



DUCKTIONARY

Andreas | Andre | Deananda | James | Regy | Thompson

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OVERVIEW



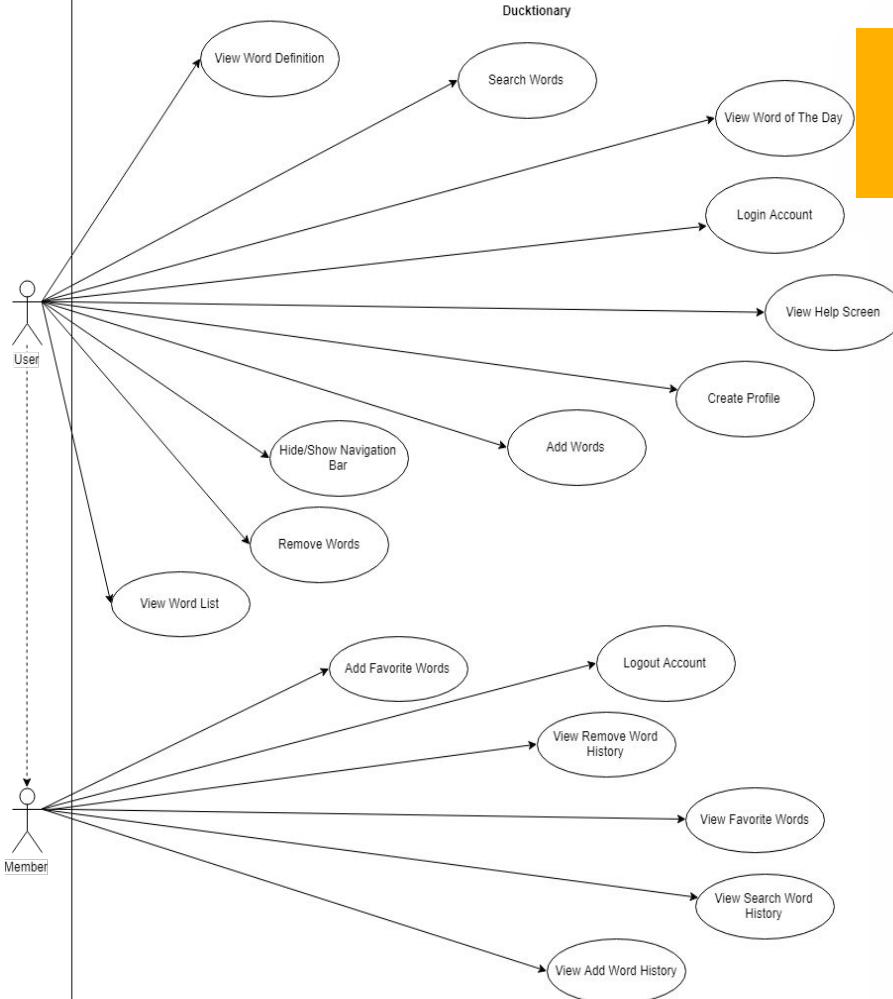
- For this project our main concern is to apply what we have learned in HCI through our application
- The HCI part implemented are related to the user interface and user interactions (ex: user-feedback, etc)
- Ducktionary is an PC application developed using Java and JavaFX.
- Since we are on a tight schedule, our scope is limited.
- Ducktionary provides functions and services such as providing unlimited access to our dictionary database which contain words with their respective definition and other informations, users can also add/remove words as they like.



1. What is Ducktionary?

Let's see what the Ducktionary can do!

Ducktionary



USE CASE DIAGRAM



Use case diagram for users and members

Figure 1. Use Case Diagram

CLASS DIAGRAM

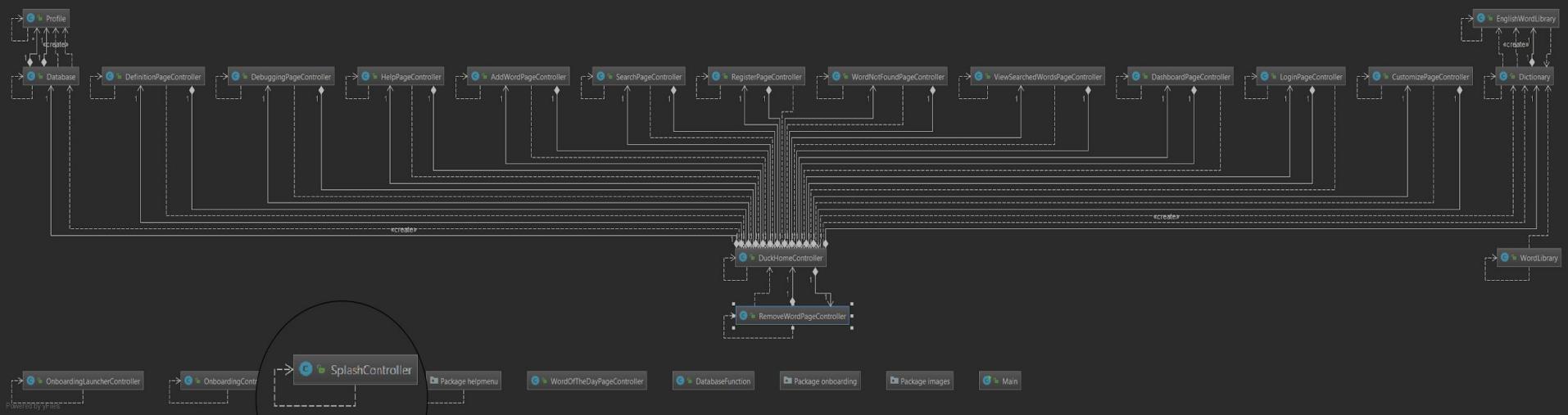
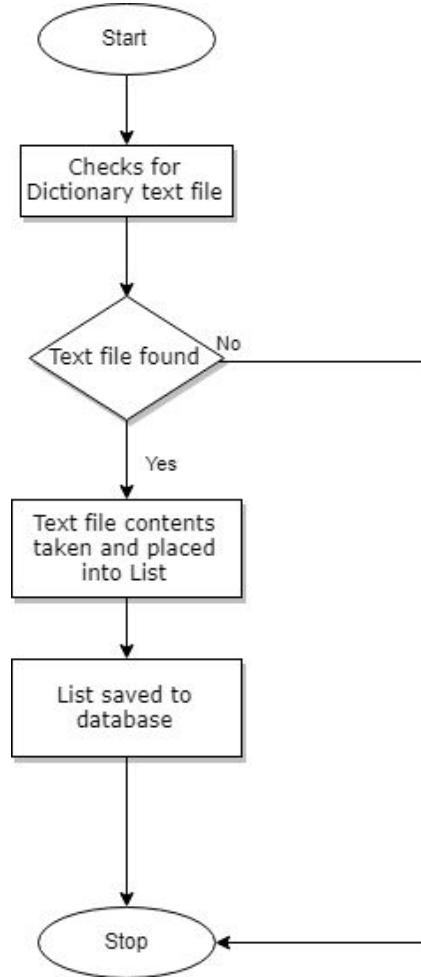


Figure 2. Class diagram



FLOWCHART: LOAD DICTIONARY

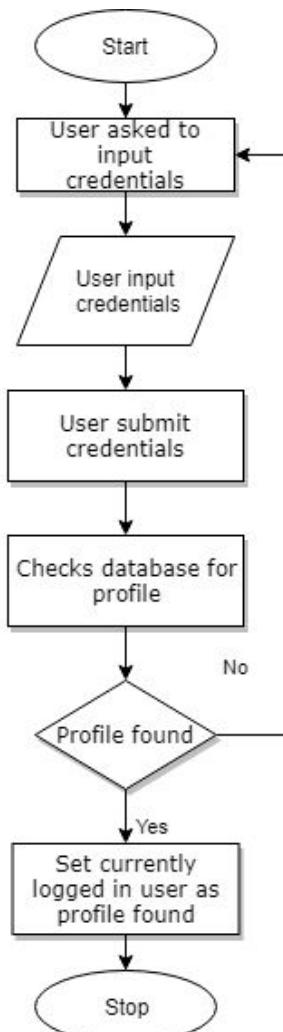


This flowchart loads the dictionary list, it finds for the dictionary text file if its found the contents of the text file is taken. Each line will be inserted as an item in an ArrayList.

Figure 3a. Load Dictionary Flowchart



FLOWCHART: LOGIN

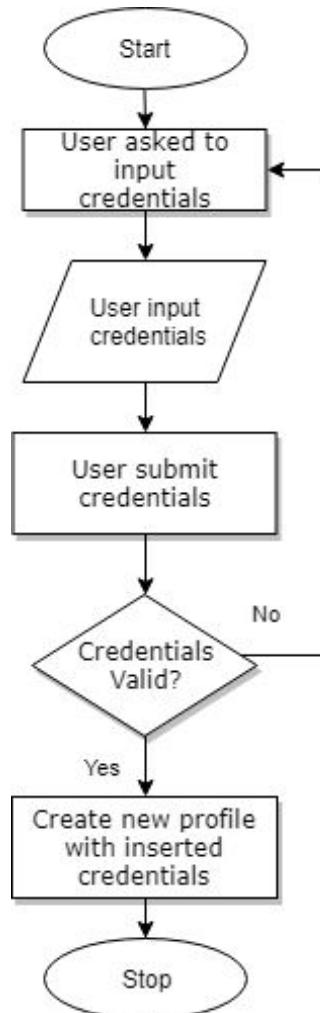


This flowchart shows the process of which a user logs in to an account. First the user is asked for profile credentials that is username and password. As user input the credentials the database is checked if any of the profiles matches the credentials. When found that profile is used as the currently logged in user.

Figure 3b. Login Flowchart



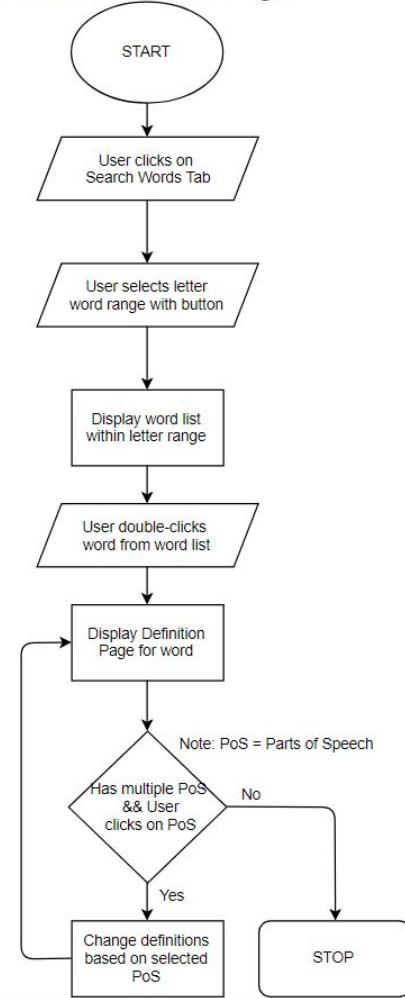
FLOWCHART: REGISTER



This flowchart shows the process of which a user register an account. The user is asked for credentials that is email, username, password and submits it. If the credentials are valid then a new profile is created.

Figure 3c. Login Flowchart

Go to Definition Page



FLOWCHART: GO TO DEFINITION PAGE



This flowchart illustrates navigating to the search page to find the definition of a particular word. They have a predetermined set of letter ranges to choose from (A-C, D-F, and so on), and selecting one takes them to a new page with the list of words within that letter range. Double-clicking on a word takes them to its definition page, of which there can be 2 sets if there are two parts of speech. Clicking on a part of speech changes the displayed definitions to the ones corresponding to the selected part of speech, with the selected one highlighted in green.

Figure 3d. Definition Page Flowchart

FLOWCHART: ADD WORD

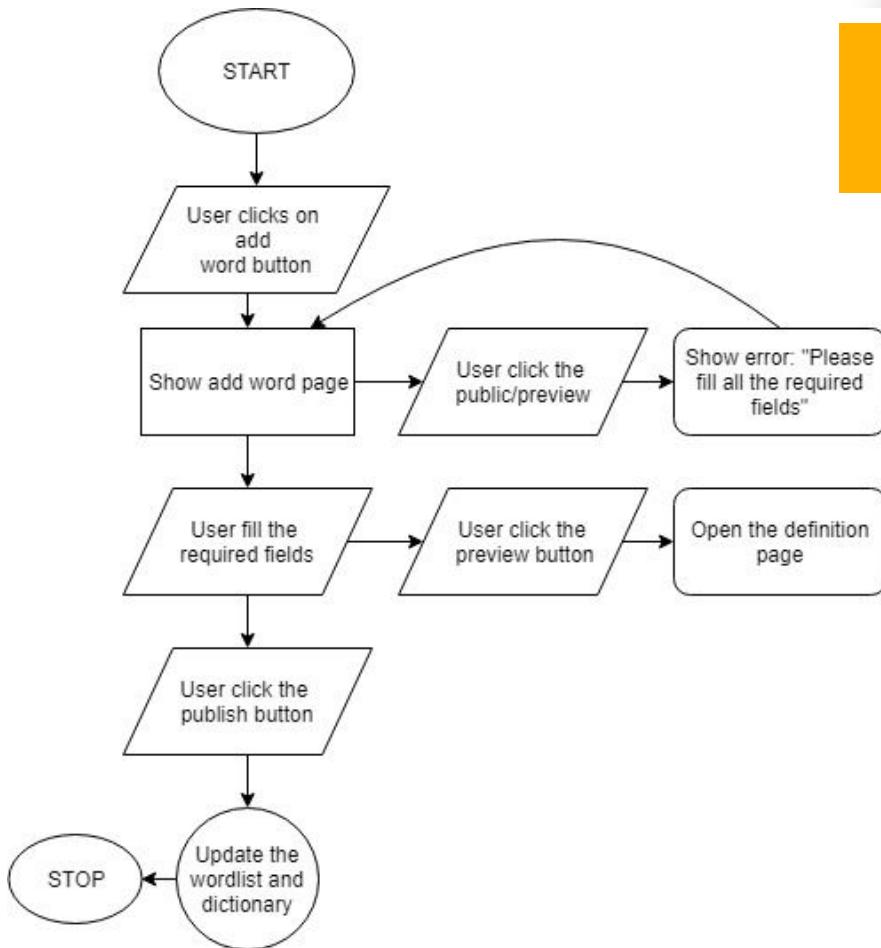
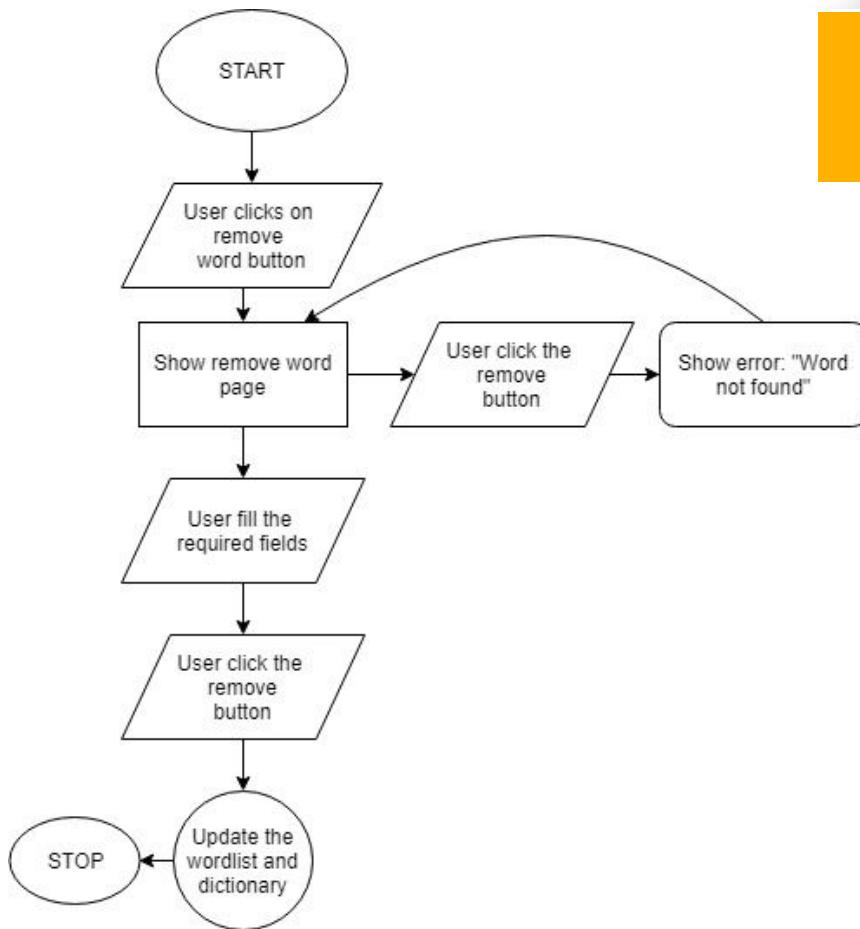


Figure 3e. Add Word Flowchart

FLOWCHART: REMOVE WORD



The flowchart shows the process of removing existing words. First the removeword button redirect the user to remove word page. Then it is required to fill all the word that wants to be removed on the empty fields and click the remove button to remove the selected word from the database

Figure 3f. Remove Word Flowchart

WORK PRIORITY

Prioritized principles:

1. Familiarity (design based on multiple sources)
2. Predictability (icons, buttons, clickable text)
3. Responsiveness (quick transitions in program)
4. Consistency (cohesive designed UI)
5. Observability (confirmation for add/remove)

OVERALL DESCRIPTION



Product Function

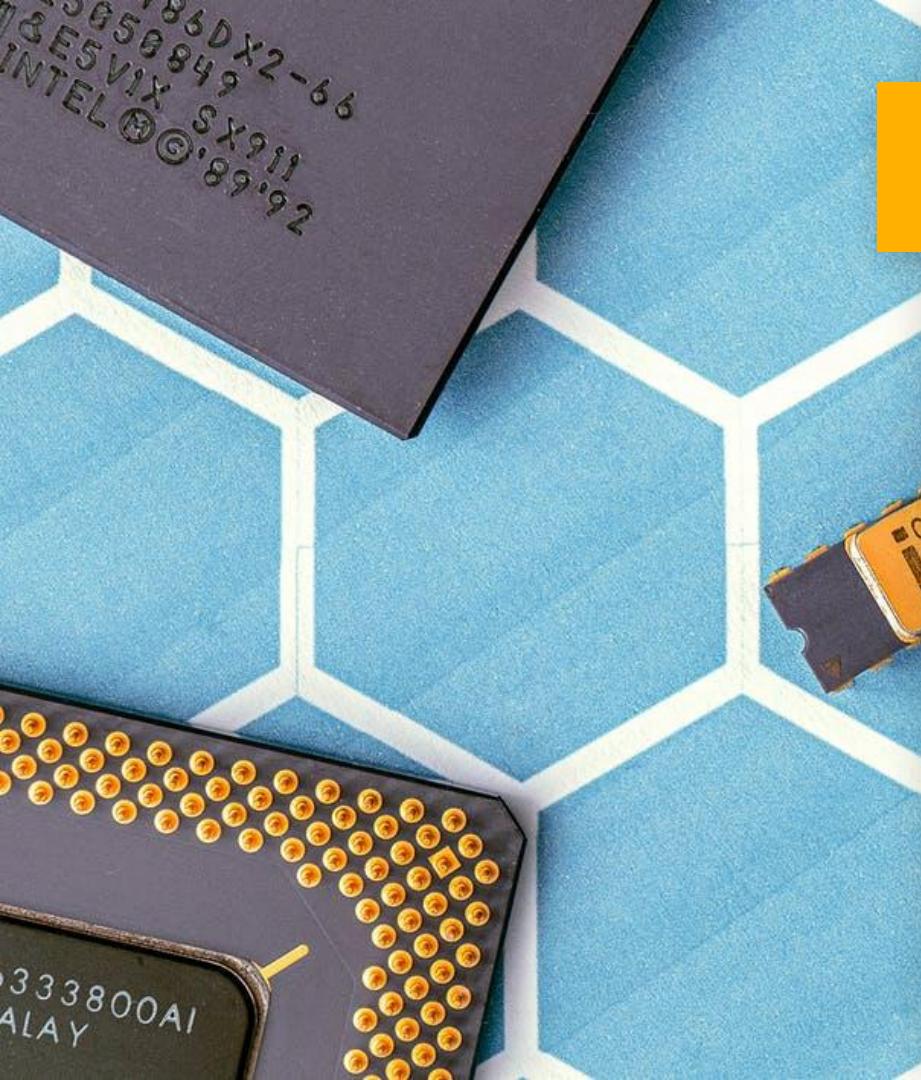
- Providing information about words and their respective definitions and other useful informations that can be found in other dictionary
- Search functionality with search recommendations
- View through the index of words from A-Z
- Allow user to register and login their account so the application can track their words history, amount of words added/removed, and favorite words.
- Comprehensive help menu with video tutorials

User Characteristics

- Designed for all matter of audiences (not aged restricted)

Constraint

- The definitions stored in this application is limited to the word, parts of speech, word origin, and definition.
- To use our hosted database, the user must be in the same network as the database host. If not, the application switches to the local database mode using txt.



EXTERNAL INTERFACE REQUIREMENT

Software Requirements:

- Java 8 & JavaFX 8
- Microsoft C++ Redistributable

Minimum Requirements:

OS: Windows 10
Processor: Intel Dual Core 2.2+ GHz (or equivalent)
Memory: 4 GB RAM
Graphics: Intel HD 3000
Storage: 200MB available space

Connection Requirements:

Wireless connection needed to access the locally hosted database in the network.

If the network hosted database is not found, then it will use the local database saved in the program folder.

SOFTWARE PRODUCT AND FEATURES

- 
1. Splash Screen
 2. Welcome Onboarding with different background colors and animations
 3. User account login/logout/register
 4. User save favorite words
 5. User tracking: search history, added word history, removed word history, and store user information.
 6. Keyboard shortcuts
 7. Tooltip hints on everything when the cursor is hovered
 8. Cursor variations on buttons and interactive entities.
 9. Animations
 10. Custom Search/Index
 11. Button feedback when clicked
 12. Add/Remove words
 13. Top quick search bar
 14. User dashboard
 15. Comprehensive help screen with FAQs and detailed video tutorials
 16. Word not found page with animation
 17. Offline/Online database with SQL
 18. External database using ".txt" file with input/output functions
 19. All button designs
 20. Different background colors for certain windows
 21. Over than 20+ icons and icon designs
 22. Navigation bar/menu bar
 23. All forms captioned
 24. Click the top logo to go to dashboard



2. Data Gathering Survey & Anova & T-Test

Lets run the numbers!

DATA GATHERING METHODOLOGY

We want to see if the icon in the application is intuitive enough to be used by user.

For the survey, we did not give any information to recipient.

We want the participants to find 3 methods of searching for word “Animal” in the application.

We will gather the data based on how much time needed to find each method.

After we gather the data, we will do Anova test.

ANOVA TEST RESULT

We want to see the effect of each method with tolerance 95%

Table 1 Anova Test Result

Search bar	5.1	4.4	5.3	6.2	4.7	4.3
Search page	7.5	7.7	8.3	8.1	9.2	10.2
Customizable page	6.5	6.7	7.3	7.1	6.2	8.2

Figure 4. Anova test result table

ANOVA RESULT

Grand-average	41
Total row-sum-squared	5265
SSTr	37
MSTr	18.50
SST	47.22
MSE	0.68
SSE	10.22

$$F_{\text{calc}} = \text{MSTr}/\text{MSE} = 27.15$$

$$F_{\text{table}}(0.05, 2, 15) = 3.68$$

$F_{\text{calc}} \geq F_{\text{table}}$ true

Hence, H_0 is rejected, H_a accepted

In other words, various search method have and impact on user's search time

Figure 5. Anova result table

SURVEY RESULT

User 1	User 2	User 3	User 4	User 5
3	3	4	4	3

$$\text{Average} = (3+3+4+4+3)/5 = 3.4$$

This is the data from the survey before redesign. Maximum score is 5 and minimum score is 0. The data consisted of color and icon placement in application and we average it to obtain a single score. We want to get total average at least 4. So we decided to redesign the application.

Figure 6. Survey result table



3. Redesign

Let's see the before and afters!

REDESIGN - DASHBOARD

Old Dashboard

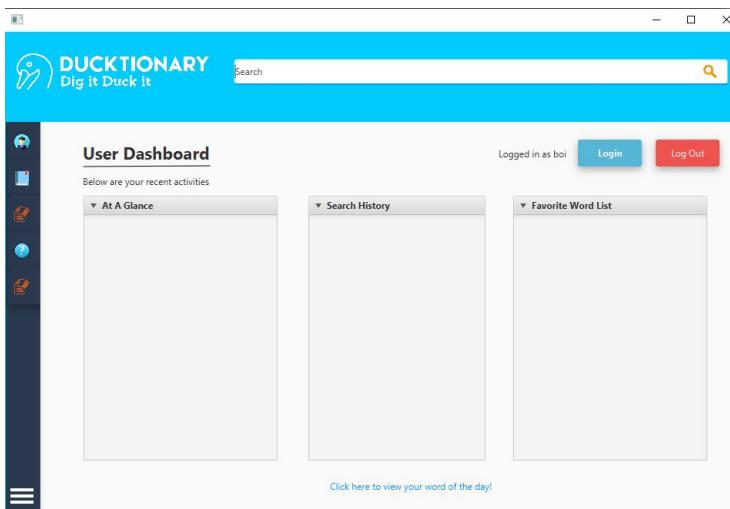


Figure 7. Old Dashboard

New Dashboard

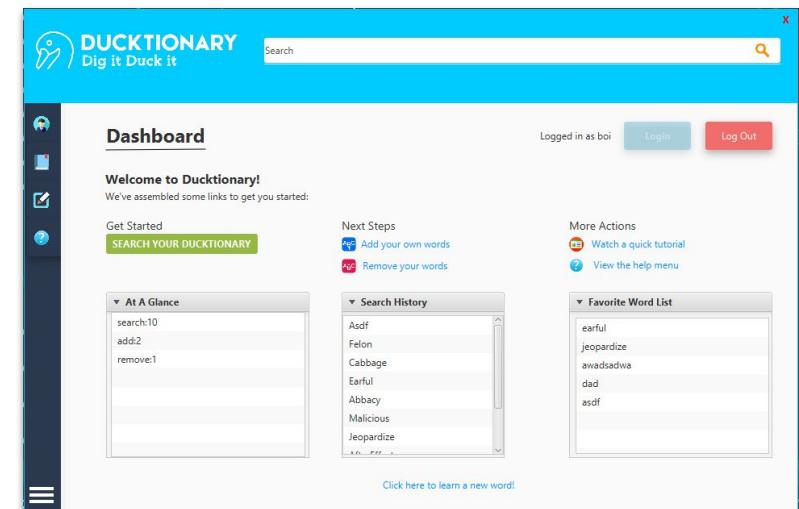


Figure 8. New Dashboard

REDESIGN - Custom Search

Old Search Screen

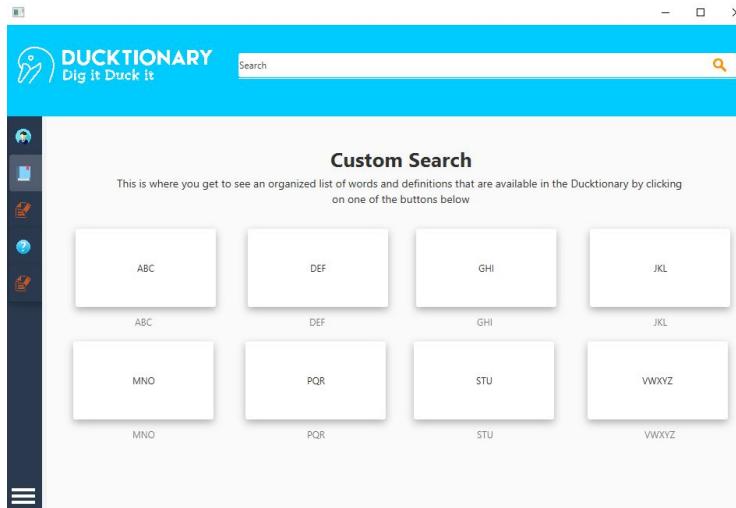


Figure 9. Old Search Screen

New Search Screen

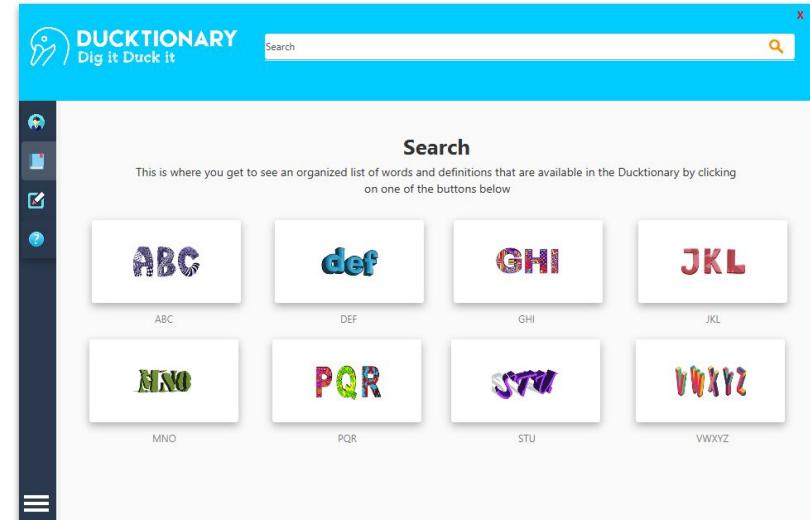


Figure 10. New Search Screen

REDESIGN - CUSTOMIZE DUCKTIONARY

Old Customize Ducktionary

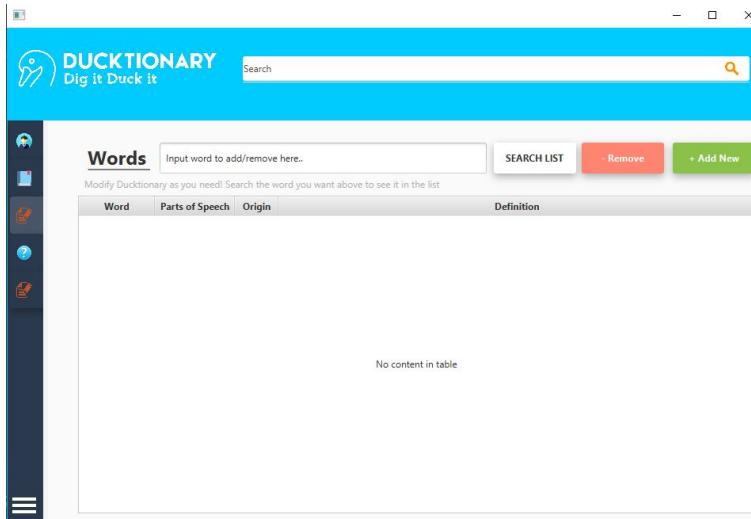


Figure 11. Old Customize page

New Customize Ducktionary

The screenshot shows a desktop application window titled "DUCKTIONARY Dig it Duck it". The main area is titled "Words" and contains a search bar and a text input field with placeholder text "Input word to add/remove here...". Below the input field are two buttons: "+ Add New" (green) and "- Remove" (red). To the right of the input field is a "SEARCH WORDS" button. A large table on the right lists words with their parts of speech, origins, and definitions. The table includes entries such as "Abandon" (Verb, French, give up), "Abase" (Verb, French, debase), "Abate" (Verb, French, make less strong), "Abattoir" (Noun, French, slaughterhouse), "Abbacy" (Noun, Latin, office or jurisdiction of an abb.), "Abbey" (Noun, English, building(s) occupied by a com.), "Addwerg" (Noun, f, f), "Awadsadwa" (Noun, Dwa, English, wa), "Babe" (Noun, as *baby, 1 literary baby), "Baboon" (Noun, French, Large long-nosed African and Arabian baboon), "Baby" (Noun, Verb, Imitative, (pl. -ies) 1 very young child. (-ies, -ied) to), "Baccarat" (Noun, French, Gambling card-game), "Bacchanalia" (Noun, English, pl. 1 Roman festival of Bacchus), "Bachelor" (Noun, Related, 1 unmarried man), "Bacillus" (Noun, Latin, Di..., (pl. Bacilli) rod-shaped bacterium, esp. Bacterium), "Backache" (Noun, English, Ache in the back), "Backbone" (Noun, English, 1 spine), and "Cab" (Noun, Abbrev., 1 taxi). The table has columns: Word, Parts of Speech, Origin, and Definition.

Word	Parts of Speech	Origin	Definition
Abandon	-VERB, —NOUN	french...	1 give up. Freedom from inhibitions.
Abase	VERB	french...	(sing) (also refl.) Humiliate, degrade.
Abate	VERB	french...	(sing) make or become less strong etc.
Abattoir	NOUN	french ...	Slaughterhouse
Abbacy	NOUN	latin re...	(pl. -ies) office or jurisdiction of an abb.
Abbey	NOUN	english	(pl. -s) 1 building(s) occupied by a com.
Addwerg	f	f	f
Awadsadwa	dwa	english	wa
Babe	NOUN	as *baby	1 literary baby.
Baboon	NOUN	french ...	Large long-nosed African and Arabian baboon
Baby	—NOUN, —VERB	imitative...	(pl. -ies) 1 very young child. (-ies, -ied) to
Baccarat	NOUN	french	Gambling card-game
Bacchanalia	NOUN	english	pl. 1 Roman festival of bacchus.
Bachelor	n.	related...	1 unmarried man.
Bacillus	NOUN	latin, di...	(pl. Bacilli) rod-shaped bacterium, esp. Bacterium
Backache	NOUN	english	Ache in the back.
Backbone	NOUN	english	1 spine.
Cab	NOUN	abbrev...	1 taxi.

Figure 12. New Customize page

REDESIGN - HELP SCREEN

Old Help Screen

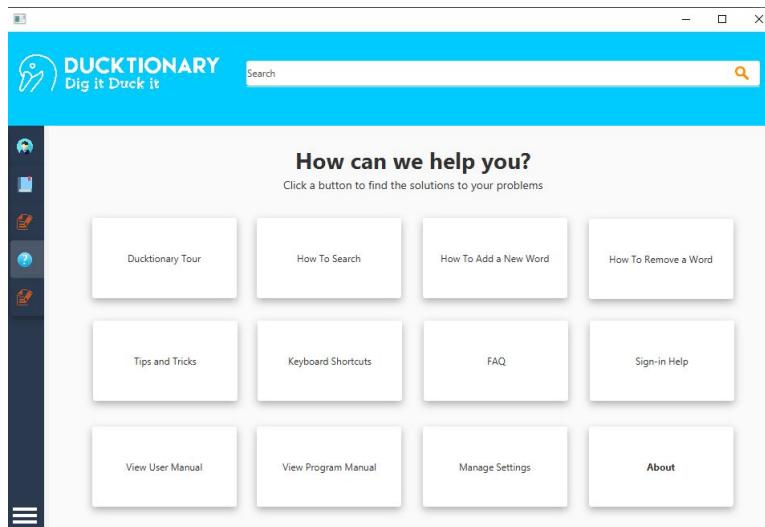


Figure 13. Old Help Screen

New Help Screen

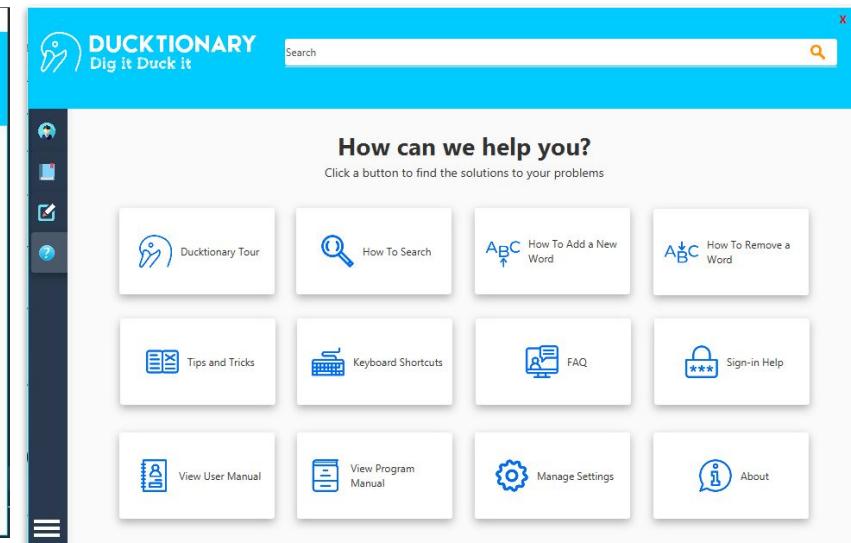


Figure 14. New Help Screen

REDESIGN - Navigation Bar

Old Navigation Bar

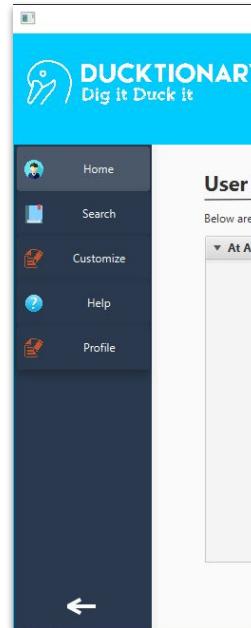


Figure 15. Old Navigation Bar

New Navigation Bar

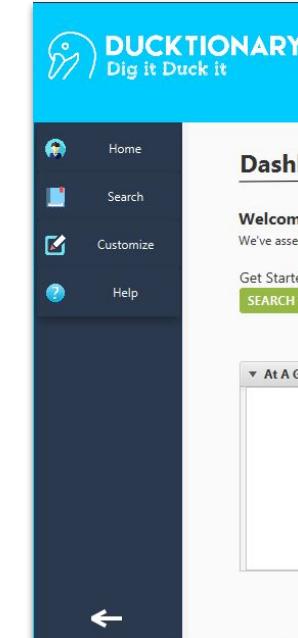
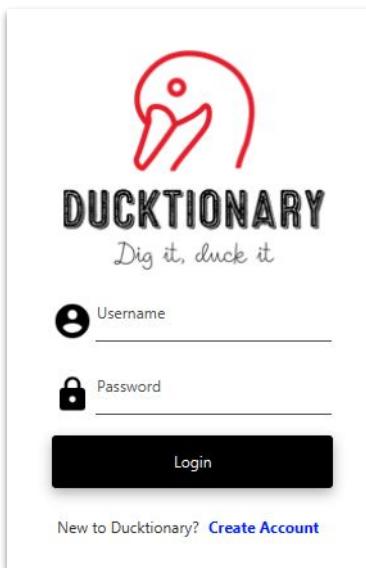


Figure 16. New Navigation Bar

REDESIGN - Sign In

Old Sign In



The old sign-in form features a red logo of a duck head facing right. Below it is the word "DUCKTIONARY" in bold, black, sans-serif capital letters, with the tagline "Dig it, duck it" in a smaller, cursive font underneath. There are two input fields: "Username" with a user icon and "Password" with a lock icon. A large black "Login" button is at the bottom. At the very bottom, there's a link "New to Ducktionary? [Create Account](#)".

New Sign In



Figure 17. Old Sign In

Figure 18. New Sign In

REDESIGN - Register

Sign Up

 Username

 E-mail

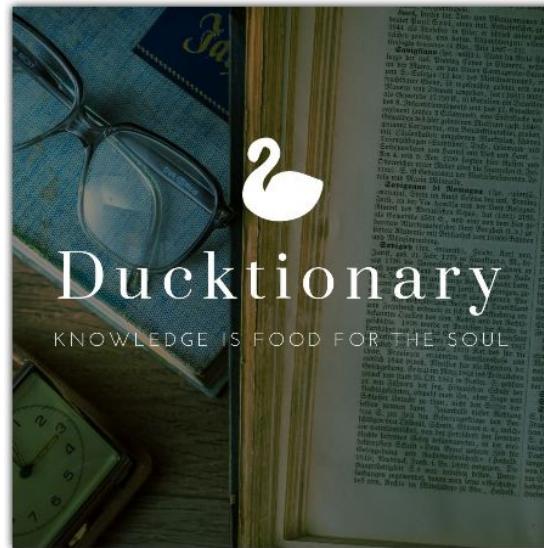
 Password

 Re-type password

SIGN ME UP

Already registered? [Sign In Here](#)

Figure 19. Old Sign up



Ducktionary
KNOWLEDGE IS FOOD FOR THE SOUL

 Username

 E-mail

 Password

 Re-type password

SIGN ME UP

Already registered? [Sign In Here](#)

Figure 20. New Sign up



4. Current Progress

Will it float?

Final Work Distribution



Andre : Icon-Logo Design, Splash Screen + Fun Fact, Button Design, Help Files + Documentation, User Manual, Design Manual, about page

Andreas : Complexity of Coding: Coding Features (refer to documentation), Program open file or other form of input/output functions, Assembling Dictionary Words, Profile

Dean : SQL Connection, Passworded Database and username + pwd, Anova, T-Test, slides + presentation, Questionnaire & Evaluation

James: Overall UI(Front-end), animation, Program Manual, Tooltip Text, Cursor Variation, Menu, Form captions, prototype consideration,, Redesign, Report completeness, button min 7, Form shapes variation

Regy: Program Manual, Complexity of Coding, Coding Features (refer to documentation), Limitation Considerations, Quality Control check, Report completeness

Thompson:, Complexity of Coding: Coding Features (refer to documentation), Splash, Loading Bar, background, slides + presentation, Documentation, Program Manual

Progress & Milestones



No	Task & Feature	Status
1	Background colour	Finished
2	Button and Icon designs	Finished
3	Menu	Finished
4	Help	Finished
5	Forms	Finished
6	Tool tip	Finished
7	Program open file or other form of input/output functions	Finished
8	Splash	Finished
9	Cursor variations	Finished
10	Animations	Finished
11	User manual	Finished
12	Program manual	Finished

No	Task & Feature	Status
13	Questionnaire & Evaluation	Finished
14	T-test	Finished
15	Anova	Finished
16	Other working program/excellence, complexity of coding	Finished
17	SQL Connection	Finished
18	Passworded database and/or username + password	Finished
19	Limitations considerations	Finished
20	Teamwork + Presentation	Finished
21	Prototype consideration	Finished
22	Redesign	Finished
23	Creativity/innovation	Finished
24	Report quality	
25	Quality work/honest/integrity	

Limitations



- To use the hosted database, the user must be in the same network as the server/host and connect to the hosts' wifi
- Settings page is not extensive
 - Since we are on a time crunch, we didn't have time to add much customizability in the settings/configurations
 - Missing night mode/dark mode (settings page)

The background of the slide features a wide-angle photograph of a mountainous landscape. In the foreground, there's a dark, calm body of water, possibly a lake or a wide river. The middle ground is filled with dark evergreen forests. In the background, majestic mountains rise, their peaks completely covered in white snow under a clear blue sky.

5. Feasibility

Is the Ducktionary feasible?

FEASIBILITY STUDY: TECHNICAL RISKS

UI - JavaFX & JFoenix

It is feasible to create the UI using JavaFX and JFoenix, but we had to compromise using JavaFX, as we had trouble transferring data between the panes. Our solution was to have every pane refer to the main tab manually (the mother pane).

Database

Although it is feasible to connect the dictionary into a database, it can only connect to a host computer that needs to be online to communicate. To mitigate this, we kept an offline copy of the dictionary in the program as backup.

FEASIBILITY STUDY: SCOPE RISKS

Dictionary contents

The dictionary contents remain in english, and was further compacted in size so all the words could be formatted in a reasonable time frame.

Profile

We kept this functionality as the database connection works. In case the host connection is unavailable however, offline profiles are used.

Edit

It is fully feasible to add the functionality to add/remove words.

FEASIBILITY STUDY: TIME & SCHEDULE

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION (DAYS)	WEEK 1 (15-22)				WEEK 2 (22-29)				WEEK 3 (29-5)				WEEK 4 (5-12)				WEEK 5 (12-19)				WEEK 6 (19-26)				
						M	T	W	R	F-S	M	T	W	R	F-S	M	T	W	R	F-S	M	T	W	R	F-S	M	T	W	R	F-S
1	User Interface																													
1.1	Icon min. 4	Diem	10/15/18	10/29/18	14																									
1.1.1	Icon design	Diem	10/15/18	10/29/18	14																									
1.3	Button min. 7	Thompson	10/15/18	10/21/18	6																									
1.4	Button Design	Thompson	10/15/18	10/21/18	6																									
1.5	Back Ground colour other than default	James	10/15/18	10/21/18	6																									
1.6	Limitation Considerations	Regy	10/15/18	10/21/18	6																									
1.7	Tool tip text	James	10/29/18	11/5/18	6																									
1.8	Form captioned	James	10/29/18	11/5/18	6																									
1.9	Form shapes variation	Thompson	10/29/18	11/5/18	6																									
2	Prototype consideration	James	11/5/18	11/11/18	6																									
2.1	SQL Connection	Dean	10/15/18	11/19/18	34																									
2.2	Redesign	James	11/19/18	11/26/18	7																									
0.1	Search bar	Andreas	10/15/18	10/29/18	14																									
0.1.1	Search bar design	James	10/15/18	10/21/18	6																									
0.1.2	Functions implementation (autocomplete)	Andreas	10/22/18	10/28/18	6																									

Figure 22a. Time & Schedule

FEASIBILITY STUDY: TIME & SCHEDULE

Figure 22b. Time & Schedule

FEASIBILITY STUDY: TIME & SCHEDULE

0.2	Splash screen	Thompson	10/29/18	11/12/18	13						
0.2.1	--Loading function and animation implementation	Thompson	10/29/18	11/12/18	13						
?	Splash screen window design	Liem	10/15/18	10/21/18	6						
0.1	Top bar (search + logo)	James	10/15/18	10/29/18	14						
0.1.1	--Logo & basic design	James	10/15/18	10/21/18	6						
0.1.2	--Logo function implementation (Back to main page)	James	10/21/18	10/29/18	7						
0.2	Navigation bar (Left bar)	James	10/29/18	11/12/18	13						
0.2.1	--Logo & basic window design	James	10/29/18	11/5/18	6						
0.2.2	--Function implementation for navigation bar	James	11/5/18	11/12/18	7						
0.1	Search words menu	Regy	10/15/18	10/29/18	14						
0.1.1	--Page Implementation	Regy	10/15/18	10/29/18	14						
0.1.2	--Definition Page (back-end file reading and processing)	Andreas	10/15/18	10/29/18	14						
0.1.3	--Definition Page (implement word display)	Regy	10/29/18	11/12/18	13						
0.2	Words recommendation	Thompson	10/29/18	11/5/18	6						
0.2.1	--Words recommendation window design	Thompson	10/29/18	11/5/18	6						
0.2.2	--Function Implementation (words recommendation)	Thompson	10/29/18	11/5/18	6						
0.3	Database access function (loading data from database)	Regy + Andreas + James	10/22/18	10/29/18	7						

Figure 22c. Time & Schedule

FEASIBILITY STUDY: TIME & SCHEDULE

Figure 22d. Time & Schedule

FEASIBILITY STUDY: TIME & SCHEDULE

3.2.1	Anova	Dean + Regy	11/12/18	11/19/18	7					
4	Report Making and Presentation									
4.1	User manual	Liem + James	11/12/18	11/26/18	14					
4.2	Program Manual	James + Regy	11/12/18	11/26/18	14					
4.3	Quality work/honesty/integrity	ALL								
4.4	Creativity/Innovation	ALL								
4.5	team work + Presentation	ALL								
4.5.1	Report quality (completeness)	ALL								
4.5.2	Program open file or other form of input/output functions	ALL								
4.5.3	Other working program/excellence, complexity of coding	ALL								

Figure 22e. Time & Schedule

FEASIBILITY STUDY: TIME & SCHEDULE

- We had roughly 2 months to finish everything
- Coordinated scheduling was difficult as everyone lives away from each others
- Segmented work

FEASIBILITY STUDY: FINAL PROJECT COMPARISON

We finished almost everything that we planned to do :D

Change in Scoreboard

No.	Max. Score	Features/Significant factors measured	Changes Onboarding	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	1	1/0 Back Ground colour other than default		1																		
2	2	2/0 Button min. 7		2																		
3	3	3/3 Button Design		3																		
4	2	2/0 Icon min. 4		4																		
5	3	3/3 Icon design		5																		
6	5	5/5 Menu		6																		
7	5	5/5 Help file		7																		
8	2	2/0 Form captioned		8																		
9	3	3/3 Form shapes variation		9																		
10	1	1/1 Tool tip text		10																		
11	2	2/2 Program open file or other form of input/output functions	Part of database, save/load	11																		
12	2	2/0 Splash		12																		
13	2	2/0 Cursor variations		13																		
14	5	5/5 Animations	Splash, onboarding, buttons	14																		
15	5	5/5 User manual		15																		
16	5	5/5 Program Manual		16																		
17	5	5/5 Questionnaire & Evaluation		17																		
18	3	3/3 T-test		18																		
19	3	3/3 Anova		19																		
20	5	5/5 Other working program/excellence, complexity of coding	Mother connects all panes	20																		
21	5	5/0 SQL Connection		21																		
22	3	3/3 Passworded data base and/or user name + pwd		22																		
23	5	5/5 Limitation Considerations		23																		
24	5	5/5 team work + Presentation		24																		
25	5	5/5 Prototype consideration	Using other dictionary sites	25																		
26	5	5/5 Redesign		26																		
27	3	3/3 Creativity/Innovation		27																		
28	5	5/5 Report quality (completeness)		28																		
29	10	10/10 Quality work/honesty/integrity		29																		
	110	in yellow (among 1-29) cannot be deleted																				

Figure 23. Change in scoreboard

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THANKS!

Any questions?

@James Adhitthana (00000021759) [Coordinator]

@Andre Kurnia (00000021269)

@Andreas Geraldo (00000021533)

@Deananda Irwansyah (00000025513)

@Regy Ezananta (00000026169)

@Thompson Dharmawan (00000022386)

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