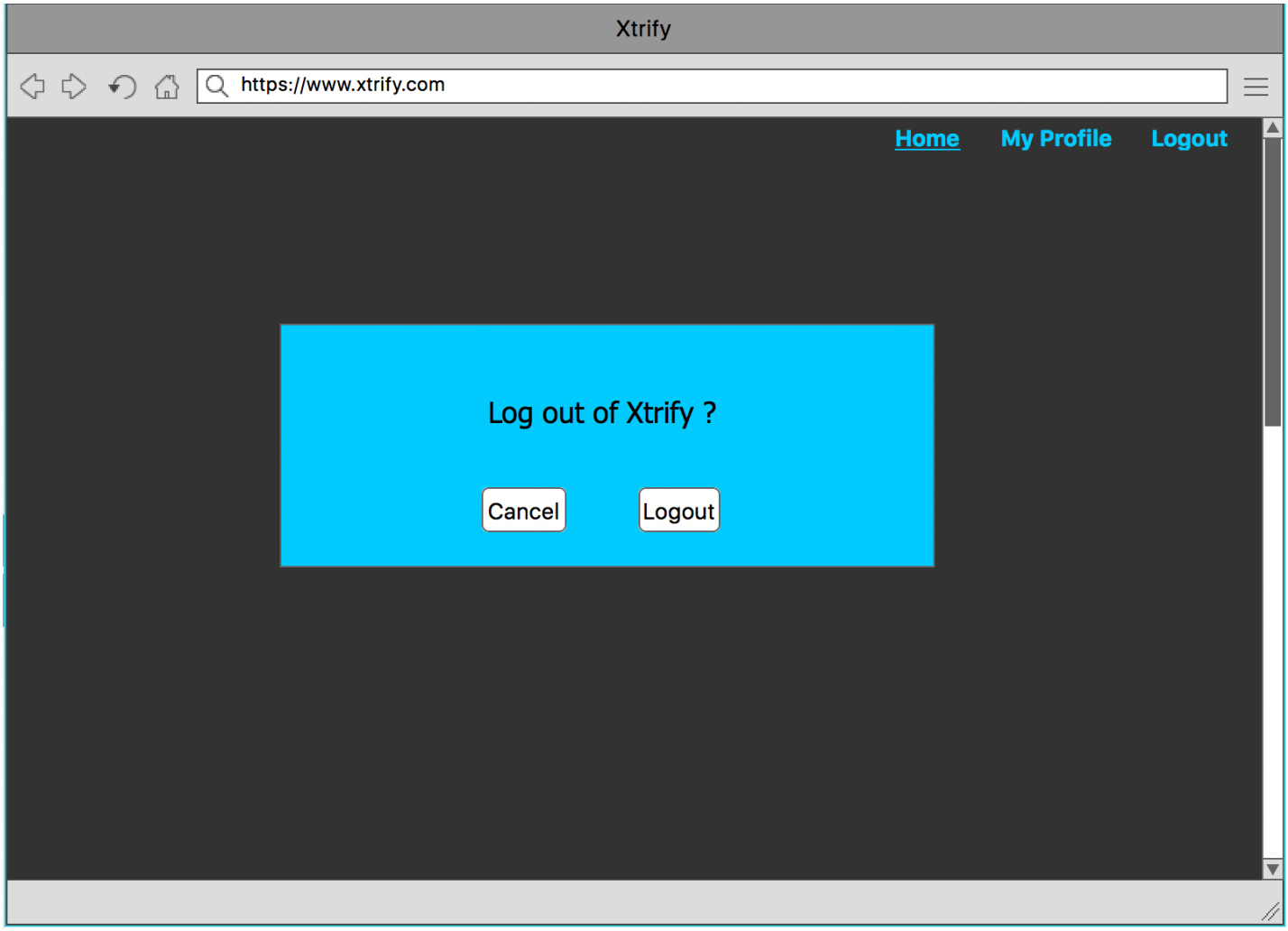

Figure 15: Logout Page

4.References

[1] Rose, S., Engel, D., Cramer, N., & Cowley, W. (2010). Automatic Keyword Extraction from Individual Documents. In M. W. Berry & J. Kogan (Eds.), Text Mining: Theory and Applications: JohJohn Wiley & Sons.John Wiley & Sons.n Wiley & Sons.