

## **Einclusion instructions**

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## **1. How to run the program**

1. Make sure you have java version 1.8.0 or newer installed on your pc ( to check java version in the command console execute this command: **java -version**).
2. Open the Einclusion.zip file and extract the contents.
- 3.1. On Linux OS double-click the RunMeLinux.sh and click execute or execute with terminal.
- 3.2. On Windows OS double-click the RunMeWindows.bat and click Run.
- 3.3. If you are having problems with the runme files, but you have the right java version open the command console navigate to the folder you extracted the project into and execute this command:  
**java -jar Einclusion.jar**

## 2. Graphical user interface

### 2.1. Edit Database

Page **Edit Database** contains tools for managing underlying database. It provides options to add and update student data as well as remove it from database when not needed anymore. It also includes table of coefficients that are used for calculations.

#### 2.1.1. Select a file to upload

**Select a file to upload:**

Choose file:  No file selected.

**Select a file to upload** menu is used to add new students to the database by selecting a valid .xlsx file.

This is a one student example of a valid .xlsx file:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1				Tēmas no šo tēmu z																
2	ID numurs	Lietotāja vārds	Pilnais n	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	Atbildiet	kursa ID	Kurss
3	222222	ieva_vitol	Ieva Vitol	Robotika	2	2	1	1	3	3	3	3	3	2	2	2		Monday, 22		III

**Open uploaded file** button is used to open the generated .csv file with its default opening program. This file is used to write students to the database (only visible after pressing choose a file ).

#### 2.1.2. Create template

**Create template** button is used to create Update\_Database.xls file. This file consists of three columns: Phone, Topic and OU (this button was implemented so it could generate a valid .xls file on any OS).

**Open template** button is used to open Update\_Database.xls file.

### 2.1.3. Update database

#### Select file to update database parameters

Choose file:  No file selected.

**Update database** button is used to change existing student data in database by selecting a valid .xls file.

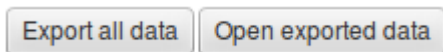
Example of a valid .xls file for updating one students OU:

	A	B	C
1	PHONE	TOPIC	OU
2	2222222	Robotika	2

**Example** button is used to open the Example.xls file that contains information about creating a valid Update\_Database.xls file. It has names of all columns saved in the database.

Phone - students phone number		
Topic - students course which he is taking		
Name - students name		
DS - digital skills ( 1-5 )		
ELE - e-learning environment (1-5)		
ELM - e-learning materials (1-5)		
IWS - instructor willing to share knowledge (1-5)		
SAL - student ability to learn (1-5)		
SWL - student willingness to learn (1-5)		
KLAL - knowledge after learning (1-5)		
KLBL - knowledge before learning (1-5)		
OU - observed usage (0-2)		
PU - predicted usage (1-5)		
PUOU - predicted usage observed usage (sum of ou+pu) CANNOT BE CHANGED BECAUSE IT IS GENERATED		
M1 - CANNOT BE CHANGED BECAUSE IT IS GENERATED		
M2 - CANNOT BE CHANGED BECAUSE IT IS GENERATED		
KFA - knowledge flow acceleration CANNOT BE CHANGED BECAUSE IT IS GENERATED		
M3 - CANNOT BE CHANGED BECAUSE IT IS GENERATED		
SUBMITDATE - CANNOT BE CHANGED BECAUSE IT IS SURVEY DATA		

#### 2.1.4. Export



**Export** button is used to write all contents of database to Exported.xls file.

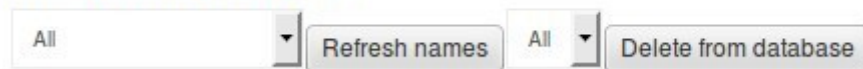
Example of Exported.xls file for one student.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	PHONE	TOPIC	NAME	DS	ELE	ELM	IWS	SAL	SWL	KLAL	KLBL	OU	PU	PUOU	M1	M2	KFA	M3	SUBMITDATE
2	2222222	Robotika	Ieva Vītoliņa	1.0	3.0	3.0	3.0	1.0	2.0	2.0	2.0		2.0	0.0	-1.0	-1.0	6.0	-1.0	2015-05-04 00:00:00.0

**Open exported data** button opens Exported.xls with its default opening program (visible after pressing Export).

#### 2.1.5. Delete from database

##### Delete from database



**Delete from database** menu is used to delete all or specific students from the database.

**First selector** is used to filter by what topic students will be deleted. It has 2 options: delete students in all topics or one specific topic.

**Second selector** is used to filter specific students to be deleted. It has 2 options: delete all students in a given topic or delete one specific student.

#### 2.1.6. Coefficient Table

##### Coefficients

Key	Coefficient	Relative	Value
M1-centroids-Informāciju tehnoloģijas	25.48900513764338		3.57,3.6532,3.1944,3.792,4.4,3.586667,4.12,1
M1-centroids-Mobilās tehnoloģijas	0.0		3,4,5,3.666667,5,5,4,4,0

Table **Coefficients** is available in the lower part of the Edit Database page. It contains the list of all the coefficients used to compute predicted values. It can be **filtered** by field Key.

## 2.2. Table controls

There are 4 different tables accessible in matching pages of the Einclusion web interface: M1, M2, M3 and Prediction. Table M1 shows General evaluation of students, M2 – Evaluation of ability to learn and knowledge sharing, M3 – Evaluation of knowledge flow, while Prediction page shows Prediction of student E-inclusion from these values. In case data for M1, M2 or M3 is not available, negative value is shown instead.

### 2.2.1. Export to xls

Name your file:

Export to xls

**File name field** is used to give user the opportunity to name the filtered export file. This field does not allow the user to input invalid characters. It only allows the input of alphanumeric characters and “\_”. **Export to xls** button writes all data visible in the table into a file (the text entered in File name field + “.xls”) and offers to download it to local computer. If no file name is given in File name field, the default filename “Students.xls” would be used.

### 2.2.2. Filters

Phone	Topic	Name	Submit date	M1	M2	M3	Reliability
60.0	Informāciju tehnoloģijas	test60	2015-07-09	0	75.37	-1	Low
61.0	Informāciju tehnoloģijas	test61	2015-07-09	2	87.78	-1	High
62.0	Informāciju tehnoloģijas	test62	2015-07-09	1	67.47	-1	Medium

Every table column that contains multiple different values offers a **selector** that enables a **filter** on the column name row. If every row contains the same value it shows column name instead of it. Most columns are filtered by values visible in fields. When a value is selected, only rows containing it are shown.

Predicted usage	Submit date	M1
2.00	2015-05-04	green
3.00	2015-05-09	2

Columns M1, M2 and M3 is filtered by levels of inclusion instead, coded by color (**Green** - included, **Yellow** - partly included, **Red** - not included, **Gray** – not available). Table can be sorted by multiple columns at the same time.

## 2.2.4

### Linked views

When user hovers over some cells within the range M1 : M3 , box pops up with informative message "click to see results". That means that this cells are clickable and are linked to the tables M1, M2 and M3.

M1	M2	M3	Reliability
-1	-1	-1	not available
-1	-1	-1	not available
-1	-1	-1	not available

When users clicks on this cell, customized alert shows up with the linked results from previous pages.

This coefficients , like motivation, digital skills learning ability and so on correspond to chosen student and are found on previous pages.

The screenshot shows a web browser window titled "Prediction of student E-inclusion - Mozilla Firefox". The address bar shows "http://localhost:8080/M1/prediction.jsp". The page content includes a search bar and a table with columns: Topic, Video, and a grid of data. A pop-up alert box titled "M1 results for: andris batars" is displayed over the table. The alert box contains the following text:

motivation: 4.00  
digital skills: 4.00  
learning ability: 3.67  
e-materials: 4.00  
instructor: 5.00  
e-environment: 3.00  
predicted usage: 4.00

The table below the alert box shows the following data:

Video	janis masinskis	2015-07-07	-1	-1	-1	not available
Video	jolanta pane	2015-07-07	-1	-1	-1	not available
Video	judite zeltina	2015-07-08	-1	-1	-1	not available

M1 corresponds to motivation, digital skills, learning ability, e-materials, instructor, e-environment and predicted usage.

M2 corresponds to motivation, learning ability, e-materials, e-environment and instructor.

M3 corresponds to instructor, e-environment, e-materials and before learning.

### 3. Detailed instructions

#### 3.1. Adding new Students to the database

##### Select a file to upload:

Choose file:  No file selected.

To add new students click **Browse...** button in **Select a file to upload** menu - this will open window which will ask you to navigate to a valid .xlsx file. If the file chosen does not correspond to schema needed, it prints error messages in console feed. It **doesn't** create warning messages in web interface for now – there is opportunity for future development here.

It doesn't generate m1, m2, m3 or prediction models, because the OU (observed usage) variables have not been added to the database yet.

#### 3.2. Updating existing student data

1. Create a template by pressing **Create Template** button.
2. Open this file either by pressing **Open Template** button or by navigating to the folder you extracted this project into and opening the Update\_Database.xls file.

The Update\_Database.xls file should look exactly like this.

	A	B	C
1	PHONE	TOPIC	OU
2	enter phone number	enter topic	enter value

3. Press the **Export** button

4. Open the exported file either by pressing **Open** button or by navigating to the folder you extracted this project into and opening the Exported.xls file.

The Exported.xls file should look something like this.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	PHONE	TOPIC	NAME	DS	ELE	ELM	IWS	SAL	SWL	KLAL	KLBL	OU	PU	PUOU	M1	M2	KFA	M3	SUBMITDATE
2	2222222	Robotika	Ieva Vītoliņa	1.0	3.0	3.0	3.0	1.0	2.0	2.0	2.0		2.0	0.0	-1.0	-1.0	6.0	-1.0	2015-05-04 00:00:00.0

Notice that the OU value is left empty.

5. Copy the Phone and Topic columns to Update\_Database.xls file, enter the OU value, save it and close it.

Example.

	A	B	C
1	PHONE	TOPIC	OU
2	2222222	Robotika	2

6. Press the **Update Database** button - a File Upload window should open. Navigate to Update\_Database.xls file and select it. If everything is done properly when you generate Exported.xls again it should look like this. If the file chosen does not correspond to schema needed,



it prints error messages in console feed. It **doesn't** create warning messages in web interface for now – there is opportunity for future development here.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	PHONE	TOPIC	NAME	DS	ELE	ELM	IWS	SAL	SWL	KLAL	KLBL	OU	PU	PUOU	M1	M2	KFA	M3	SUBMITDATE
2	2222222	Robotika	Ieva Vītoliņa	1.0	3.0	3.0	3.0	1.0	2.0	2.0	2.0	2	2.0	4.0	-1.0	-1.0	6.0	-1.0	2015-05-04 00:00:00.0

Notice that the OU value has been initialized.

# Report diagrams

choose a specific topic or just choose “All” to include results from all topics.

From: 2015-05-04 To: 2015-05-04 Topic: All

Draw diagram

## 4.2 Generating diagrams.

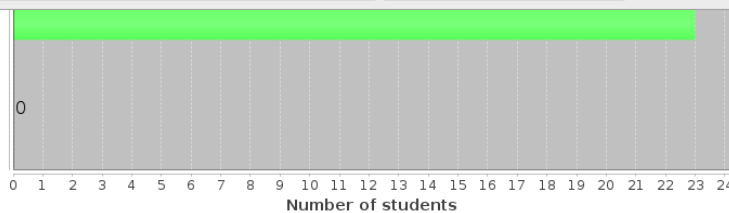
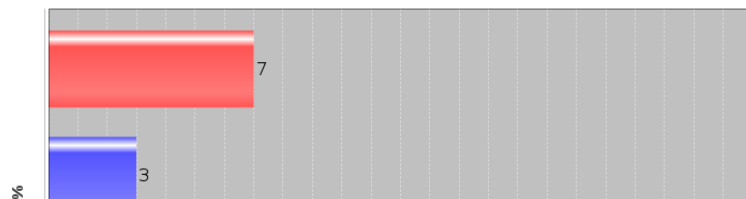
After specifying all the parameters, click “Draw diagram” to generate diagrams, which are added below. Each time new parameters are submitted, the diagrams are refreshed.

number of students in each topic for specified date period.

From: 2015-05-04 To: 2015-07-09 Topic: All

Draw diagram

**Report for dates: 2015-05-04 to 2015-07-09  
and topic: All**



**Number of students by topics  
From 2015-05-04 to 2015-07-09**

