Geographic information systems

Collecting data

(Lesson 2)

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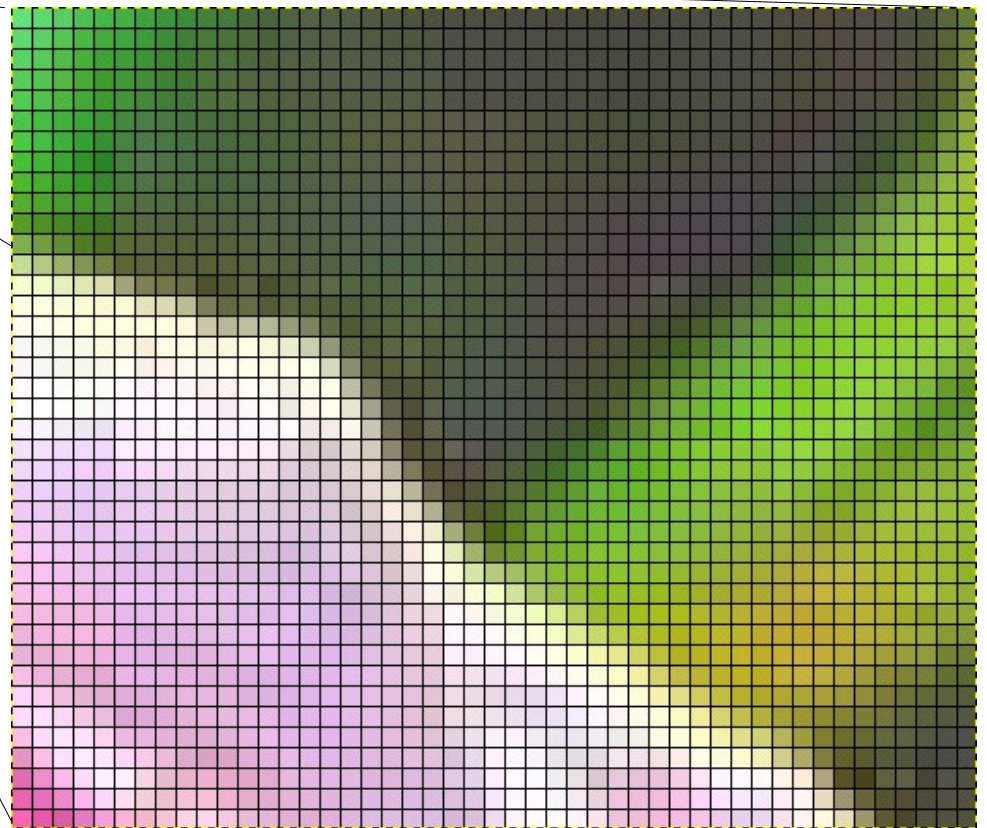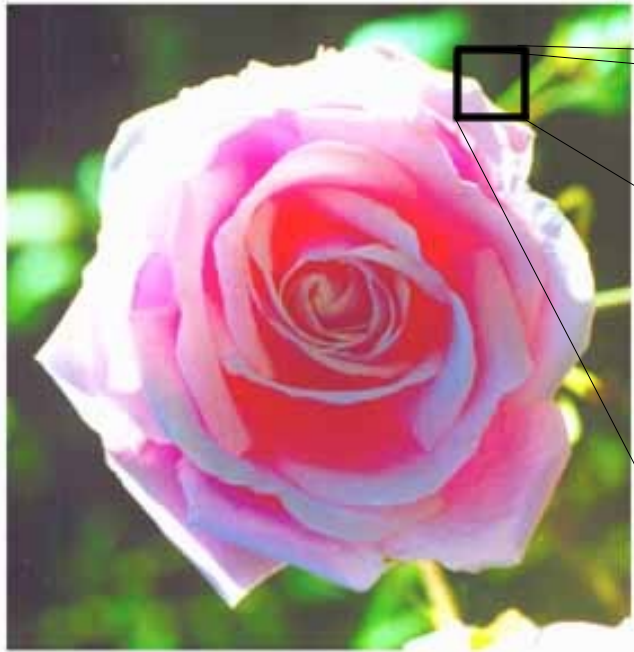- collecting data
  - digitization
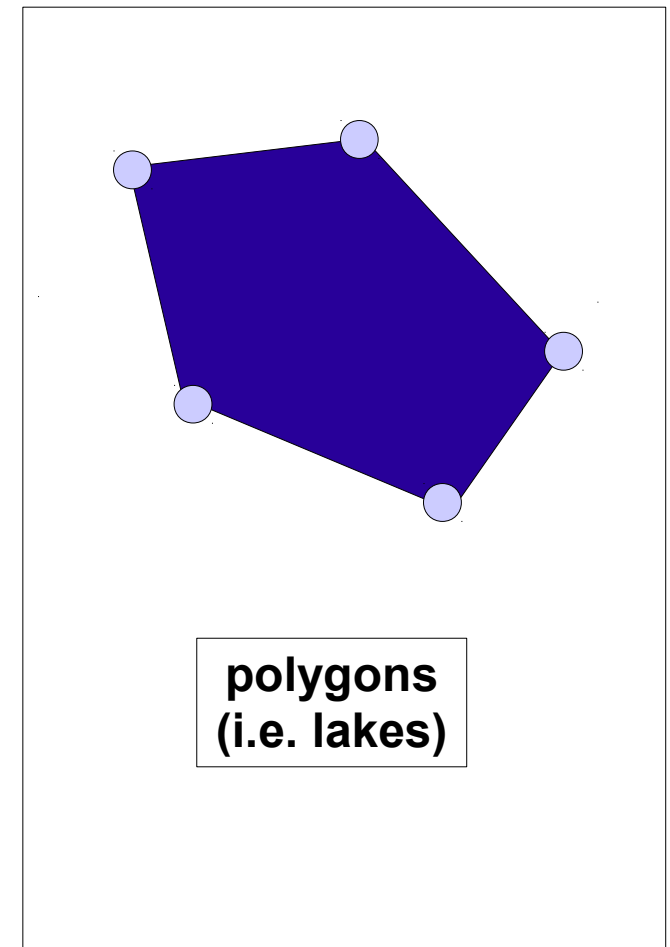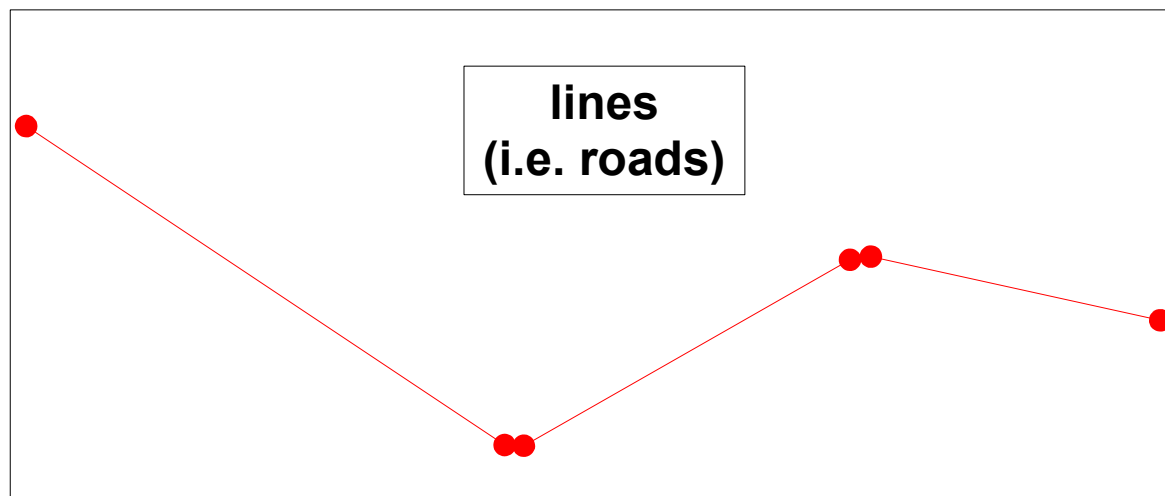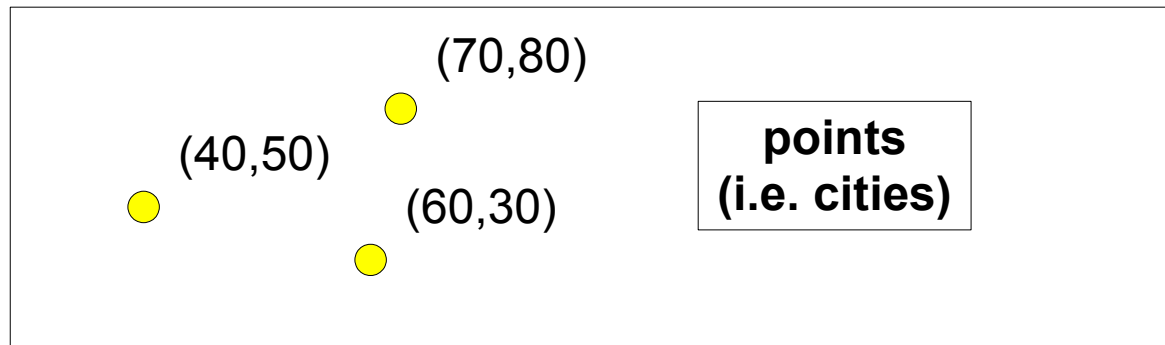 - snapping

Raster format

image consisting
of regular grid cells
(pixels)

Raster format

- grid cells contain numeric values (the same values represent the same features)

  - i.e. cells with value 1 represent water, cells with value 2 represent forests etc.

  - the same values = the same colours

- pros

  - efficient for continuous features (temperature, elevation etc.)

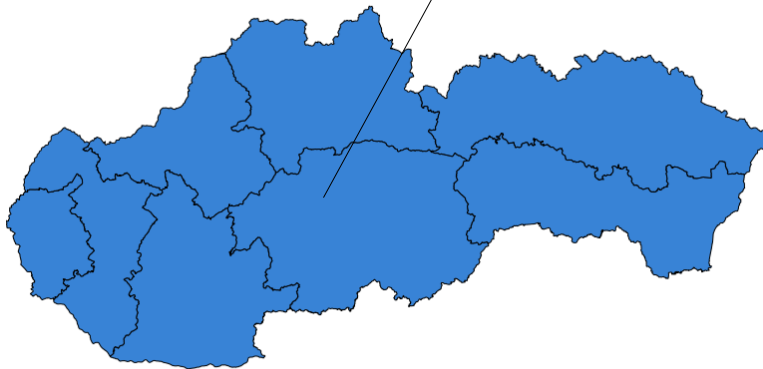- cons

  - large files on disk

Vector format

- features represented by points, lines and polygons (with map coordinates)

(70,80)

(40,50)

(60,30)

points
(i.e. cities)

lines
(i.e. roads)

polygons
(i.e. lakes)

Vector format

- every single vector feature (point, line, polygon) is linked to a single record in the attribute table 📋

	id	AREA	PERIMETER	KRAJ_	KRAJ_ID	NAZKRAJA	CISKRAJA
1	0	793263616.000	542096.563	1	1	Žilinský kraj	5
2	1	499161088.000	466046.781	2	2	Trenčiansky kr	3
3	2	994707456.000	765768.688	3	3	Prešovský kra	7
4	3	453109248.000	637105.313	4	4	Banskobystrick	6
5	4	749649920.000	660264.313	5	5	Košický kraj	8
6	5	053263872.000	293240.594	6	6	Bratislavský kr	1
7	6	341266432.000	554782.625	7	7	Nitriansky kraj	4
8	7	147713792.000	561476.375	8	8	Trnavský kraj	2

Attribute types

1. Whole number (Integer)

  – can contain whole numbers only

2. Decimal number (Real)

  – can contain whole or decimal numbers

3. Text (String)

  – can contain characters (strings)

4. Date

  – can contain dates

Vectorization (digitization)

- the process of vector objects creating:
  - performed manually by clicking the mouse and entering attribute values
  - semiautomatic methods (contour lines)
- background rasters for vectorization:
  - map scans
  - satellite images
  - aerial photographs

Vectorization (digitization)

1. Add the background image.

   Layer → Add layer → Add raster layer

2. Create new vector layer.

   Layer → Create Layer → New Shapefile Layer

3. Add attributes (name, type).

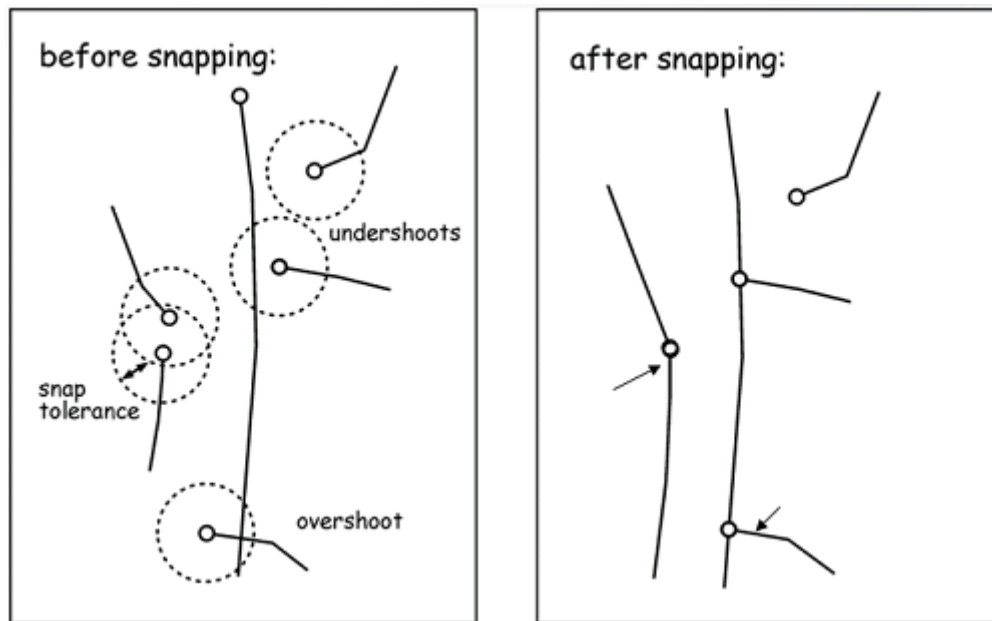4. Confirm and save the file on disk.

5. Turn on editing and start digitizing new vector objects (save changes continuously).

Snapping

- allow us to connect one feature to another (vertex to vertex, segment)

- correct vectorization without errors

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Snapping → Snapping Options

The End

Thank you for attention!