TheALLDictionary:

Software Requirements and

Specifications

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Team Members:

Young-jae Moon → Product owner	
Sub-team A	Sub-team B
Young-jae Moon → Project manager youngjae.moon@stonybrook.edu Seo-young Ko → Designer, lead programmer seoyoung.ko@stonybrook.edu	Seung-jae Kang → Designer seungjae.kang@stonybrook.edu Yoo-ra Kim → Lead programmer yoora.kim@stonybrook.edu

1. Introduction

1.1 Product description

When people do not know an English word, they have to search its definition from a dictionary. Although they may be satisfied with the meanings and the example sentences given from the dictionary, they may also be dissatisfied when they cannot fully grasp the word after reading the dictionary's explanations. In this case, they then have to search its meaning through other dictionaries, encyclopedias or search relevant photos or videos from Google or YouTube for complete understanding.

"TheALLDictionary" is a web-based application that helps people to search the meanings of the term from Merriam-Webster Learner's dictionary, Merriam-Webster dictionary, Oxford English Dictionary, Urban dictionary, Wikipedia, Google News, Google Images, and YouTube at once. Here Merriam-Webster's Learner's is the most straightforward dictionary in which the terms are explained in most simple and plain English. By contrast, the Merriam-Webster dictionary explains the terms at the intermediate level, and the Oxford English Dictionary defines them at more advanced levels. Thus, the Urban dictionary is especially useful for finding the definitions of slang words. Hence the user can see the explanations of the term at various levels from each dictionary. Thus, if a dictionary is not sufficient to understand the meaning of the word, the user can refer to Wikipedia, Google News, Google Images and YouTube videos to understand more thoroughly.

The target audience of TheALLDictionary is someone who wants to search for the definition of an English word. Nonetheless, it is expected that students who learn English at school will use this application most frequently. Therefore, TheALLDictionary will include

additional features that help people to memorize the vocabularies that they have searched. These features include creating and shuffling note cards for testing their learnings, generating and taking sample exams, sharing note cards that the user has made to its friends.

1.2 Scope

TheALLDictionary primarily serves the people who want to search the meanings and the exemplar sentences of an English term from the following dictionaries: Merriam-Webster's Learner's dictionary, Merriam-Webster dictionary, Oxford English Dictionary, and Urban dictionary. Thus, it primarily serves the people who want to search more about the concept of the term in Wikipedia, relevant news in Google News, relevant photos in Google Images, and related YouTube videos. Notice that English is the only supported language from these dictionaries, but not from Wikipedia, Google News, Google Images, and YouTube. For Wikipedia, Google News, Google Images, and YouTube, all the languages supported by these sources will be supported.

Another feature of TheALLDictionary is providing various study assistance features for the premium users. For example, the premium users will be able to create, edit, save and share its note cards. Here notice that the application will save the user's search history under the user's consent, and thereby they can select the words from their search histories to skilfully create note cards. Thus, the premium users will be able to generate and take sample tests based upon the note cards created.

The users can access TheALLDictionary by opening the following domain from their web browsers: www.thealldictionary.com.

1.3 Users

The primary users of TheALLDictionary are students and professionals who study English vocabularies and seek appropriate English words for their works. These users will likely know how to browse websites and use search tools.

Even though these are the primary users of TheALLDictionary, TheALLDictionary will be available to the general public.

1.4 User feedback

Question: "What do you think about developing a software that searches definitions and example sentences of a term from multiple dictionaries such as Merriam Webster and Oxford English Dictionary?"

Answer from Young-ho Kim: "Sounds like a good idea! As a person who has used dictionaries since kindergarten to study words, it is interesting to see how we can integrate multiple dictionaries to study words. I think Merriam Webster and Oxford English Dictionary are great dictionaries to look up an English word especially to study for the Scholastic Aptitude Test (SAT) exam. I don't think using a Naver English dictionary is a good idea especially for studying SAT vocabularies because they only provide definitions in Korean which is not good. It is a good idea to only use our English brain to study English and only use our Korean brain to study Korean. From this perspective, I think looking up a word from multiple dictionaries is good, but we should exclude dictionaries which provide a definition in another language."

Answer from Sudara Ranasinghe: "I think that would be a really useful software because when I usually look for a word I am looking for the meaning of the word in the specific context which I found the word in. Having multiple sources would help clarify the usage of the word."

Answer from Hae-in Park: "It sounds like a good idea! I like the fact that the project managers are trying to use different sources together. It would enhance the quality of the project even further."

Question: "What kind of methods or sources have you used to memorize English vocabulary? If you have used any other third-party application to effectively memorize vocabularies, please could you comment on how effective they were for memorizing vocabularies?"

Answer from Young-ho Kim: "I have used Quizlet to study SAT vocabularies. I think creating flip cards either via paper card or online is helpful to memorize SAT vocabulary. Nonetheless, I found it annoying to manually type every word and its definition to create flip cards. It would be a good idea if you develop software that includes a feature to add a definition for each vocabulary either by a single click or a double click. That will make my life a lot easier to study English vocabularies."

Answer from Sudara Ranasinghe: "I haven't used any software to remember words in English but I have used Duolingo to learn Korean vocabulary. The app helps learn vocab by providing simple quizzes."

Answer from Hae-in Park: "I tried to study English and memorize the vocabularies via two methods. I used to tried to write the words and read out loud repeatedly, and I bought a software called 뇌새김 which helps the learners to memorize the vocabularies with related images"

1.5 Existing alternatives

As aforementioned, there is an existing alternative mobile application called "모든 영어 사전" for searching a term from various dictionaries and other sources at once. Here notice that while 모든 영어 사전 is only available on iOS and Android devices, TheALLDictionary will be available on Windows and Macintosh devices as well. In this way, the user of TheALLDictionary will be able to search words on larger screens than the user of 모든 영어 사전.

Besides, while 모든 영어 사전 outputs the meaning of terms from various English-Korean, Korean-English, and English-English dictionaries; TheALLDictionary outputs the meaning of terms only from English-English dictionaries. In this way, we will encourage people to grasp English vocabularies in English to foster English learning.

Furthermore, 모든 영어 사전 has a tab of Google Images to show users images of the term that they searched. For further extension, TheALLDictionary would include a YouTube tab, indicating videos related to the term.

The user interface (UI) of TheALLDictionary will be similar to the user interface of 모든 영어 사전 and www.quizlet.com. We found that the UI of 모든 영어 사전 is convenient to search words and check definitions from multiple sources. In this instance, though, unlike where 모든 영어 사전 do not tell explicitly about the difficulty of each dictionary, TheALLDictionary will show the difficulty of each dictionary to the user. Thus, we found that the UI of www.quizlet.com is straightforward and comfortable for creating and sharing note cards and test concepts.

1.6 Definitions

Term	Definition
App	Application
ID	Identification number
UI	User interface
User	Someone who interacts with the TheALLDictionary website
URL	Uniform resource locator

1.7 References

Not applicable.

2. Requirements

2.1 Functional Requirements

All the users shall:

1. be able to look up for words.

2. be able to view the search results from the website corresponding to each button in the bottom tab bar.

3. make a payment to be a premium user and thereby access all of the features.

4. be able to see the difficulty of each dictionary.

The signed-in users shall:

1. be able to see the previous search history.

2. be able to change the order of each dictionary and the other sources to be displayed on the bottom tab bar.

3. be able to view the note cards that the premium customers have created and shared to the public.

4. be able to create, edit and save the note cards.

5. be able to pay for a subscription.

6. be able to change its password.

7. be able to change its phone number.

8. be able to change its email address.

9. be able to add, edit and delete profile pictures.

10. be able to delete its account.

The premium customers shall:

1. be able to make, edit and delete note cards.

2. be able to share its note cards with other users.

3. be able to take online sample tests generated by the system based on its or other premium customers' lists of note cards.

4. be able to see its previous test results.

5. be able to cancel its subscription.

6. be able to take words challenge tests generated by the system based on the random vocabulary.

7. be able to see the ranking of word challenges.

The premium customers should:

1. be able to make friends with other premium customers.

2. be able to share its note cards with their friends.

The system shall:

1. display the search bar on the top after the user pressed the search button from the Home Page.

2. display a tab bar on the bottom for changing sources after the user pressed the search button from the Home Page.

3. be able to generate a test based upon the note cards created by the premium customers.

4. be able to grade the test submitted by the premium customers.

5. be able to show the result of the test with exact answers after the premium customer has gone through the test.

6. only allow the premium customers to access the premium features.

The system should:

1. provide a payment system created by KG Inicis

2. provide a payment system created by PayPal.

3. verify the user's email address through sending the verification code to the user.

4. verify the user's phone number through sending the verification code to the user.

5. assist the premium customers in creating notecards based upon their search histories.

2.2 Use cases

2.2.1 Use Case: Look up a word

Primary Actor:	Users
Priority:	Essential
The goal in context:	The user wants to look up a word.
Preconditions:	The user has opened TheALLDictionary website.
Trigger:	The user decided to look up a word.
Scenario:	1. The user types the word that wants to be looked up in the text box. 2. The user clicks the search button. 3. The system displays the searched results from Merriam Webster Learner's dictionary, Merriam Webster dictionary, Oxford English dictionary, Urban dictionary in its unique format. Thus, the system displays links for the search results obtained from Wikipedia, Google News, Google Images, and YouTube.
Extensions:	2a. The user clicks a back button in the browser. 2a.1 The searching process is canceled, and the system returns to the Home Page.

2.2.2 Use Case: Change the order of the sources on the bottom tab bar

Primary Actor:	Users
Priority:	Essential
The goal in context:	The user wants to change the order of the sources being displayed while looking up for a word.
Preconditions:	The user has opened TheALLDictionary website and has signed in.
Trigger:	The user decided to change the order of the sources being displayed while looking up for a word.
Scenario:	1. The user clicks the Settings button on the bottom tab bar. 2. The user changes the order of each source to be displayed. 3. The user clicks the "Save" button. 4. The system saves the new order and returns it to the Home Page.

Extensions:	2a. The user clicks the "Reset" button.
	    2a.1 The system automatically changes the order to its original format.
	2b. The user clicks a back button in the browser.
	    2b.1 The editing process is canceled, and the system returns to the Home Page

2.2.3 Use Case: Pay for a subscription

Primary Actor:	Customers
Priority:	Essential
The goal in context:	The customer wants to pay for a subscription to access all premium features.
Preconditions:	The customer has opened TheALLDictionary website and has signed in.
Trigger:	The customer who already has an account tries to use premium features for the first time.
Scenario:	1. The customer clicks "My Page" and chooses the "Premium" tab. 2. The system will display a list of premium features and a payment information window. 3. The customer may read all the features and put its information such as name, card number, and expiration day on the corresponding text boxes in the payment window. 4. The customer clicks the "Pay" button. 5. If all the payment information is correct and processes succeed, the system will display the premium page.

	6. The system will change the status of the customer to "Subscribing Premium." 7. The customer can check its new status in "My Account" in "My Page."

Extensions:	2a. The customer clicks a back button in the browser.
	
	  2a.1 The system will exit the premium page and go to the previous page.
	
	3a. After the customer puts all of its payment information and clicks a back button in the browser.
	
	  3a.1 The system will exit the premium page and go to the previous page.
	
	4a. The payment information of the customer is wrong.
	
	  4a.1 The system will display an error message that the payment information is wrong.
	
	  4a.2 If the customer clicks the "OK" button, then all the text boxes become empty.

2.2.4 Use Case: Cancel the subscription

Primary Actor:	Customers
Priority:	Essential
The goal in context:	The customer cancels its subscription.

Preconditions:	The customer has opened TheALLDictionary website and has signed in.
Trigger:	The customer wants to cancel the premium subscription and stop paying for it.
Scenario:	1. The customer clicks "My Page" and chooses the "My Account" tab. 2. At the "My Account" tab, the customer can see his or her profile, such as name, phone number, and email address, and subscription status. 3. The customer clicks the "I want to stop my subscription" button. 4. The system will display an announcement pop-up window that asks, "Are you sure to stop the premium subscription? If you do so, you cannot use premium features anymore." 5. The customer clicks the "Yes" button on the announcement pop-up window. 6. The system pops up another announcement window which is written, "Your subscription is successfully canceled." 7. The customer's subscription is canceled, and his or her payment information is deleted in the system.
Extensions:	5a. The customer clicks the "No" button on the announcement pop-up

	window.
	5a.1 The announcement pop-up window disappears, and it goes back to the "My Account" window.

2.2.5 Use Case: Take a test based on note cards

Primary Actor:	Customers
Priority:	Essential
The goal in context:	The customer takes an online sample test and gets the grade of the test.
Preconditions:	The customer has made note cards.
Trigger:	The customer wants to take an online sample test generated by the system based on the premium customer's note cards.
Scenario:	1. The customer clicks the "Quiz" button. 2. The customer chooses the bundle of note cards for testing. 3. The customer clicks the "Start" button. 4. The system generates questions based on the selected bundle of note cards. 5. The system displays the question and four option buttons. 6. The customer clicks one button as the answer. 7. The system changes the color of the selected button to blue. 8. The customer clicks the "Next" button.

	9. The system displays the next question. 10. The customer clicks the "Submit" button to submit the test. 11. The system grades the test. 12. The system displays the result of the test.

Extensions:	3a. The customer clicks the "History" button.
	
	   3a.1 The system displays previous test results.
	
	7a. The customer clicks the "Prev" button.
	
	   7a.1 The system displays the previous question.
	
	7b. The system disables the "Prev" button when the question is the first question.
	
	7c. The system disables the "Next" button when the question is the last question.

2.2.6 Use Case: Take the words challenge

Primary Actor:	Customers
Priority:	Essential
The goal in context:	The customer takes the words challenge test generated by the system based on the random vocabulary.
Preconditions:	The system has generated questions of the words challenge test.
Trigger:	The customer wants to take the words challenge test.

Scenario:	1. The customer puts the mouse cursor on the "Quiz" button.
	2. The system will then pop up the drop-down menu.
	3. The customer clicks the "Words Challenge" button.
	4. The system goes to the words challenge page.
	5. The customer clicks the "Start" button.
	6. The system displays the question and four option buttons.
	7. The customer clicks one button as the answer.
	8. The system changes the color of the selected button to blue.
	9. The system displays the next question after 3 seconds.
	10. The system grades the challenge test after the customer solves the whole questions.
	11. The system goes to the result page.
Extensions:	2a. The customer clicks the "Quiz" button.
	2a.1 The system goes to the quiz page.
	4a. The customer clicks the "View Rank" button.
	4a.1 The system goes to the challenge ranking page.
	6a. The customer does not click any button as the answer in 3 seconds.
	6a.1 The system displays the next question.

2.2.7 Use Case: Make the card

| Primary Actor: | Customers |
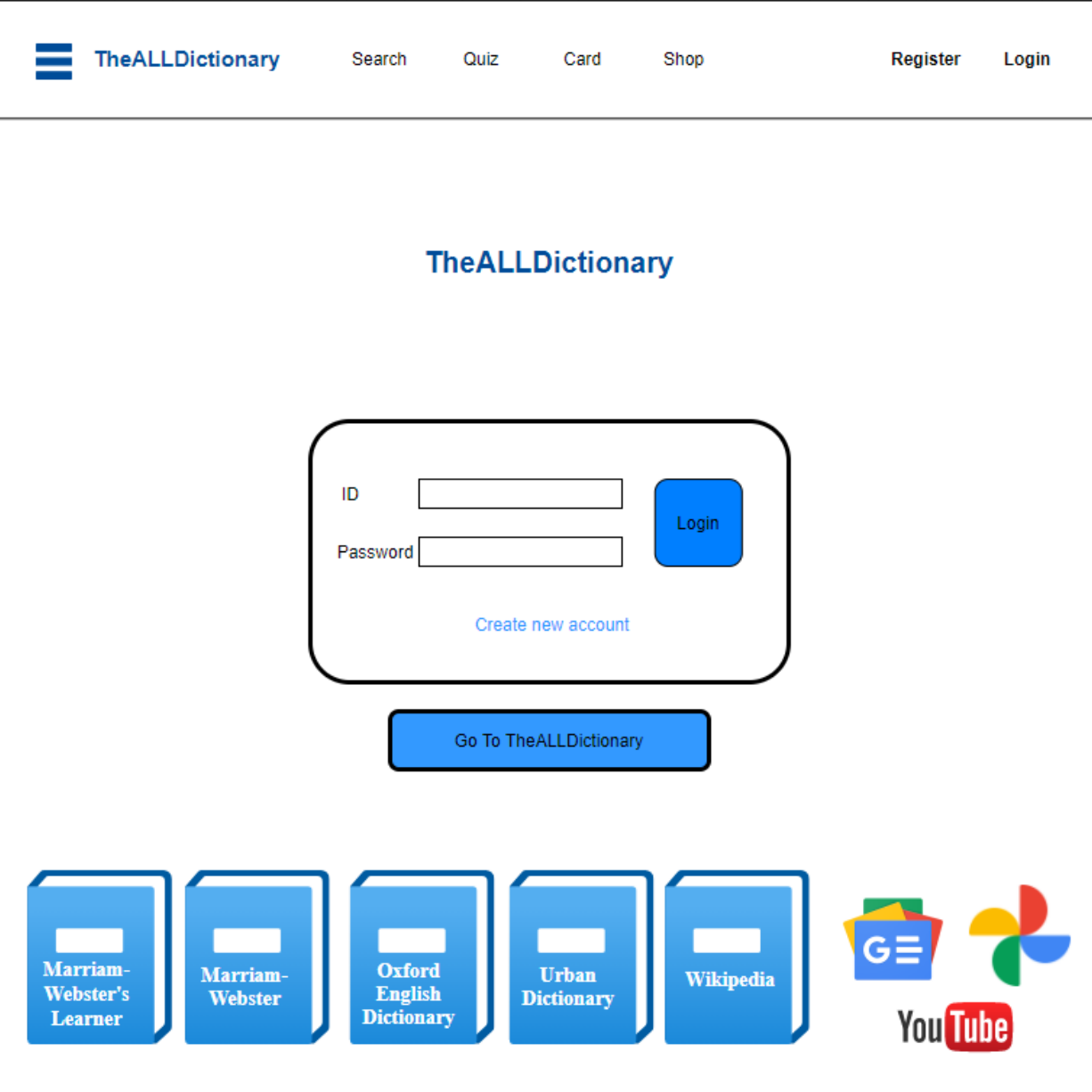
Priority:	Essential
The goal in context:	The customer can create note cards.
Preconditions:	The customer has opened TheALLDictionary website and has signed.
Trigger:	The customer wants to make its own vocabulary cards.
Scenario:	1. The customer clicks the "Card" button and reviews the search history. 2. The customer clicks a desired word from the search history. 3. The customer writes its meaning and additional memo on the box at the right. 4. The customer clicks the "Save" button.
Extensions:	3a. The customer inserts an image by clicking the "Image" button. 4a. The customer cancels and discards the current working card by clicking the "Cancel" button.

2.2.8 Use Case: Review the card

Primary Actor:	Customers
Priority:	Essential
The goal in context:	The customer can access and change created cards.
Preconditions:	The customer has made vocabulary cards.

Trigger:	The customer wants to see created cards.
Scenario:	1. The customer clicks one from the different lists. 2. The customer can now view the cards created.
Extensions:	1a. The customer moves to other lists by clicking the drop-down button at the right. 2a. The customer shuffles the order of cards by clicking the shuffle shape button. 2b. The customer changes the memo of the card by clicking the pencil shape button. 2c. The customer deletes the selected card by clicking the trash bin shape button.

2.3 User Interfaces

Figure 1. Login page

This is the first screen for the user who got into TheALLDictionary website. If the user

clicks "TheALLDictionary" at the top of the screen, it will redirect to the same page unless the

user has already signed in. Once the user types its id and password and then clicks the "Login"

button, the system will check whether the user has entered them correctly. If the user has entered

them correctly, the system will allow the user to sign in and then redirect to the home page, as

shown in Figure 3.

   If the user does not have an account yet, the user can also create an account by clicking

the "Create new account" button. This will direct the user to the sign-up page, as shown in

Figure 2.

   Note that even if the user does not sign in, the user can use the word searching feature.

The user can open the search page by clicking the "Go to TheALLDictionary" button.

Figure 2. Sign-up page

This page lets the user register a new account. The user can create a new account once the user fills out the tabular form correctly and then click the "Create" button. Then, the system will create an account based upon the user's inputs and then redirect the user to the Login page.

Notice that the user can cancel the process of creating an account by clicking the "Cancel" button. Clicking this button will, in turn, redirect the user to the Login page.
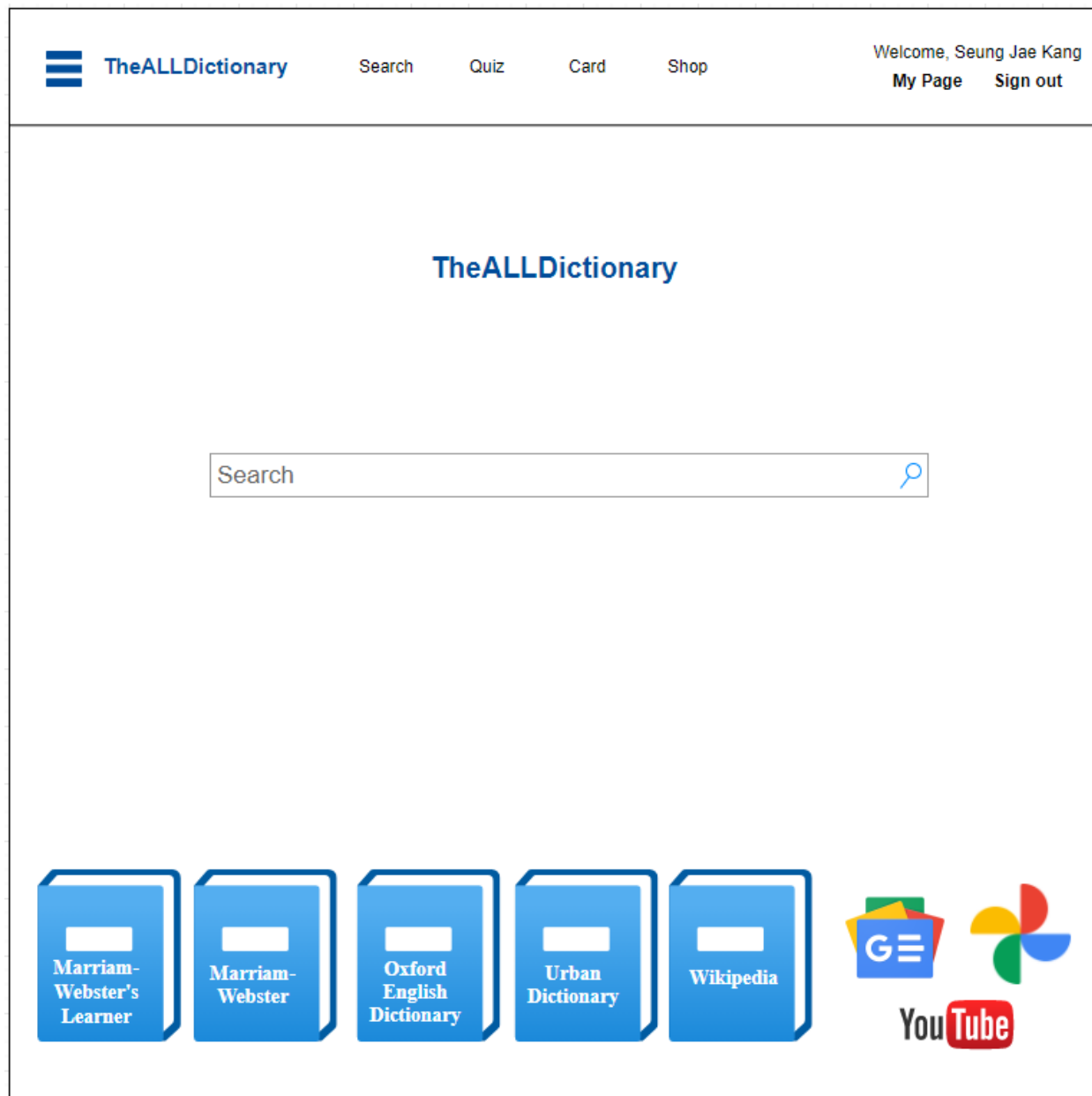
Figure 3. Search page

The user can open the search page by clicking the "Search" button at the top tab bar and then clicking the "Go to TheALLDictionary" button, as shown in Figure 1.

Once the user has signed in, his name will appear on the top right of the screen. Besides, the "My Page" button and the "Sign out" button will appear below the user's name. If the user clicks the "My Page" button, the system will open the My page, as shown in Figure 6. If the user

clicks the "Sign out" button, the system will sign out the user and then redirect it to the search page.

Note that the user does not have to sign in with its account to access the search page.
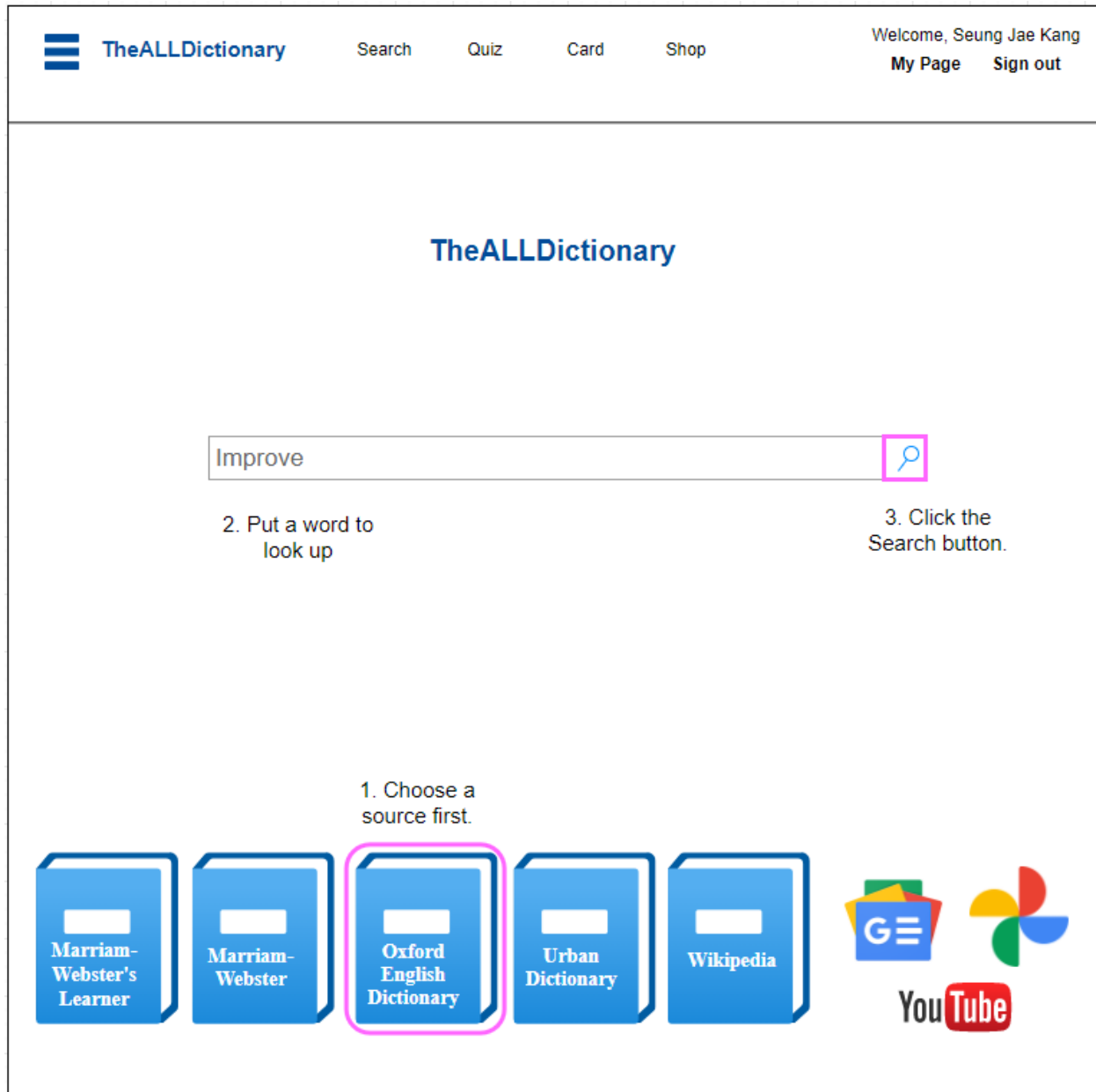
Figure 3-1. Dictionary

The user needs to select a source first, next type a word, and then click the search button to look up the word.

Figure 3-2. Dictionary

Once the user clicks the search button, the result will pop up like the screen above.
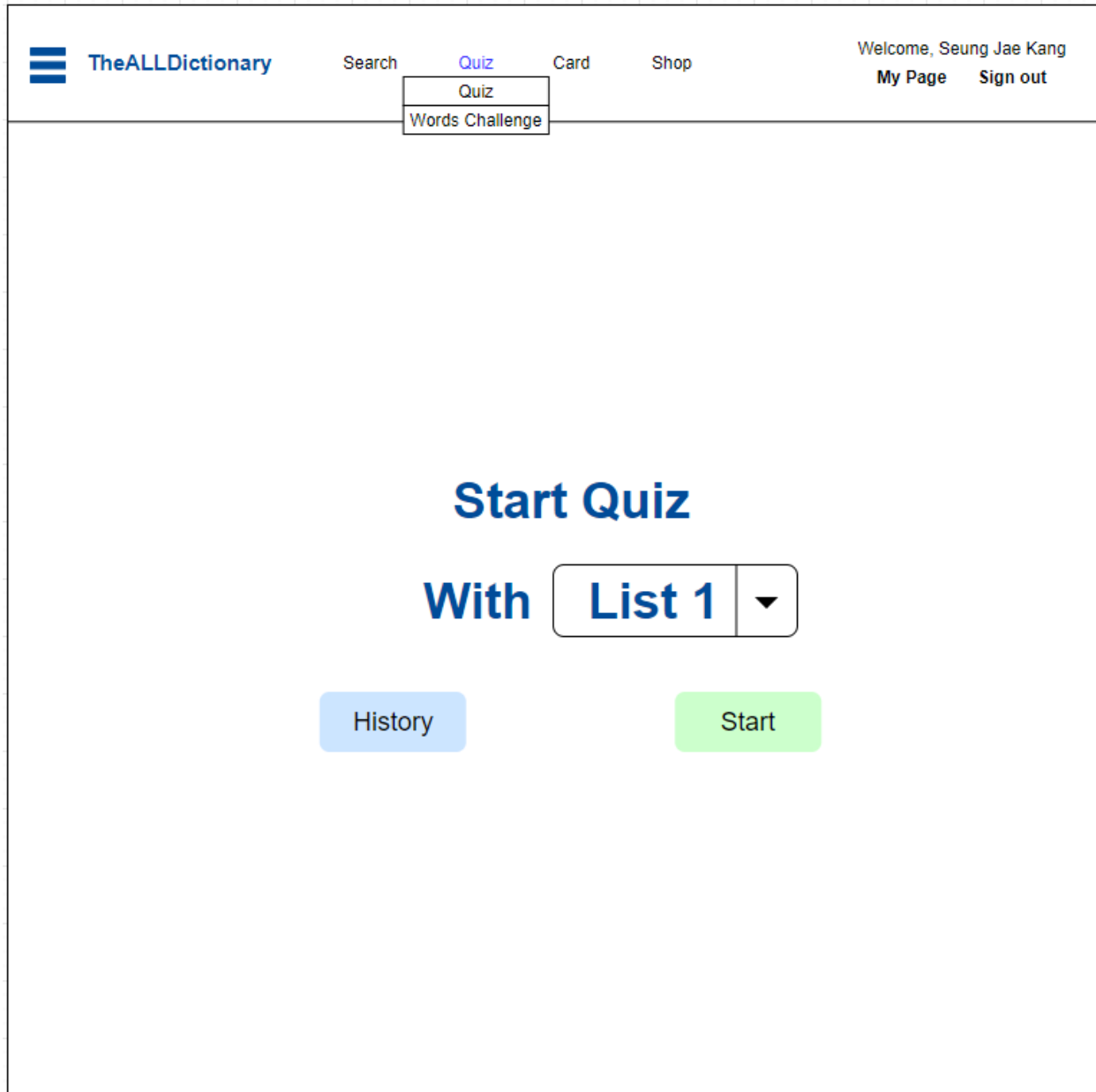
Figure 4. Start quiz page

The Start quiz page can be reached by clicking the "Quiz" button at the top tab bar. After the premium customer has made a list of note cards, he or she can select the list to let the system generate a quiz only based upon the note cards from the selected list. Then, the customer can click the "Start" button to start the quiz, as shown in Figure 4-2.

Figure 4-2. Sample multiple-choice question in the quiz

Here notice that the system has generated a sample multiple-choice question. Therefore, the customer has to choose a word from each of the four choices and then click the right-arrow-shaped button to move to the next question. The "Submit" button will only show up when the customer has entered the last question. The left arrow shape button lets the customer go back to the previous question to review its answer.
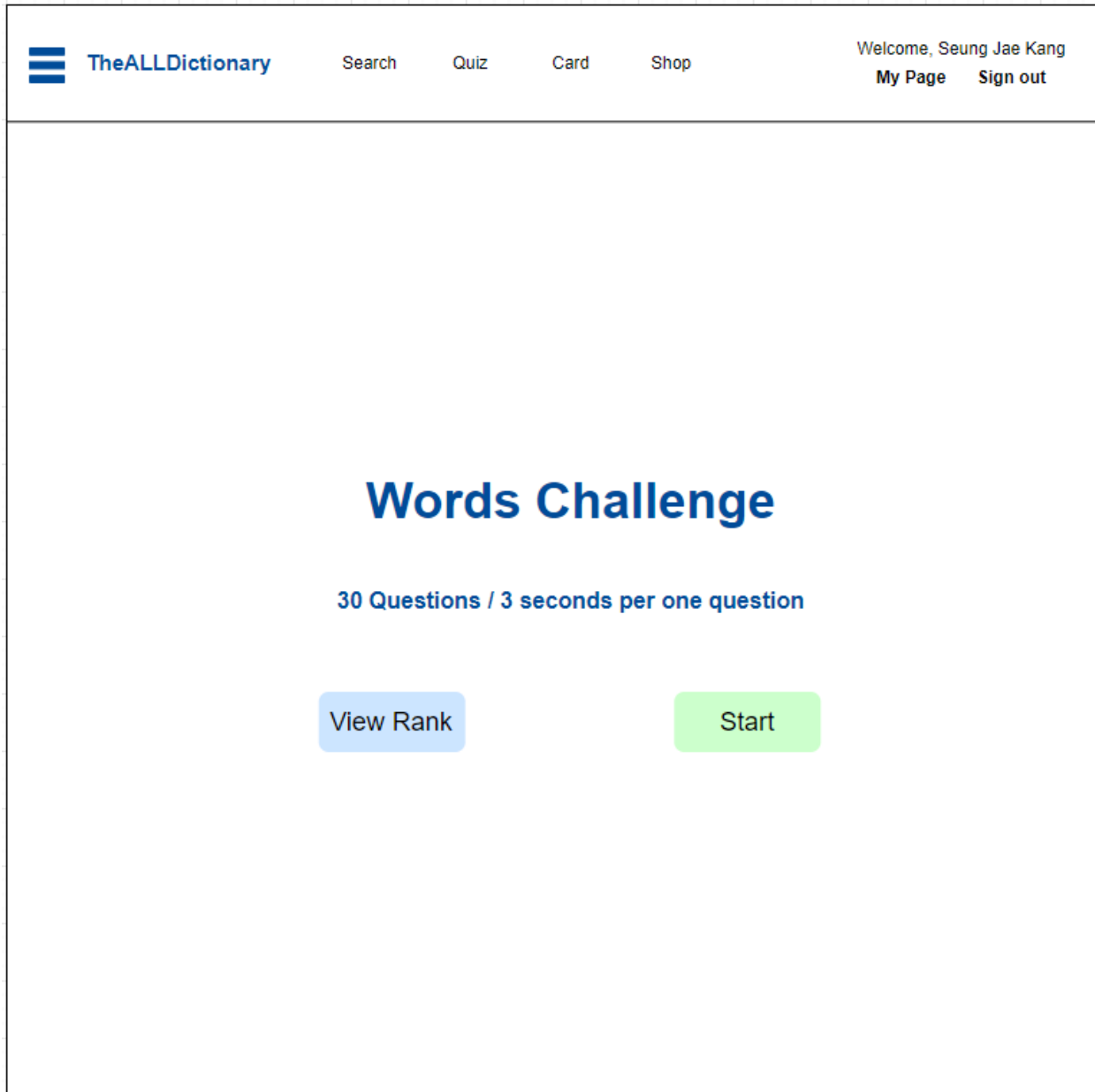
Figure 4-3. Start words challenge page

When the customer puts the mouse cursor on the "Quiz" button at the top of the screen, the drop-down menu will be popped up. From the drop-down menu, the customer can click the "Words Challenge" button to open the page, as shown in Figure 4-3.

Here clicking the "Start" button will open the page, as shown in Figure 4-4. Moreover, clicking the "View Rank" button will open the page, as shown in Figure 4-5.

Figure 4-4. Sample multiple-choice question in a word challenge

Once the customer clicks the "Start" button on the page, as shown in Figure 4-3, he or she can begin the word challenge. Each question has a 3 seconds time limit to prevent premium customers from cheating. The customer needs to choose one word from the four options and click the "Next" button to submit its answer to the current question and move on to the next question. Note that if the customer goes over the time limit, then the clicked option will be

automatically submitted as the answer to the system. In the case above, the word "Programming" will be automatically submitted as the answer. If there is not any option clicked, it means that the customer has not solved the problem on time. Therefore, the system will not give any points to this question.
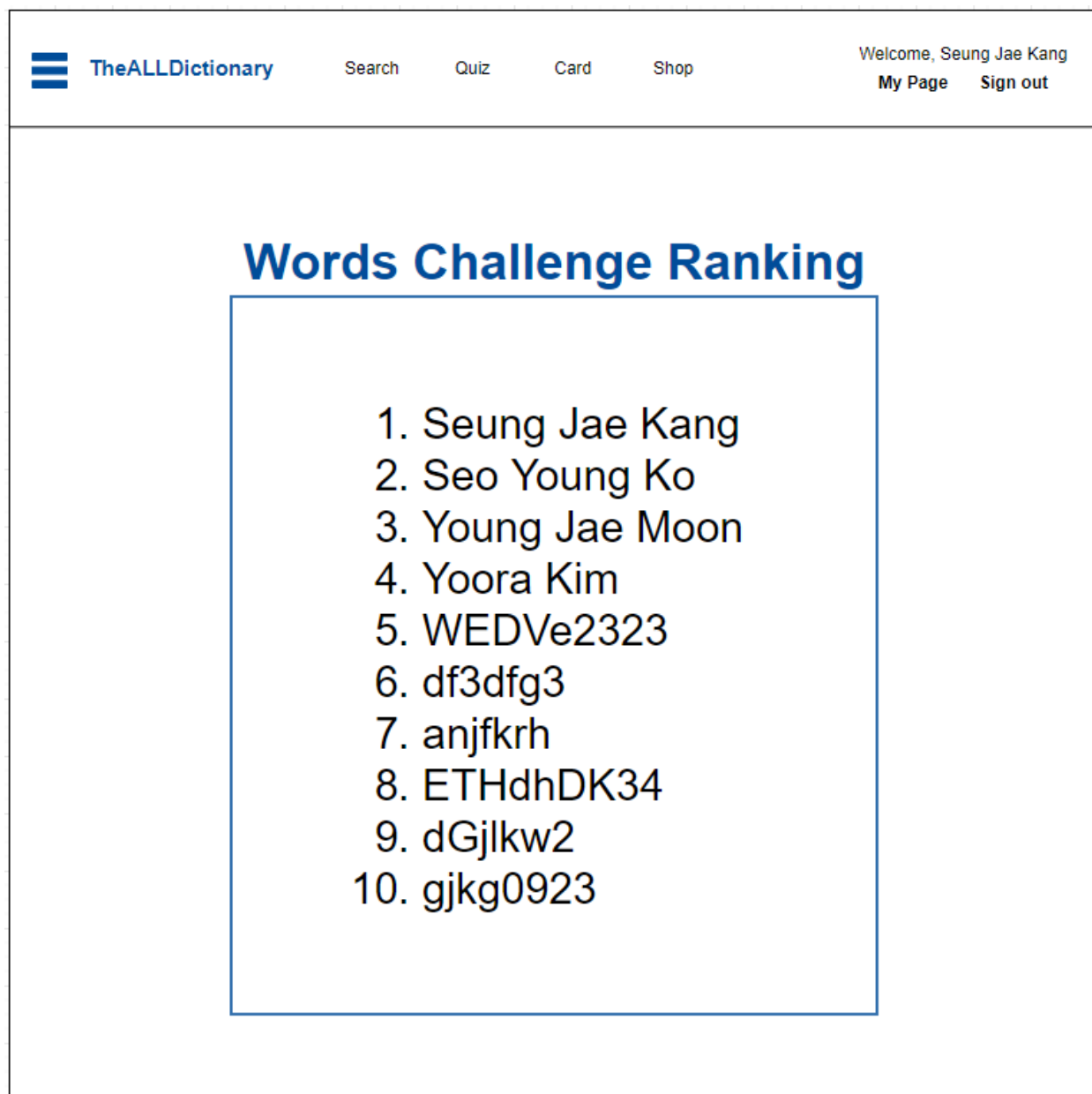
Figure 4-5. Rank page

The rank page can be opened by clicking the "View Rank" button on Figure 4-3. The ranking is based upon the scores of "Words Challenge" from each premium customer.
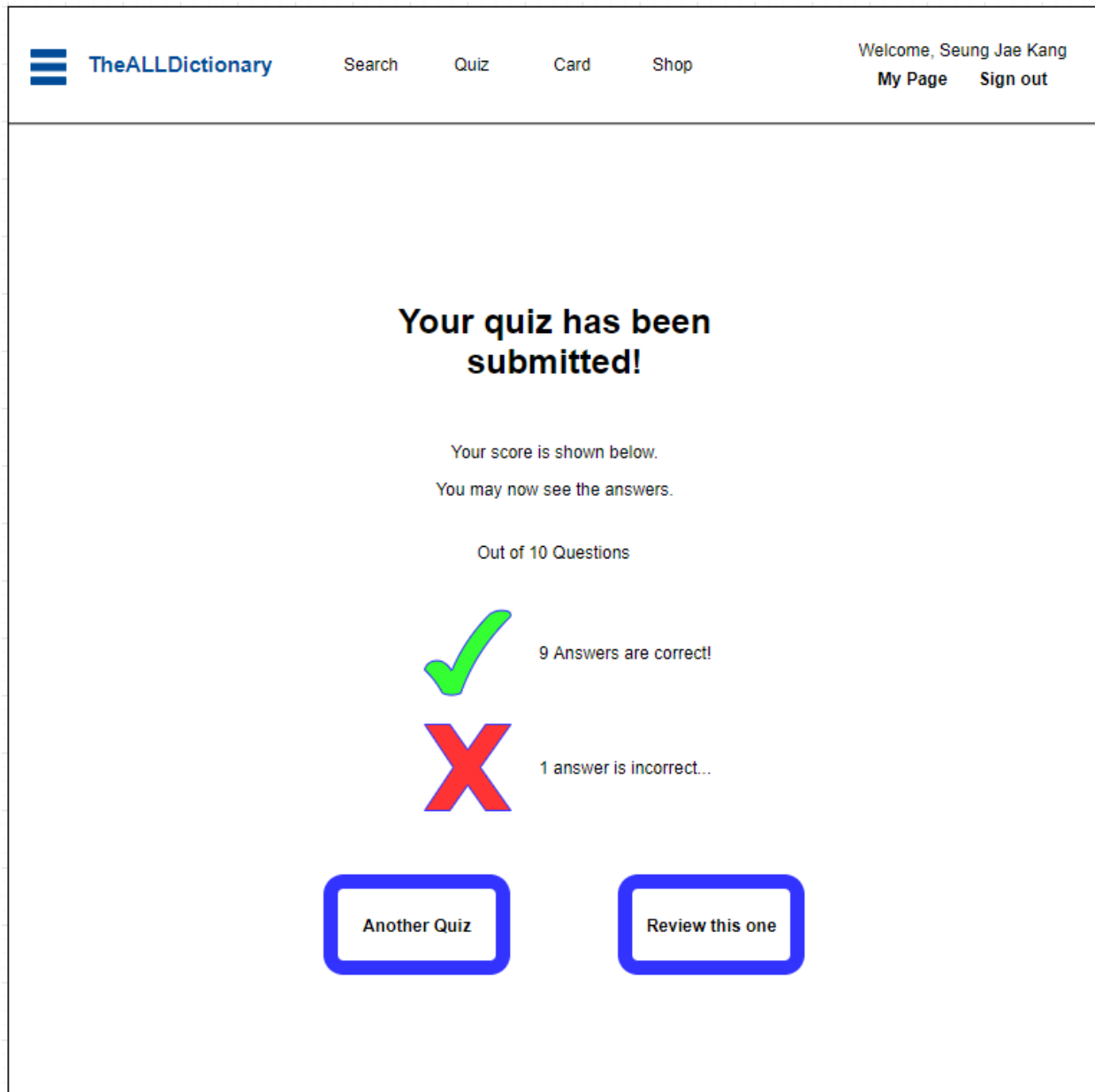
Figure 4-6. Quiz result page

Once the premium customer has finished and submitted the quiz on time or the time has gone over, he or she can check its results on the quiz result page immediately.

Note that the customer can take a new quiz by clicking the "Another Quiz" button. This will, in turn, open a page, as shown in Figure 4.

The customer can also instead review its quiz by clicking the "Review this one" button. This will, in turn, open a page, as shown in Figure 4-7.
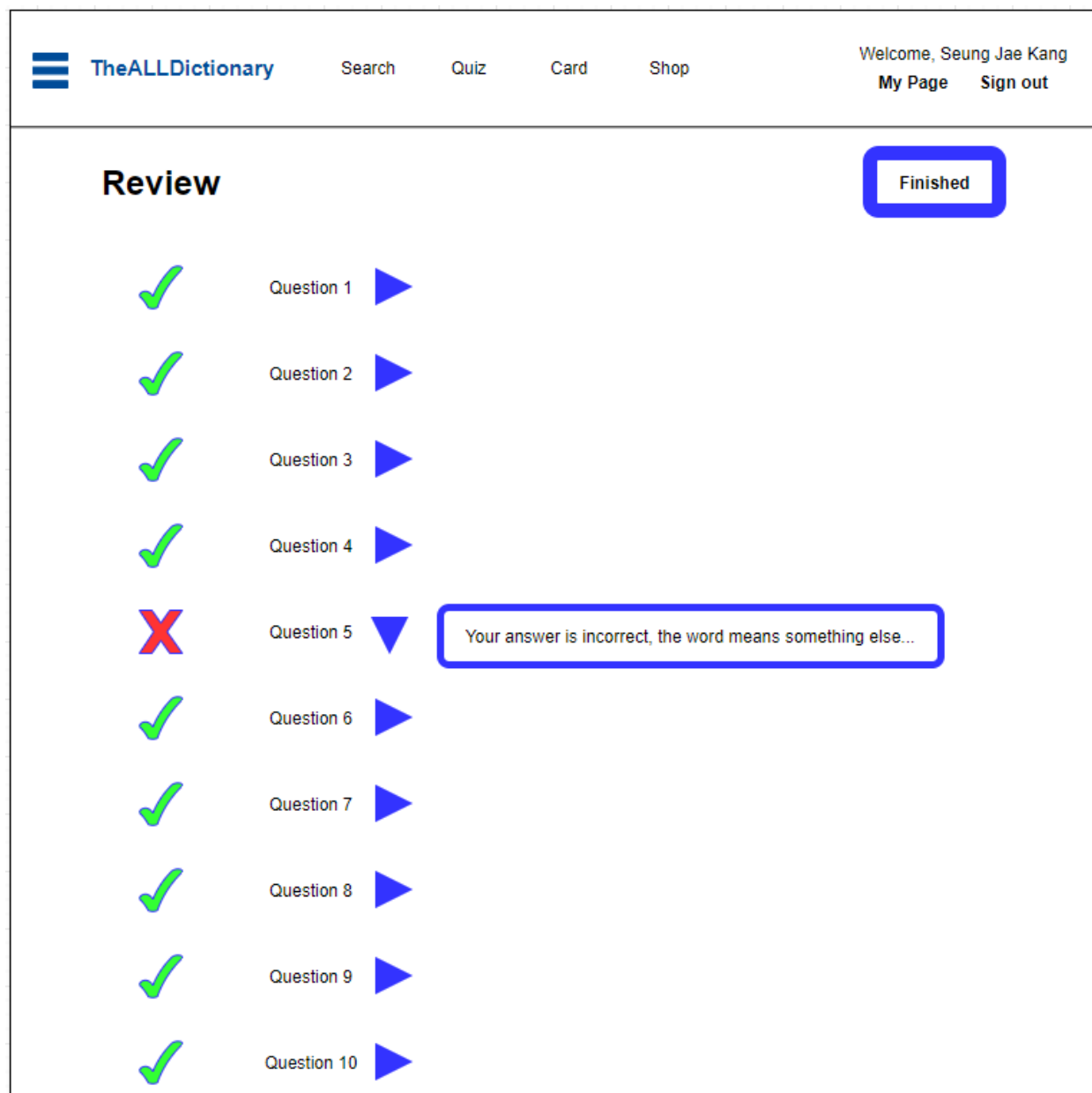

Figure 4-7. Quiz review page

From the quiz review page, the premium customer can check the correct answer for all questions. After checking all of the questions, the customer can click the "Finished" button at the top right corner to redirect to the quiz start page.
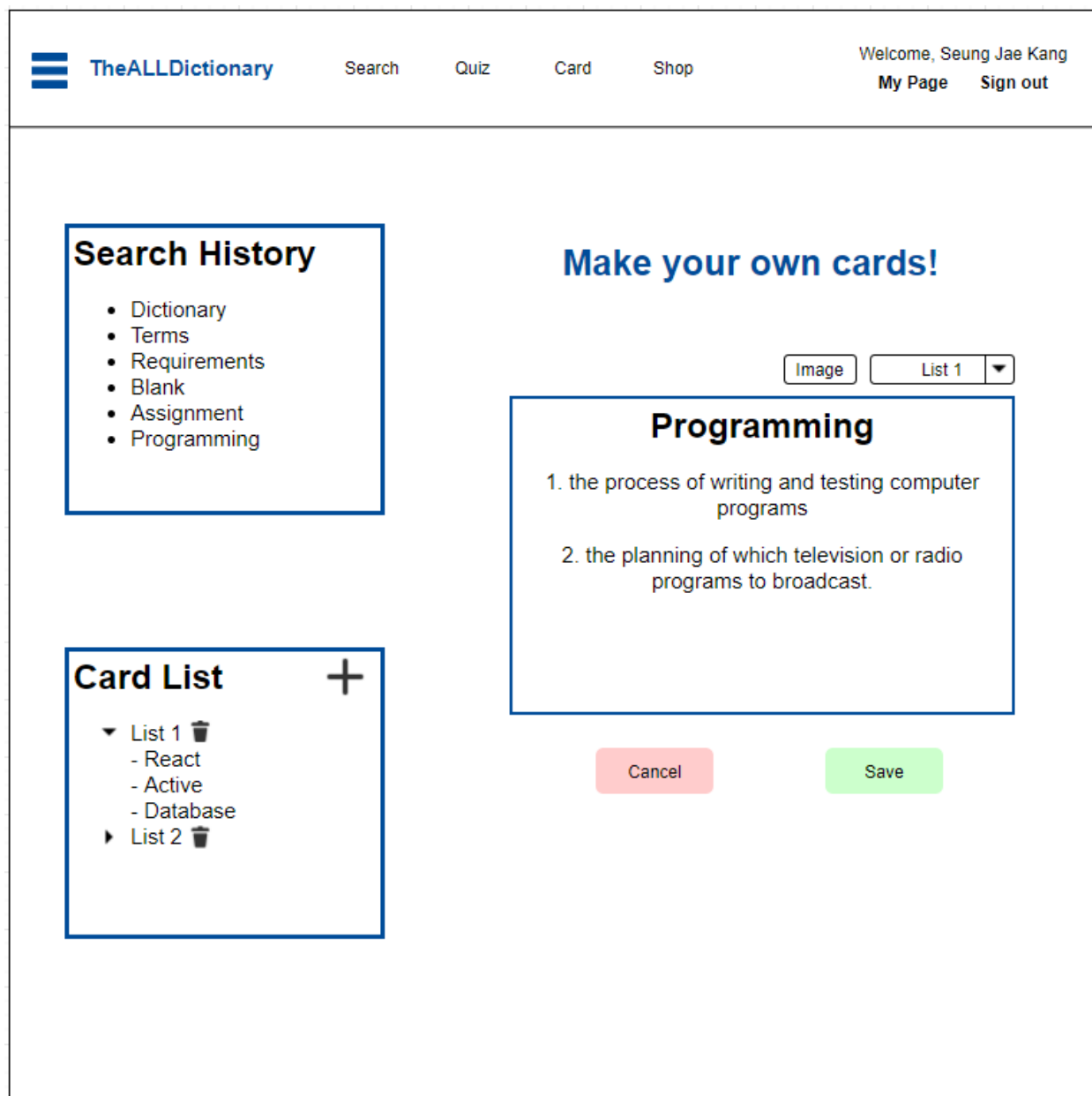
Figure 5. Card page

The signed-in user can open the card page by clicking the "Card" button at the top tab bar. Here the "Search History" box shows the search history of the user made from the dictionary page. Notice that if the user clicks a word from the "Search History" box, a note card will be automatically generated. Then, the user just has to type the word's meaning. The user can also add an image to it by clicking the "Image" button at the top right of the note card.

After typing the word's meaning, the user can click the "Save" button to save the notecard to the list of note cards. Or the user can click the "Cancel" button to discard the notecard being created.

The "Card List" box displays the lists of note cards created and the elements inside the lists. Here the user can click the '+' shaped button to create new lists. Thus, the user can click the garbage-shaped button to delete the selected list.

Figure 5-1. Sample of a saved note card

In addition, if the user double-clicks the list on the "Card List" box as shown in Figure 5, the list with saved notecards will be displayed as shown in Figure 5-1. The user can click the "Shuffle" button on the list box to mix the order of the notecards.

The user can edit the notecard being selected by clicking the pencil-shaped button on the right. The user can also delete the notecard by clicking the garbage-shaped button. The user can click the "Previous" button to view the previous notecard from the list. Thus, the user can click the "Next" buttons to view the next notecard from the list.

Figure 6. My Page

The signed-in user can open my page by clicking the "My Page" button at the top tab bar. If the user has its profile picture, its profile picture will be displayed on the left side of my page. If the user does not have his or her profile picture, the system will display a default picture, as shown in Figure 6. Thus, the user can add, edit or delete its profile picture by clicking the "choose picture" button.

       The user can edit his or her personal information by clicking the "edit" button at the right of each menu. The user can change its subscription status by clicking the "edit" button next to the "Subscription" text. This will, in turn, open the subscription page. The "Delete my Account" button will delete the current account.

Figure 7. Subscription page

If the user clicks the "edit" button next to the 'subscription' text as shown in Figure 6, the subscription page will be opened. After the payment has been processed, the system will automatically redirect to My Page.

2.4 Non-functional requirements

2.4.1 Performance requirements

1. Creating, editing, saving, and sharing the notecards will take a negligible amount of time.

2. Updating the user's password will take a negligible amount of time after the new

    password has been validated and verified.

3. Updating the user's email address will take a negligible amount of time.

4. Updating the user's phone number will take a negligible amount of time.

2.4.2 Operating constraints

1. The system can be entirely operated only in the web browsers that YouTube, Google

    Images, Google News, and Wikipedia support. If the user's web browser does not support

    these websites, then the user will not effectively view contents from these websites.

2.4.3 Platform constraints

1. The system shall support Windows and Mac OS, Android OS, iOS, and iPad OS as they

    are widely used. Windows and Mac OS are the two most common operating systems for

    desktops and laptops. Thus, Android OS and iOS are the two most common operating

    systems for mobile devices, and iPad OS is one of the most common operating systems

    for tablet PCs.

2.4.4 Design constraints

Not applicable.

2.4.5 Reliability

1. The system will not make errors 99 percent of the time for each functionality unless there

    is an Internet disconnection.

2.4.6 Availability

1. The system shall be connected to the Internet to connect to the database and other third-party sources for operating all functionalities.

2. The search results from the Oxford English dictionary will be available 1000 times maximum per month, as the free version of the Oxford Dictionaries API only handles 1000 requests per month.

2.4.7 Security

1. The user's password shall contain at least nine letters, including at least one capital letter, one small letter, one number, and one special character.

2. The user's ID shall be unique since the ID will be a primary key of a table in the database. Hence the system shall request the user to choose a different ID if the ID already exists. In this way, each user will not be able to access other users' data.

3. If the user fails to sign in three consecutive times, the system shall disable the user to sign in for the next three minutes to prevent hacking.

4. The user's password shall be saved in the encrypted format in the database by employing Werkzeug, a web application library developed by Flask. If a hacker maliciously gains illegal access to the database, the hacker needs to spend more time figuring out the user's actual password. As people tend to use the same password for multiple applications due to convenience, if the hacker then fails to decrypt the encrypted version of the password, the system thereby prevents additional hacking to the user's accounts for the other applications.

5. The system shall request the user to confirm its new password for verification if the user wants to change its password. If the new password is not confirmed correctly, the system

shall not update the password in the database and alert the user to verify its new password again. Otherwise, the system shall update the user's password in an encrypted format in the database.

6. The text entered in the password text-boxes shall always be invisible so that nobody can see the user's password.

2.4.8 Modifiability

1. Changing the price for a subscription will require less than a minute since the only part of the code that needs to be changed is the price saved on the server.

2.4.9 Legal constraints

1. The system is limited to displaying YouTube videos that do not violate the government's laws to which the user currently belongs. Suppose the video is forbidden for political, ethical, or ideological reasons by the country that the user is currently accessing the system. In that case, the system cannot display the video on the search page.

2.4.10 Usability

1. The bottom tab bar is designed so that the user finds it easy to select for viewing the searched results from each source. At least nine out of ten users should not find any difficulty in choosing the source to view on the search page.

2.4.11 Portability

Not applicable.

3. Contributions

Name	Contributions
Ho-jin Jeong	- Has created a GitHub repository and Google Drive for our project. - Has prepared and delivered a presentation. - Came up with the idea for using Danawa API before. - Wrote a summary of the problem and the solution together before changing the project.
Young-jae Moon	- Did most of the work for README.md for our GitHub repository. - Researched Amazon Relational Database System (RDS) and Amazon S3 and how they can be applied to our project. - Found out that using KG Inicis API is the easiest to implement the payment system in Korean fully. - Came up with various features to add before entirely changing the project idea. You can check what I came up with within the "Create Teams Group Assignment/March 2 Sharing Thoughts.docx" in our Google Drive folder. - Wrote a summary of the problem and the solution together before changing the project. - Shared various documents related to writing an SRS with my teammates in our Google Drive folder. - Did all the formatting for our SRS document. I have created "ProjectName-RequirementsSpec.docx" in the "Software Systems Requirements" folder and then made a copy as "TheALLDictionary-RequireemtnsSpec.docx." so that I can keep both versions. - Came up with the new idea of the project and agreed with my team to change the project. - Wrote most of the product description (Section 1.1). - Did section 1.4, 1.6, 1.7. - Revised and edited section 1.2 - Revised and edited section 1.3. - Revised and edited section 1.5 together. - Wrote section 2.1 together. - Wrote all of section 2.4 - Wrote the first two use case tables. Wrote the third and fourth use case up to trigger. - Edited use case tables. - Revised and edited Section 2.3 - Did minor editing for the PPT slides of the presentation on March 16th. - Interviewed with Young-ho Kim to gain user feedback. Then, I

	have revised Section 1.4. ● Interviewed with Sudara Ranasinghe to gain user feedback. Added his feedback on Section 1.4 ● Interviewed with Hae-in Park to gain user feedback. Added his feedback on Section 1.4
Seo-young Ko	● Wrote a summary of the problem and the solution together before changing the project. ● Edited section 1.1. ● Revised and edited section 1.5 together. ● Wrote section 2.1 together. ● Wrote section 2.2.3 and 2.2.4 Use cases. ● Made home and search result mock-up page User Interface. ● Made the PPT slides for the first SRS presentation (March 16th). ● Gave the first presentation on March 16th as a presenter.
Seung-jae Kang	● Wrote a summary of the problem and the solution together before changing the project. ● Made a table of contents. ● Wrote section 1.2 and 1.3. ● Wrote section 1.5 together. ● Wrote section 2.1 together. ● Made login, register, quiz result, and review mock-up pages. ● Edited mock-up pages that others made. ● Wrote section 2.3 using mock-up pages that everyone made together. ● Wrote 2.2.7 and 2.2.8 Use cases.
Yoo-ra Kim	● Suggested to use eBay API instead of Danawa API, as Danawa is in Korean. ● Wrote a summary of the problem and the solution together before changing the project. ● Suggested to change project as it is hard to find appropriate API. ● Wrote section 1.5. ● Wrote section 2.1 together. ● Wrote section 2.2.5 and 2.2.6 Use cases. ● Made start quiz, sample multiple-choice question in the quiz, start words challenge, sample multiple-choice question in a word challenge, rank, card, sample of a saved note card, my page, and subscription mock-up pages ● Did minor editing for the PPT slides of the first SRS presentation (March 16th).