



Mobility data and projects

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Purpose of this lecture

- Understand how to implement mobility projects using GIS tools and describe project findings
- How to choose the right data for a project

Outcomes

- Will choose a project topic from Moodle
- Find data that you need for implementing a project
- Make a review of an already made mobility project



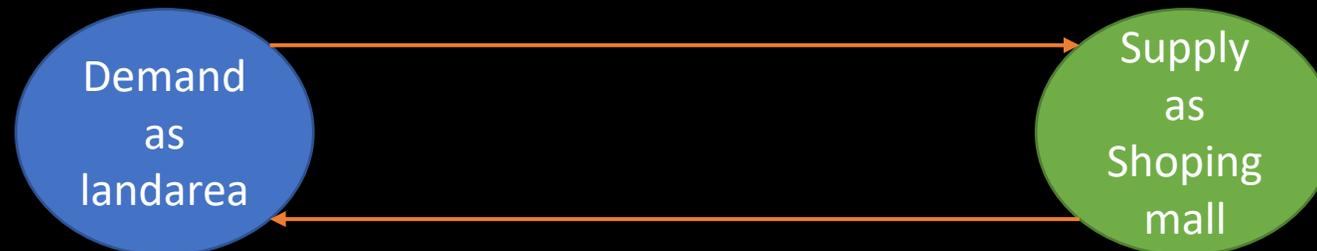
Mobility definition

- **Mobility**

- Adjective
- Tells us how easy is it to move from A to B
- It is hard to move for elder people
- It is hard to move for low income inhabitants
- It is hard to move in rural areas
- It is hard to move when different types of transport do not support each other and they are not coordinated

Mobility sources – two viewpoints

- **Demand-** generating side. Population (group of people)
 - People want to move, consume services and go to shops
- **Offer-** attractive side. Object (institution, shopping mall)
 - Will satisfy people's demand by giving them goods, services etc

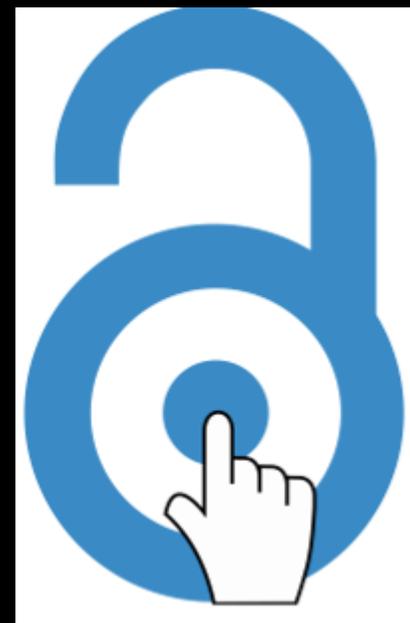


Demand side of the mobility

- How many trips will start from here?
 - Mostly **home based trips- starts from home**
- How many trips will start from home and end at a job per household?

Open data source vs „locked“ data

- „Locked“ data is halted with price and you have to pay to use it



Open data sources in Estonia

- National statistical authority
 - <https://www.stat.ee/en>
- Public road administration
 - <https://www.transpordiamet.ee/en>
- Open source portal
 - <https://avaandmed.eesti.ee/datasets>

Problems with open data

- You get what they have collected
 - Your specifics could not meet with them
- Data could be in the wrong format
 - Programs could not support format
- Data is outdated
 - No money, no interest to hold data up to date
- Data could be in the wrong resolution
- Many bad entries
 - Data is raw in datasets

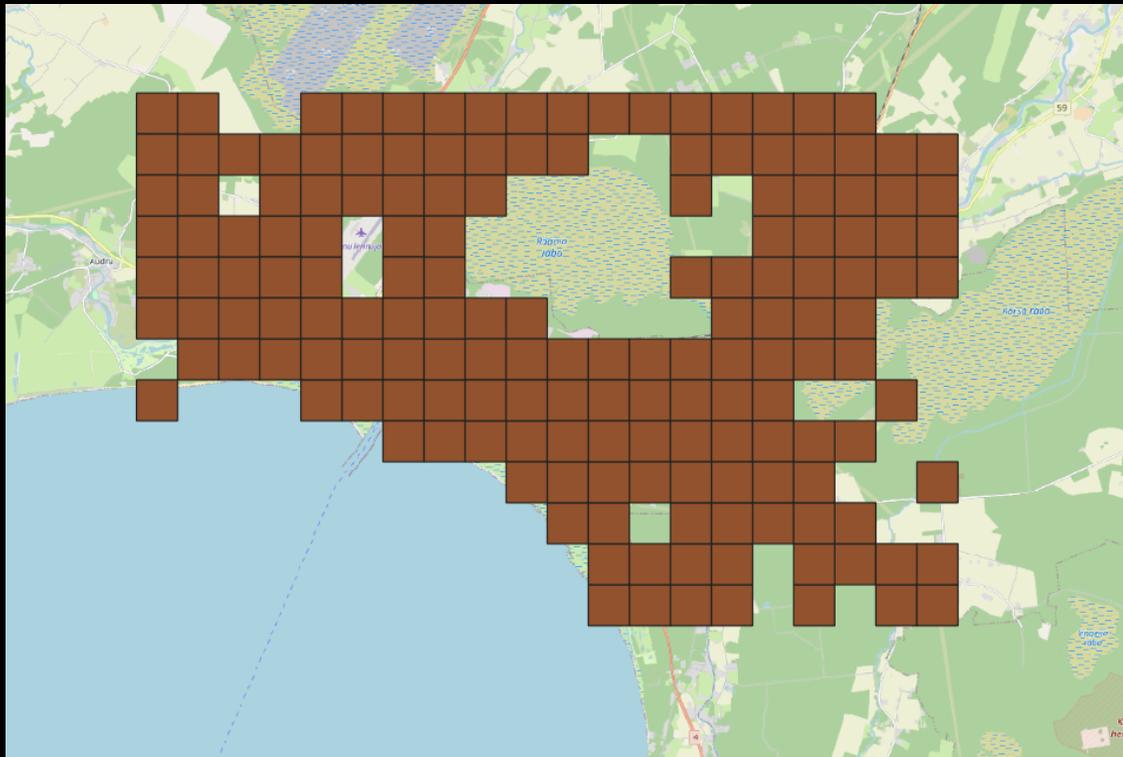
Assignment

- Try to find statistics about how many students live on a 1km x 1km rectangle in Pärnu City from the Estonian National Statistical authority
- Find statistics → tools and applications → statistics map applications

- What is resolution of the data?
- Could you find a way to export data from Statistikaamet?

How to import data to QGIS

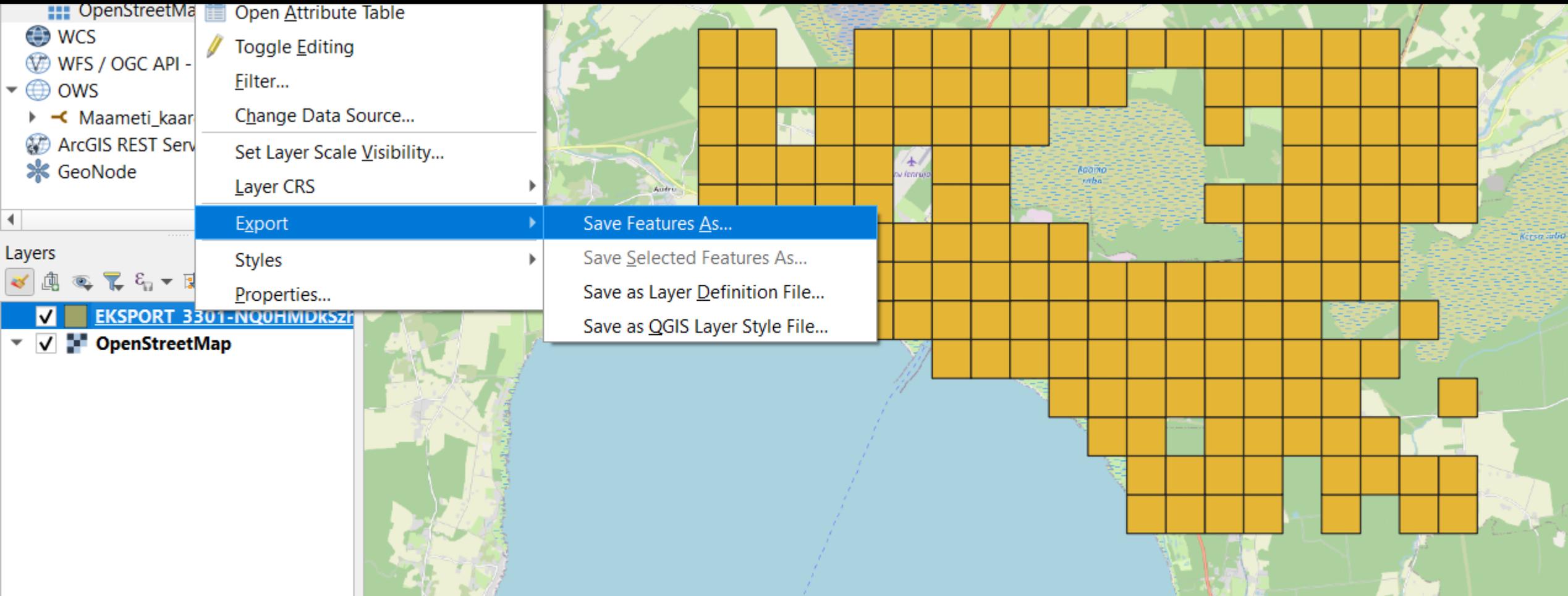
- First import the data from Statistikaamet as we have done before
- You should end up something like this:



How to export data layer

- Next step is to export the given layer
- Export is the same as saving the layer to your Computer
- Export is important for starting manipulation with layers. At the moment the layer is related to a file you downloaded. We want it to be independent
- See the next two slides about exporting the layer

How to export layer- first step



Exporting layer- second step

Save Vector Layer as...

Format: ESRI Shapefile

File name: []

Layer name: []

CRS: EPSG:3301 - Estonian Coordinate System of 1997

Encoding: UTF-8

Save only selected features

▶ Select fields to export and their export options

▼ Geometry

Geometry type: Automatic

Force multi-type

Include z-dimension

▶ Extent (current: none)

▼ Layer Options

RESIZE: NO

SHPT: []

▼ Custom Options

Data source: []

Add saved file to map

OK Cancel Help

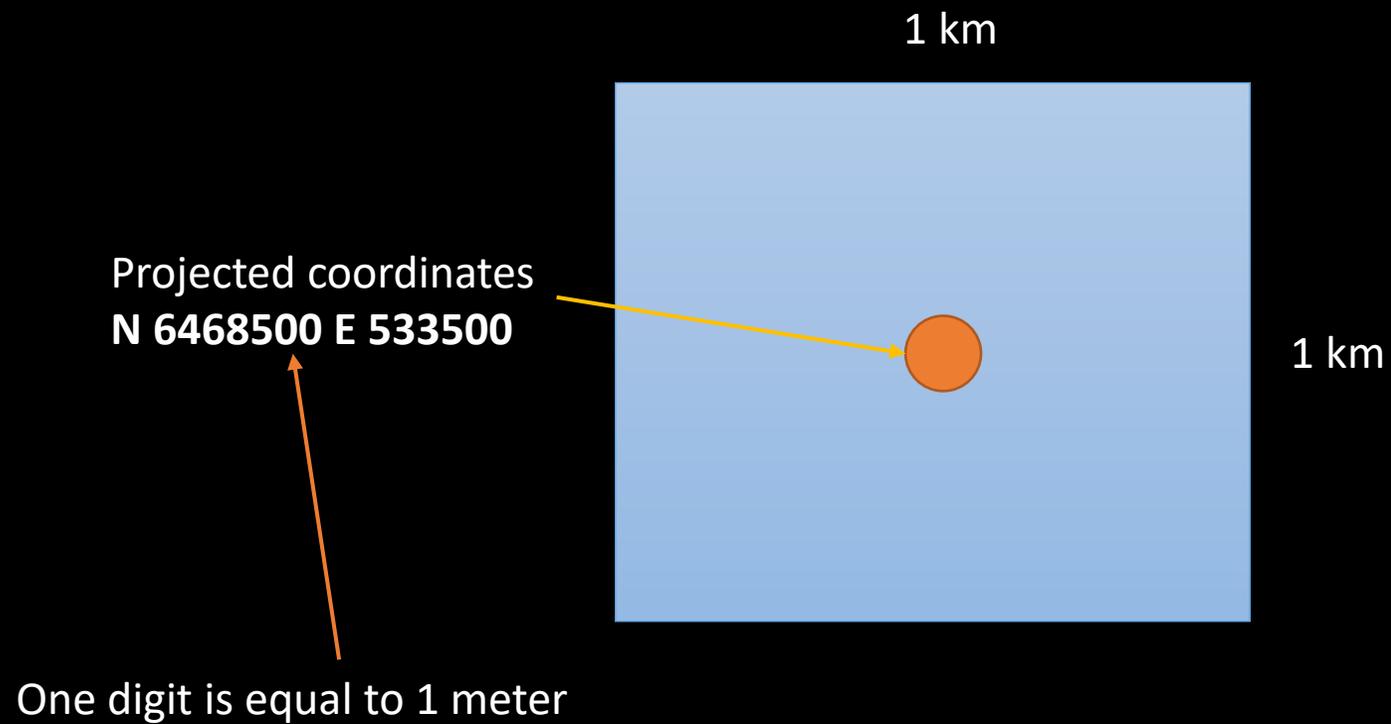
Shapefile!

File path and name

Coordinate system

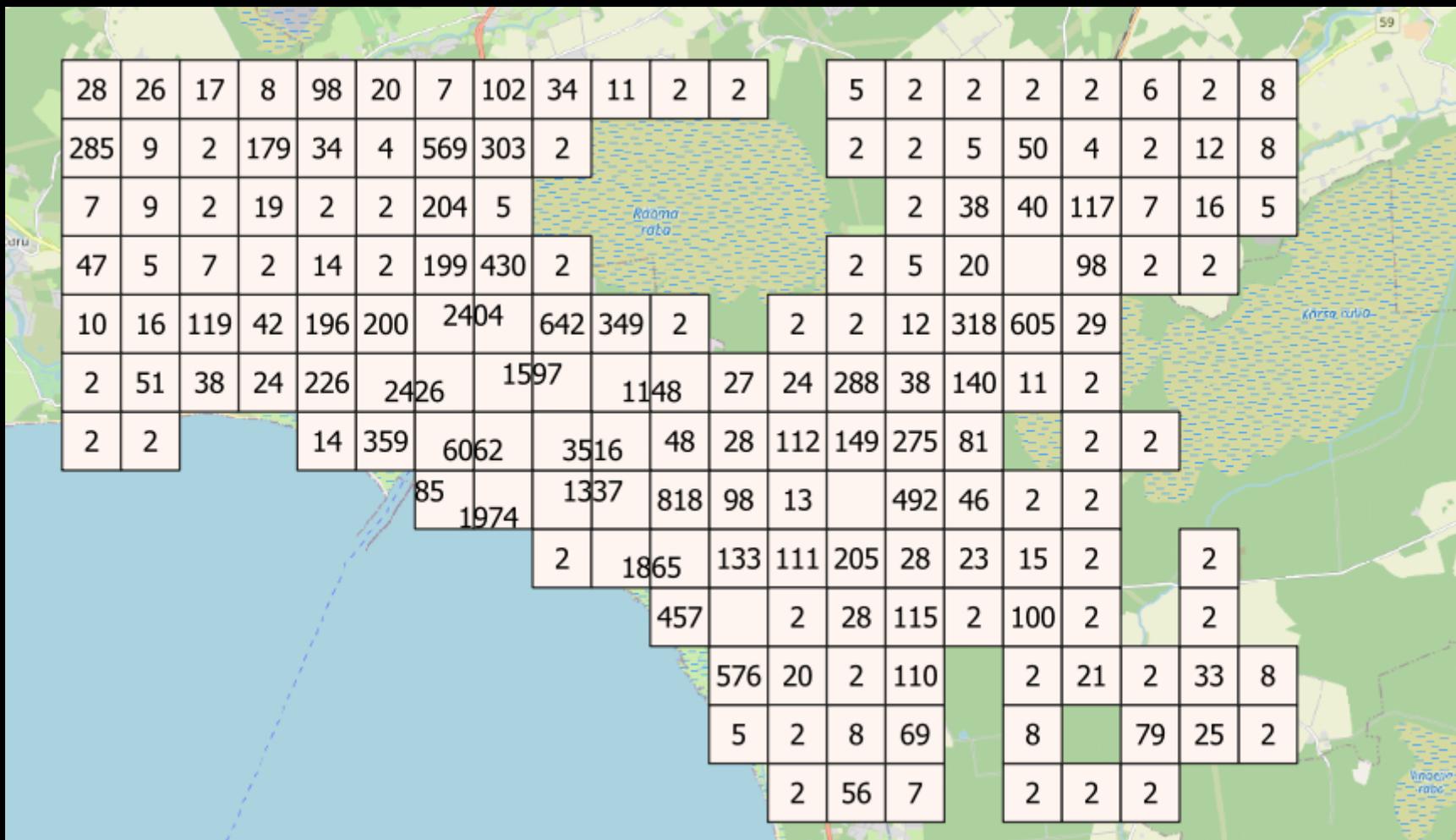
Hit OK

Students home rectangle



Visualizing data

Add necessary labels. It will render students numbers on area (cell)



Attribute table data types

- INT (numbers)

- 1
- 2
- 0

- String (words)

- Could consist numbers that mimic being number
- „West str“
- „Riga“
- „Helsinki“
- „1“

Data could be in different types.

One type could be **numbers and other strings.**

It is not confusing until you **have string type holding a number like value**

How to change attribute/field type

- Make the student population map layer active.
- Right click and open the attribute table.
- Take a look at what tools you have on the top of the window.

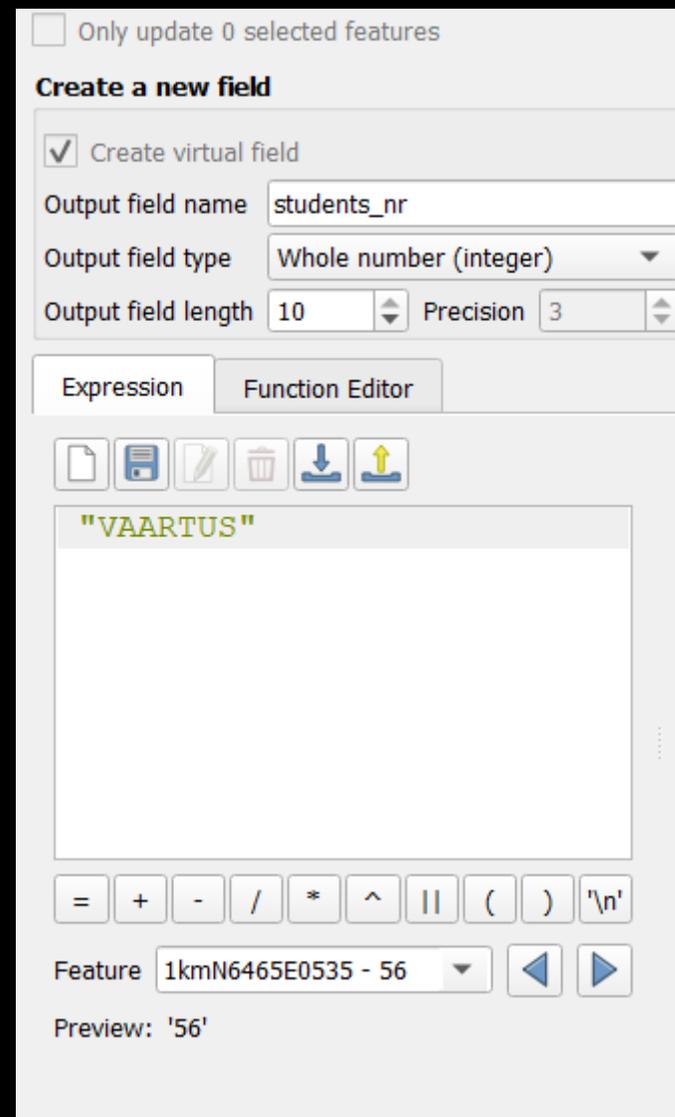


- Click on **open field calculator**

Script for transforming and to change data type

- Check **create a new field**
- Fill everything as shown on picture

Field calculator is powerful.
You could manipulate each cell
value through the data.
You may think it as Excel functions



Only update 0 selected features

Create a new field

Create virtual field

Output field name:

Output field type:

Output field length: Precision:

Expression | Function Editor

"VAARTUS"

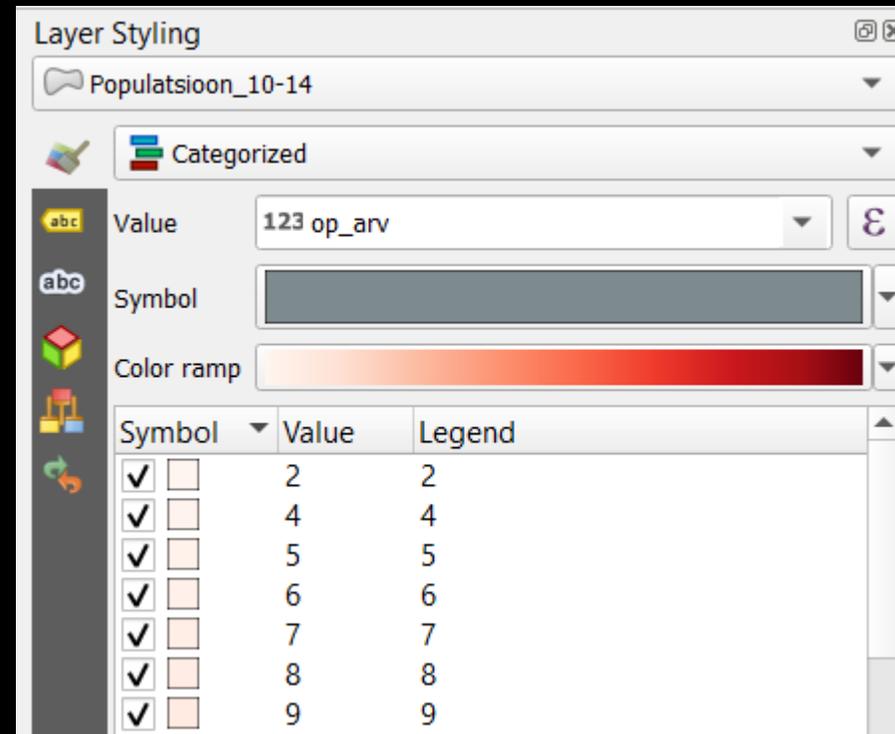
Feature:

Preview: '56'

How to make categorized layer styling

- Value of **student nr**
- Color ramp: **red**
- Hit **classify**

So we have now all ages in int format and could start visualizing data



Layer Styling

Populatsioon_10-14

Categorized

Value: 123 op_arv

Symbol

Color ramp

Symbol	Value	Legend
<input checked="" type="checkbox"/>	2	2
<input checked="" type="checkbox"/>	4	4
<input checked="" type="checkbox"/>	5	5
<input checked="" type="checkbox"/>	6	6
<input checked="" type="checkbox"/>	7	7
<input checked="" type="checkbox"/>	8	8
<input checked="" type="checkbox"/>	9	9

Projects

- Non motorized streets suggestions are based on the relationship between objects and their potential consumers:
- Schools, but could be also:
 - Shopping malls
 - Public transport stops
 - Sightseeings



Topic registering in Moodle

- You have to choose between different school maximum students number sets
- You will find those sets in Moodle

Self-test task

- Task is to explore one project that covers mobility:
 - What made?
 - How it is made?

Conclusion

- Mobility is an adjective word describing the opportunity to move
- There is demand and supply of mobility
- We cover both as we have students generating demand and schools generating supply
- Statistikaamet is giving out population data in Estonia

Thank you for your attention!

Interreg Central Baltic Project: INTELTRANS – Intelligent Transport and Traffic Management study module.