

## **General Description**

The main purpose of the project is to create a web application that would simplify the process of reading texts in foreign languages for people whose level of proficiency does not allow them to freely understand the text. The application will allow users to upload their own texts and get the translation of the parts they find particularly hard. For those who are interested not only in understanding a particular piece of writing but also in expanding their vocabulary, the application will allow them to save the unfamiliar words and phrases to their account. The users then will be able to rearrange their wordlists into decks of flashcards according to categories, source of the vocabulary or date it added. Particular feature about the flash cards is that the user will be able to access the context of each word, i.e each word will be saved together with its source to allow the users to recall the vocabulary better. The users will be able to do crud operations over their decks and flashcards. The main idea of the flashcards is that the user will have the access to the learning mode, in which they will be studying new vocabulary and regularly revising the older one.

The application will be equally usable both in desktop and mobile version.

## Types of Users:

### Learner

The learners are the primary users of the system. They have the following capabilities:

1. Create an account.
2. Log in.
3. Restore password via email.
4. Paste the text into a text area. After clicking on a Parse button, the text will be broken down into individual words, each contained within a box.
5. Join individual boxes with words into bigger units.
6. Mark units as unfamiliar
7. After pressing the Translate button, the user will see the flashcards with translation in a column next to the initial text. The translation will be acquired via [SYSTRAN.io](https://systan.io) translation API, which is an open source multilingual translation API that does not have any restrictions in terms of requests, therefore chosen for this project.
8. Users will be able to mark the cards they choose to add to deck, and they will be able to customly select the deck.
9. Users will be able to create, browse, edit and delete their decks.
10. Users will be able to create, browse, edit and delete their deck individual flashcards within decks.
11. Users will be able to access study mode. The user can study a deck in two modes: fill in the translation of a word or fill the word based on the native language. As a hint for each card, the user can use the context of the word, which is always saved together with the flashcard. The flashcards will reappear in studying mode based on the performance.

## Use Case Diagram:



## Database

### Table **users**:

The table stores basic information about users, such as username, passwords and email.

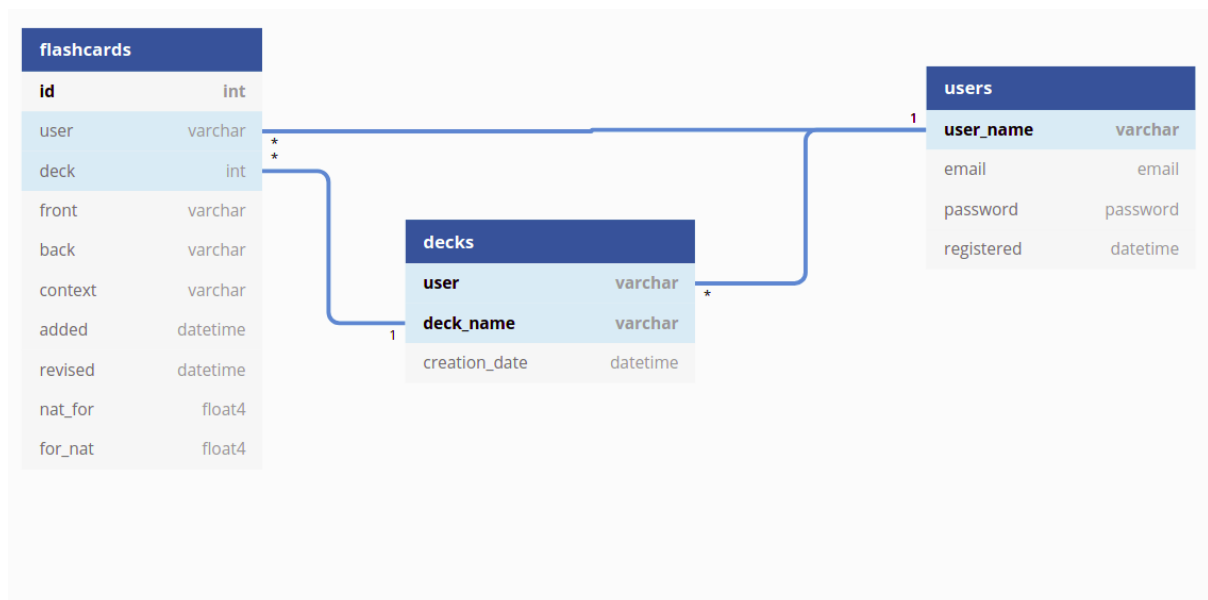
### Table **flashcards**:

The table stores the content of a flashcard. In addition to that, it contains information specific for users, like the last time they revised a particular flashcard and how successful they were in remembering it. The time in which the users will be shown the card again will be calculated based on *nat\_for* (success rate in filling in the word in native language given the word in foreign or *for\_nat* (success rate in filling in the word in foreign language given the word in native language), *revised* and *added* columns.

### Table **decks**:

Table stores the basic information on existing decks. Its primary aim is to ensure consistency, i.e. assure that users will not add cards to decks that do not exist.

## ER Diagram:



## **Technical Requirements:**

For the project will be based on the following technologies:

- PostgreSQL 12.03 as the database management system
- Python 3 as a server side language, in particular Django 3.1 framework
- React 17, HTML5, CSS3 for the front end

Supported browsers:

- Chrome 40+
- Firefox 50+

## Preliminary Schedule:

14.03.2021	<ul style="list-style-type: none"><li>• Set up Trello board.</li><li>• Create wireframes for both desktop and mobile versions.</li></ul>
21.05.2021	<ul style="list-style-type: none"><li>• Create project structure.</li><li>• Set up database.</li></ul>
28.05.2021	<ul style="list-style-type: none"><li>• Work on a loose front-end for the desktop version.</li></ul>
04.04.2021	Start coding back-end: <ul style="list-style-type: none"><li>• communication with the database</li><li>• registration and login</li><li>• resetting password</li></ul>
11.04.2021	<ul style="list-style-type: none"><li>• Fix critical bugs.</li><li>• Back-end: curd operations on decks and flashcards.</li></ul>
18.04.2021	<ul style="list-style-type: none"><li>• Finish crud operations on decks and flashcards</li><li>• Preparing for beta version presentation</li></ul>
25.04.2021	<ul style="list-style-type: none"><li>• Fix critical bugs.</li><li>• Back-end: communication with SYTRAN.io API</li></ul>
02.05.2021	<ul style="list-style-type: none"><li>• Polishing the front-end.</li><li>• Fix non-critical bugs.</li></ul>
07.05.2021	<ul style="list-style-type: none"><li>• Fix non-critical bugs.</li><li>• Host the web app.</li></ul>

**Future work:**

The users would be able to create teams to enable collaboration within a group of students as well as individual students with their teachers. The main idea of working with groups is to enable editing of the flash cards by all the members to compensate for the flaws that might arise due to machine translation. Each student within a group would have their own copy of the deck so that they learn at their own pace, but any changes to the decks associated with the group would be done to all the copies.