

# Android app: Estonian-Russian dictionary offline

## Introduction

To learn Estonian from Russian, often used is Estonian-Russian dictionary (**Eesti-vene sõnaraamat**, site: <http://eki.ee/dict/evs/>) compiled by Institute of the Estonian Language (Eesti Keele Instituut, site: <http://portaal.eki.ee/>). It contains over 70,000 words with various word forms, translations and examples.

The data of this dictionary (as well as some others) can be downloaded from the site for use in own projects. The data is presented in an **XML** file.

The first screenshot shows how the word "sai" is displayed on the site <http://eki.ee/dict/evs/>. The second screenshot shows how this word is represented in XML file. Each word is represented in this way. That is, the file contains more than **70,000** such records. File size: **~89 MB**.

**Project goal:** development of an **offline** application for Android with the search for words and the display of information about words (word forms, translations and translation examples).

## Project implementation

The implementation of the project can be divided into 2 stages: conversion of XML file to database and application development.

### 1. XML -> SQLite DB

For parsing XML, was used **XmlPullParser**.

For each word were saved:

- Word itself ("Word")
- Type of the word ("Type")
- Forms of the word ("Forms")
- Declination / Conjugation Number ("Number")
- Translations of the word ("Translations")
- Text containing translations and translation examples ("Text")

Data has been added to the **"Words"** table (SQLite DB).

Size of the resulting DB: **~39 MB**.

### 2. Application development

Classes:

- **Word** - description of the word (has variables for each column in the database)
- **Database** - working with the database, includes methods such as "findWords" for searching the database and "getEstonianWords" (used for search tips).
- **SearchAdapter** - work with RecyclerView and CardView
- **MainActivity** - responsible for the application and search

Layouts:

- **activity\_main** - contains SearchBar and RecyclerView (for displaying CardViews)
- **layout\_item** - describes how the information about the word will be displayed (CardView containing 4 \* TextView - not particularly configured)

## Results:

- **Database with 70,000+ records**

Android application functionality:

- Search in Estonian words (the exact match is displayed first, after it displayed all words containing the entered text).
- Search by translations (all words with translations containing the entered text) - requires improvement, because when searching for short words, too many words will be displayed without a specific order.
- Search Tips (Estonian words only)

## Plans:

- Check and fix DB
- Modify the search
- Improve search capabilities (for example, separate search for translation examples)
- Change appearance of the app and CardViews
- Add "About"
- Upload to Google Play (~September)

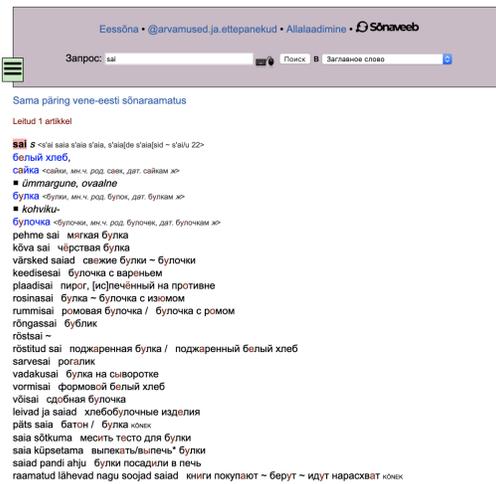
The source code of the project (there is also a link to download .apk):

<https://github.com/aparm/evs>

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[EVS] Эстонско-русский словарь



Screenshot 1 (from <http://eki.ee/dict/evs/>)



Screenshot 2 (same word in xml file)

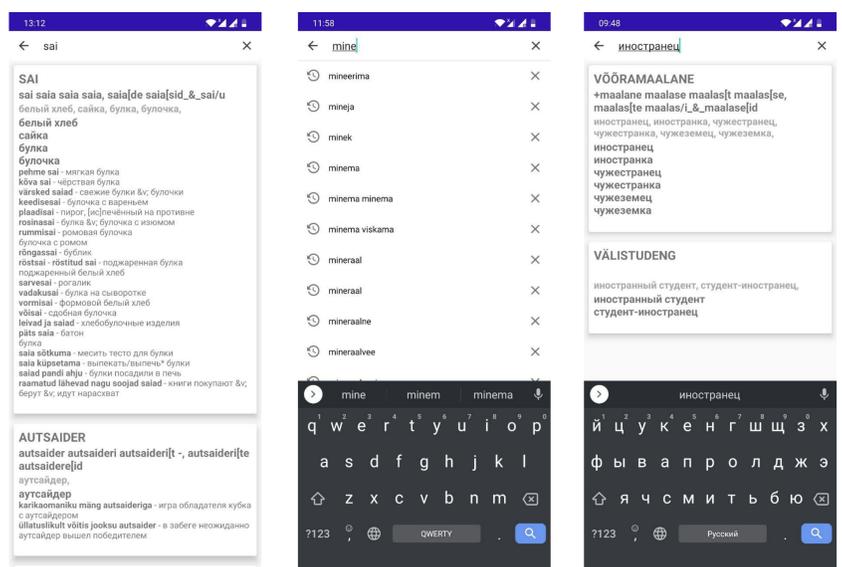
## Difficulties

The main difficulty in implementing the project was the complexity of the XML file.

Words are presented in 1 line (on second screenshot one line of text), the words may have several same parameters or no parameters at all. It may also be that an atypical tag is found in some place.

Words	CREATE TABLE Words (Id INTEGER PRIMARY KEY
Id	INTEGER "Id" INTEGER PRIMARY KEY AUTOINCREMENT
Word	TEXT "Word" TEXT
Type	TEXT "Type" TEXT
Forms	TEXT "Forms" TEXT
Number	INTEGER "Number" INTEGER
Translations	TEXT "Translations" TEXT
Text	TEXT "Text" TEXT

Screenshot 3 (created table)



Screenshots of app