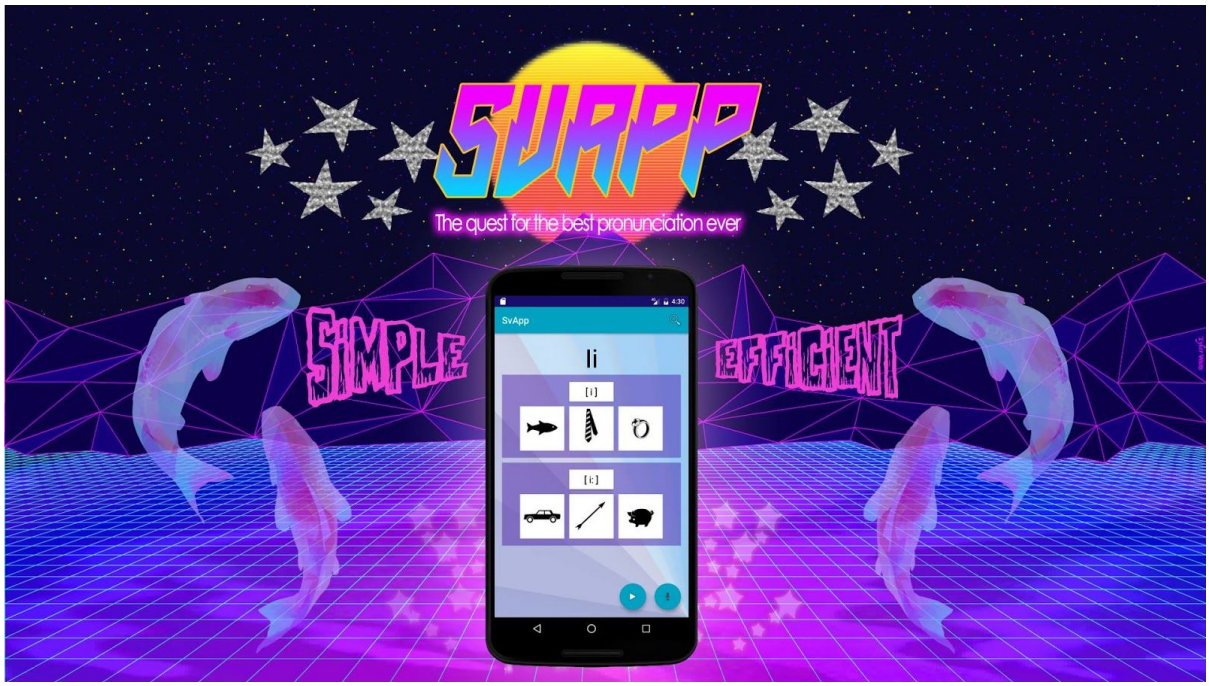

Reflection Report

Truck Drivers United

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In a world
ors create apps that can do everything,
d an app that does only one thing,
t it does it damn good.

Welcome to Svapp: the quest for the best pronunciation ever, the app which sole purpose is to blow your mind to bits and pieces with how simple it is and also teach you some Swedish pronunciations.

With only a few simple clicks the completely free app Svapp will let you listen to pronunciations of all Swedish vowels so that you, yourself, can teach yourself how to pronounce them like a true Swede. It also has a marvelous way to let you hear the difference between the short and the long vowels, one of the things that makes Swedish different from other languages. Just for you, we've also added some words so that you can listen to the pronunciation of the vowel in context to let you understand the pronunciation on an even higher level. And of course we don't have the words written out for you, because that is not what the app is about, it is about pronunciation and about pronunciation only and we will not let you be distracted by anything other than that.

So now you have an app where you can listen to all vowels but to achieve the perfect pronunciation it will, however embarrassing it might be, be necessary for you to actually try to pronounce them. You might be thinking that for something like pronunciation you will need someone fluent in the language to listen to you and tell you how to further enhance your pronunciation of a vowel. But worry not friend, we got you. Instead of having to plan a meeting and then constantly feeling the pressure of someone judging your pronunciation, how about you do it yourself, in the comfortability of your own home, we present to you the record button. You simply press it, you record yourself saying a vowel and then compare it to Svapps wonderful fluent Swedish speaker's pronunciation so that you, by yourself, can understand what you could be doing better.

This is Svapp, the app which is going to teach you Swedish pronunciation on your terms, anywhere, anytime.

1. Prototype

1.1 Findbugs

After our application had everything that we intended for it, we didn't have too many bugs. During the presentation of the prototype a couple of bugs were find such as the app crashing if you repeatedly pressed the record button to quickly, but other than that everything seemed to be working fine. Since these bugs had a real negative impact on the user experience we decided to fix these first.

Later, while running the tool FindBugs, we noticed that it was complaining on a few things. Most of those things where just silly things like complaining about several of android's own built in classes not starting with an uppercase letter, which is nothing we can do anything about. Other things it complained about worth mentioning was that in some of our certain scenarios where not supported, like for instance a switch statement where the default case seemed to be missing. However, these bugs were easily fixed and in the end we had no bugs at all.

Findbugs was helpful in a way that it showed small coding errors but it did not show the errors that had an actual impact on the user experience. It was great to be able to fix all of the small bugs with the help of find bugs, but the what really helped was the actual user testing of the app. We think that a mixture of both findbugs and user testing is the way to go in order to get rid of all possible bugs.

1.2 System Tests

Since the purpose of the app we've had the pleasure to create simply is to show information, except from perhaps the record and playback functions, creating tests has felt more like a way to get more project points rather than an actual necessity.

It has felt like if anything would be valuable to test, it would be the database, but how valuable is it to take time creating tests for getting objects out of a database? We decided it wasn't that valuable and proceeded to focus on other things we prioritized more for example fixing bugs that didn't show up in findbugs but still had a negative impact on the overall user experience.

Another thing that made us refrain from creating system tests was that it was, for us, difficult to come up with tests due to that a lot of the apps functionality was enclosed in views. The problem with the views was that to test the views functionality you kind of needed to have something to test the buttons of the view. For example, to test if the back button worked you would have to create the view, have someone press back, and then see that you arrived at the right place. Perhaps there is a way to test button pressing in views without user input, but we decided that we had more important things to concentrate on and simply did not create any tests of this kind.

Despite refraining from creating system tests we feel that our app still works the way we intended it to. We think that maybe, in small apps for example, tests are not always needed especially when there are things that one consider more important to be done.

1.3 Design Rationale

The app is also designed according to Android standard and uses material design.
It is designed to be easy to use for people who have little to no understanding of the Swedish language. Hence there are icons instead of words and as little text as possible.

An outcome of the project is that the design has changed a lot from the first prototype. At first we had a scrollview with actual photos as pictures which we felt did not look good neither was it very user friendly. After a meeting with the wonderful people from the interaction design master we had a completely new design to work with which was much more user friendly and a lot cleaner than our first design. It was also suggested by our mentor that we use icons instead of photographs since photographs have so much going on in them, perhaps it would be confusing what we meant. Icons on the other hand had only the item we wanted and we took his advice and changed all photos to icons.

It was a challenge to try to explain the difference between long and short vowels without using words. The first idea, to use a short and a long line, was discarded after the user tests, as it was hard for the test users to understand what they meant. It was replaced with a simplified version of phonetics, that proved to be easier for the users to understand when letting users test the app on the presentation day.

During user testing it was also a suggestion that we added text under our pictures to write out what it is, but we decided against this since our app did not focus on teaching words or spelling, just pronunciation. We also felt that having text would clutter the interface too much.

At the presentation we got one more suggestion, that the vowel menu should perhaps have been a grid instead of a scroll menu since the person felt like the buttons were too small. This was a very good idea but with report writing and preparing for finals we had by then more important things that we prioritized.

After final presentation we did change a bit of the design to make it feel more personal with some other colors and shapes.

It proved useful to try out a design as early as possible to see if it needed to be revised. The user tests were made close to the final deadline, so if there would have been any major remarks it would have been hard to implement the changes before the end of the project. In a larger project it would be useful to have time to do user tests a bit earlier, so that the changes can be finished in time. Apart from the user testing, help from the design masters has also been very helpful. We still wonder if our design would be nearly as good without

them. Someone who knows design in this way would be a great asset to all future application projects with a user interface. Cooperation is the key.

1.4 Overview

First we have our Letter class, which is the model for the letter objects. The letter objects hold information about everything needed for each letter; a string of which letter it is, all the sounds and all words connected to the letter. All of these are added to the letter when it's created via the constructor. We also have a Word model class, which similar to the Letter model holds information about everything needed for each word; the actual word, the image of the word and what type of word it is. This is also added in the constructor.

Then we have the LetterContainer class which is our database, along with three ENUM classes used to distinguish different letters and sounds. The LetterContainer class is where we create and store all word- and letter objects. The database is initialized by our MainActivity class when the app starts for the first time.

Our LetterFragment class is where everything visible on the actual letter view is handled. An array of letters is fetched from the database, and then fetches the appropriate letter depending on which one the user selected from the vowel menu. From there, every word, sound, image and so on is fetched and placed out on the view, so i.e. the view is fully dynamic.
We also have a Recorder class, which does exactly what you would expect; it enables a record function along with a function to play the recorder sound. The record function is initialized and added as a floating action button by the LetterActivity class.

The other remaining classes are simple view and controller classes, one for every view. The Tool class is what makes the top part of the window with the search function appear, and it's implemented by every view where it's needed.
Since everything is dynamic, it's very easy to implement new letters and sounds in the future, all you have to do is to add the appropriate images/sounds to the database, creating the word and letter object, and making a menu item which loads that specific letter.

1. 5 User Stories

At the beginning of the project we came up with several different kind of user stories. With our backlog full of things to do, we gave them all a priority, believing we would implement all of them. However, after some consideration and discussion with our tutors, we arrived to the conclusion that we would not be able to implement all of them, but also, if there are other things we would like to do. The reason to why we did not feel like we would be able to implement all functionality is that we did not want to create a stressful

atmosphere in the group. For us, we valued our relationship together more than getting as much as possible done in time.

Although the idea from the start was to implement both vowels, consonants as well as possibly sound combinations (e.g. the "sch"-sound), we ended up focusing even more on just vowels, and making this functionality the best that it could be.

Some stories that had a higher priority were never implemented, whereas stories we created later in the project were, simply because more ideas of functionality arose as well as polishing the ones we had done. The complete backlog can be seen in APPENDIX, and the stories we implemented and the ones we did not are separated in order to gain a clearer view of all of them.The backlog also shows priority as well as energy points.

After all, this was our first prototype, and it is complete. Were we to continue, then it is highly possible that the upcoming prototype would contain even more functionality.

2.Reflection

2.1 Application of Scrum

2.1.1 Roles, teamwork and social contract

We are very pleased with the teamwork in general in this project. It was the first time we worked together and everybody came from different project groups that we hadn't gotten along with very much. Therefore we took a lot of time creating the "perfect" social contract that everybody could get behind and it proved to be very valuable. Hence we discussed the contract so much in the beginning we haven't had to look at the contract much since and no one has been complaining about it, except that some of our teammates rows of code have been deleted when we have been refactored the project even though it said in the social contract not to do so. But then that person have told her or his opinions about it and we have let them code some more so the rows of code will increase.

The way we limited the weekly workload also felt like it made a good impact on the overall team environment since then nobody could work ahead too far. If someone would have worked a lot more than the rest of the team, our motivation as a group could have been weakened since it might've felt like the project isn't ours as much as it is this person's.

To finalize it, it was important to write a social contract in the beginning phase of projects because then the teamwork will get better. People need to know each other standpoint to respect each other more.

2.1.2 Used practices

In the beginning we did most of the programming individually. The tasks were small and could easily be divided equally between the group members. In the later part of the project however, the tasks were bigger, so it was decided that the group should meet and work together to solve the tasks.

Most of the group members wanted to work on the database, so that was done as a group with pair programming so that everyone could be a part of the work and understand how the database works. Refactoring was done in a similar way, so that everyone could contribute. As a result of the pair programming, Gitinspector doesn't give a fair view of how the workload was divided. A more fair view is that everyone in the group has made roughly the same work effort.

In the end we have seen that both approaches are valuable in their own way. Working individually is good for focus and is a way to be flexible, which is appreciated since it has been hard to find times when we all can work together as we have individual schedules to take into account. On the other hand, when we have been working as a group we have had the advantage of being able to communicate and share our individual knowledge with each other. When using pair programming, it has been useful to have two minds to give their input to a problem and learn from one another.

In the project we have been able to be flexible and try different ways to work. When we try to evaluate which way has been the best, we have different opinions. We see that working together is better for some people and under certain circumstances, while working individually can be better at other times. The project has given us the opportunity to experiment and try to find the best approach to a given situation.

2.1.3 Time distribution (person / role / tasks etc.)

Before we started programming, we had a meeting deciding what our velocity should be and how many energy points every task is worth. We then had meetings every tuesday deciding who should do what. Some of the user stories we did at home and some, bigger tasks, as a group. We did not keep track of how long time each task took to complete, which we later realized that we should have done to better plan our next sprint. We did not assign certain roles to the members of our group. Instead each member participated in most areas of the application. Our approach to not having roles may have lead to a lower velocity but an increase in learning for each member of the group and an increased feeling of team spirit, when everybody could feel like they understood every part of the code. Although we did not have roles when assigning tasks to members, we considered who was most capable in completing it.

We consider our way of assigning tasks to be a good way for this particular project since we feel that we have learned more this way and that it

has lead to better teamwork, though in a bigger project certain roles may be even more effective.

2.1.4 Effort, velocity and task breakdown

The brief version of what we wrote in the D1 essay is that in the beginning we were not quite working as a team, and we were focusing more on quantity than quality. We didn't exactly split the workload in the Lego exercise fairly either, instead we merely tried to finish our tasks as quickly as possible.

At the end of the lego task we did realize that we had to learn how to cooperate and work together as a team in order to get the most out of this project.

Where we stand now, that task has most definitely been with us all during these weeks we have been together. During our first meeting we sat down, wrote user stories, prioritized them as well as gave them energy points.

Our velocity we do believe was fair to the amount of time and work we gave the project each week. However, some of the tasks we felt forced to reallocate the energy points for. Based on the points we gave the tasks, though, each team member was given an equal amount of work to do each week. The problem, as stated, was that some tasks were given higher or lower energy points than they should have had, which unfortunately caused more or not enough work for some team members. We tried to compensate for this by giving those members partly more work to do, and partly more opportunities to help other team members or polish already implemented functionality.

In conclusion what we have learned from this is that it is a lot more difficult than what it seems to distribute energy points. The question we have asked ourselves is that if it was worth it to use energy points, or if we would have gotten the work done in time anyway. If, because of the reason that we gave tasks the wrong amount of energy points, we did to little, enough, or too much? If it ruined the purpose more than it was supposed to help us. Our answer to that is simply no, it was worth it. It was difficult, yes, but most definitely worthwhile, as we have learned so much along the way and most importantly, it gave us a feeling of with a task.

A way to improve this in the next project, however, would be to have more sprints, at least if the project is of the same size. For this kind of project, with the amount of time we had, we would have needed more sprints and they would have needed to be over a . More opportunities would be needed in order to place the energy points correctly.

Altogether, because we used energy points it gave us a sense of where everybody did an equal amount of work each week. Even though they were allocated incorrectly, everybody was given tasks that was worth the same amount of points and where no one did more than what they were told. This in turn lead to that no one felt left out but instead always felt a part of the team.

2.2 Reflection on the sprint retrospectives

We have had weekly sprint meetings every tuesday when people say what they have done that week and decided what do the following week. It has been a chance to discuss opinions, design and development of the app.

If we did the project again we would have had a meeting once a week as well at least, because with so many people with different opinions it's easy that your development of the app goes a different way then the group wants it to. It's also nice to have small deadlines instead of one so you can't procrastinate your workload to the end of the project and have to stress then. When discussing once a week you don't have to redo the app in the end because someone had taken over and instead everybody's opinion is seen in every part of the app. Discussing makes everyone happy, deciding on your own will make cracks in your group.

2.3 Documentation of sprint retrospectives

The documentation can be found in our gitrepo under TruckDriversUnitedz/Documents/Meetings/.
We all took artistic freedom writing our meeting documents, it made the meetings more fun and creative.

2.4 Reflection on the sprint reviews **(Tove)**

Except for the course meetings on Lindholmen we only met our tutors once. We didn't really understand what meeting them would accomplish, so we kept contact with them by email instead. We didn't think that we had enough material to show them or that we had anything to ask them about.

The time that we actually met them, we understood that they wanted to see how our work was going and if there was anything in our design that could be improved. If we had kept better contact with them, they might have been able to provide useful feedback on a more regular basis. But when we look back at the project, we still think that we have had a good amount of feedback from the tutors, especially from the course meetings at Lindholmen. Even though we might have been given more feedback from the tutors, we are happy with the amount that we were given.

2.5 Best practices for using new tools and technologies

We have probably not been working with Scrum the way you are supposed to, but then again, there is no "true" way to do it either. We have worked with Scrum in the sense that worked the best for us as a team. In the beginning we agreed to have weekly scrum meetings were we would have the chance to

catch up on what our team members had done for the past week, if anyone needed any help as well as distribute the coming week's work.

We also agreed that we would have daily scrum meetings, just to be able to see what everybody was working on. However, in order to not force everyone to be in school every day we said that we would keep this meeting in a Google Document. It did not work out quite the way we had thought. We already had a Facebook chat, Facebook group and a Trello Board to keep track on what were were doing at that time, which caused us to not write anything at all eventually in the document. We felt that the means we already had were enough and they actually worked really well for us.

Since we also have another course on our hands, many of us felt that we worked best at home or other places which were not always Chalmers. It definitely depends on your condition if you can meet your team every day. If you can that is one way to work with Scrum, but for us it did not. How we worked with Scrum worked for us. We continuously kept contact and if anyone ever needed any help the group chat was always there for us.

2.6 Reflection on the relationship between , and

Since the beginning of the project everything we have done we did for stakeholder value. Everything we have done in the process has also been giving value to the final prototype. We were concerned how the database would have stakeholder value but discussed that the stakeholder doesn't want an app that is do big to download because with no database then everything would be static and the app with all the pictures and sound would be to big. We started the project with writing want the stakeholder would want and has only developed those things so the app has always had a value.

Then after every sprint the app has gained value because we have developed more things.

2.7 Relation of your process to literature and guest lectures

We did not use any specific literature for this project. We did take a look at the literature provided on the course site but we did not feel like it provided more useful information than we had got from the lectures. Instead we used Google when we came across a problem and were in need of ideas on how to solve them. Some of us attended to one guest lecture, but we did not feel like it provided much new useful information for us, neither did we later feel that we should have attended to more.

2.8 Evaluation of D1A and D2

From the scrum exercise we had at the beginning of the course we all had an insight about the importance of planning your time thoroughly before actually starting to work, so this was at the back of our heads during the whole project. Despite this, we noticed during the half time evaluation that we had managed to rush the planning part in some areas, more specific the part where we assigned energy points to the user cases, which resulted in some of them being quite misjudged. We came up with the idea to simply sit down and reevaluate all our user cases, which effectively solved those problems, and at this point we all thought we had everything figured out already. It turns out that we in fact hadn't, and one important revelation we all found out the following weeks was that just planning our meetings, as easy as it would seem, turned out to be harder than expected. With other stuff going on in addition to this project we realized that it was quite the challenge to just have a meeting where all six of us could attend and fully accomplish the goals of the meeting. So basically the most important lesson we take with us from here is the fact that one should NEVER underestimate how easy it is for things to not go as planned, and to be prepared to provide against those situations efficiently so that they don't stall the workflow.

3 Appendix

Here is our complete backlog. There is no specific order of the user stories, so the ones we implemented first are not necessarily at the top of the list. The stories that have no priority or energy points allocated are the ones that we created later in the project and implemented rather quickly or not at all. These were created after user testing at Lindholmen. The process of putting energy points also took to long for us to prioritize setting the points for these user stories.

The ones marked with an x are the ones we never allocated any energy points to in the beginning of the project, as they were at the bottom of our backlog and only would have been implemented if we were finished with the rest of the user stories sooner than expected, like extras.

Also, in order to make it easier to read the whole story is written in one column, rather than dividing it as "As a user.." and so on.

* = as a newly arrived

IMPLEMENTED AND WORKING

PRIO	EP	STORY	REQ
HIGH	1	* I would like to be able to launch the application so that I can start the app.	HELLO WORLD

LOW	13	* I would like a way to easily navigate back between menu and letter through my app, so that I can study different pronunciations without having to restart the app.	NAVIGATION, SWIPE, BACK BUTTON
LOW	13	* I would like to be able to view pictures of MULTIPLE VOWELS	ALL IMAGES
MEDIUM	13	* I would like to be able to listen to Swedish WORDS that begin with DIFFERENT VOWELS, so that I can understand how to use them in context.	RECORDINGS
MEDIUM	30	* I would like separate screens for MULTIPLE vowels, so that I'm able to find all the information about it I need, in the same place.	VIEWS with all information available.
MEDIUM	21	* I would like to be able to hear different Swedish pronunciations of MULTIPLE VOWELS so that I can learn them.	RECORDINGS
LOW	5	* I would like to be able to view pictures of Swedish words with different pronunciation of the same vowel so that I can hear the different pronunciations and understand the difference.	RECORDINGS
LOW	8	* As a newly arrived I would like to be able to view A PICTURE of a WORD so that I can hear the pronunciation of it and understand it, without having to worry to translate it.	EASY IMAGE, NO TEXT
HIGH	13	* I would like to be able to hear a Swedish pronunciation of A VOWEL, so that I can learn the pronunciation.	ONE RECORDED SOUND
MEDIUM	8	* I would like to be able to hear DIFFERENT Swedish pronunciations of A VOWEL, so that I can learn the pronunciation.	RECORDINGS
MEDIUM	5	* I would like to be able to listen to Swedish WORDS of DIFFERENT VOWELS	RECORDINGS
MEDIUM	13	* I would like to be able to record myself, so that I can compare my own pronunciation to someone that speaks fluently.	Option to RECORD oneself and listen to OUR recordings
HIGH	8	* I would like to be able to listen to Swedish Words of a vowel, so that I can understand how to use it in context	RECORDING, playback Database
HIGH	8	* I would like a separate screen for a vowel, so that I'll	VIEW with all

		be able to find all the information I need about it in the same place	information available
LOW	8	* I would like to be able to view pictures of words with different vowels, so that I can understand how to pronounce them without being able to read.	SIMPLE IMAGES
HIGH	5	* I would like to be able to find A VOWEL in a simple menu, so that I can locate it without knowing any language.	SIMPLE MENU, ONE BUTTON
MEDIUM	8	* I would like to be able to search for A VOWEL, so that I can easily find it wherever I am in the app.	SIMPLE SEARCH FUNCTION
MEDIUM	8	* I would like to be able to search for MULTIPLE VOWELS, so that I can easily find the ones I'm searching for.	SEARCH FUNCTION
MEDIUM	8	* I would like to be able to find MULTIPLE VOWELS in a simple menu, so that I can easily locate the vowel I'm looking for without being able to read in any language.	SIMPLE MENU
		* I would like the record/play button to be visible all the time, so that they are easier to find and understand.	REDESIGN RECORD AND PLAY BUTTON
		* I would like that the play button is disabled when there's no recording to play, so that it becomes more clear of how the functionality works.	CLEARER VIEW THAT THE PLAY BUTTON IS DISABLED
		* I would like a better search function, so that it becomes more clear to me what I can search for.	SEARCH INPUT HINTS
		* I want a credits menu, so that the pictures in the app can be free.	CREDITS for the images we downloaded
		* I would like more colours in the app so that it becomes more fun to use.	REDESIGN
		* I would like for the record button to become a stop button when I've pressed it, so that it becomes more clear to me that I'm recording.	REDESIGN
		* I would like a better/more clear design for the long/short vowels button, so that I can understand the difference more easily, and so it becomes more clear they are buttons I can press.	REDESIGN

NOT IMPLEMENTED

PRIO	EP	STORY	REQ
LOW	13	* I would like to see a VIDEO on how to pronounce the Swedish VOWEL, so that I can understand how to shape my mouth in order to pronounce it correctly.	Recorded video
LOW	8	* I would like to see VIDEOS on how to pronounce MULTIPLE Swedish VOWELS, so that I can understand how to shape my mouth in order to pronounce them correctly.	Record videos
LOW	5	* I would like a separate screen to see MULTIPLE VOWELS and CONSONANTS, so that I'm able to find all the information about the vowels and consonants.	VIEWS
LOW	5	* I would like to be able to hear different Swedish pronunciations of ALL VOWELS and CONSONANTS, so that I can learn the pronunciations.	Recordings of the sounds
MEDIUM	5	* I would like to be able to listen to Swedish words that begin with different VOWELS and CONSONANTS, so that I can understand how to use them all in context.	Recordings VOWELS, CONSONANTS
LOW	8	* I would like to be able to find MULTIPLE different vowels and consonants in a simple menu, so that I can find different vowels and consonants without understanding any language.	Simple menu with no spellings, but simple symbols
LOW	9	* I would like separate screens for EACH SOUND, so that I'm able to find all the information I need about them in the same place.	VIEW for each sound, with all info available.
LOW	x	* I would like to be able to hear different Swedish pronunciations of ALL VOWELS, CONSONANTS and LETTER COMBINATIONS, so that I can learn the pronunciations.	Recordings
LOW	5	* I would like to be able to listen to Swedish words that begin with DIFFERENT VOWELS, CONSONANTS and LETTER COMBINATIONS, so that I can understand how to use them in context.	Recordings VOW, CONS, LETTER COMB
LOW	x	* I would like to be able to find MULTIPLE VOWELS, CONSONANTS and LETTER COMBINATIONS in a simple menu so that I can find them without understanding any language	VIEW
LOW	x	* I would like to be able to see pictures/images of ALL words in ALL CONSONANTS, VOWELS and LETTER COMBINATIONS, so that I can learn the Swedish words	Images easy to understand

		without being able to READ in any language	
LOW	x	* I would like to be able to search for vowels, consonants and letter combinations so that I can easily find the ones I search for.	Search system
LOW	x	* I would like to see videos on how to pronounce the Swedish VOWELS and CONSONANTS, so that I can understand how to shape my mouth in order to pronounce them correctly	VIDEO RECORDINGS
LOW	x	* I would like to see VIDEOS on how to pronounce the Swedish VOWELS, CONSONANTS, and LETTER COMBINATIONS, so that I can understand how to shape my mouth in order to pronounce them correctly.	VIDEO RECORDINGS
		* I would like to see the spelling of the words under the pictures, so that I can see how the word is spelled and therefore get a better understanding of the word.	SPELLING
		* I would like amore interactive app, say a game, so that it becomes more fun to use and more fun to learn.	GAMES
		* I would like difficulty levels in the app in the form of more words, so that I can develop my skills further.	LOG OF THE USER, opportunity to SWITCH difficulty