Types of data in GIS - basic division

Types of data in GIS: raster and vector data

- ► Raster data

1	1	3	6
1	1	3	6
1	3	6	6
3	6	6	6
3	6	6	6
3	6	6	6

- ► Vector data
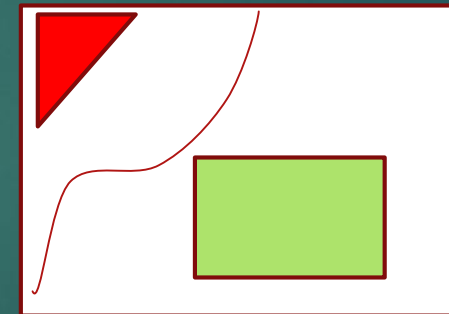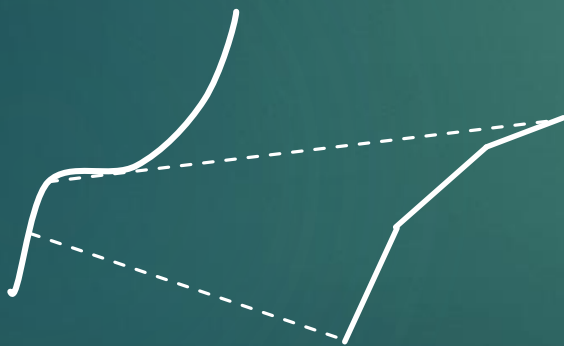
Types of data in GIS: raster and vector data

▶ Raster data

1	1	3	6
1	1	3	6
1	3	6	6
3	6	6	6
3	6	6	6
3	6	6	6

▶ area divided into finite areas = cells/pixels that completely cover it

▶ see below for cell shape

▶ each cell holds one value in one layer

▶ this value is displayed in one color when displaying the visualization - see fig.

▶ the value represents the property of the given cell (surface type, temperature, slope, ...)

▶ they mostly "deform" the shape of the displayed object

Types of data in GIS: raster and vector data

Vector data

a broken line, not a curve

- of different geometric types – point, line, area (in 2-dimensional space)
- they do not have to cover the entire area of the space
- a greater amount of information can be attached to individual objects - see the next part of the lectures
- they mostly model the shape of objects "more accurately".

Geographic information, data

Geographic information

The geographic information is:

- geometric,
- topological ,
- thematic
- dynamic description object

Which is in

- numerical form
- text form
- in the form of image data
- multimedia form

Geographic information

Geodata are formal transcriptions of geographic information into a form suitable for computer processing
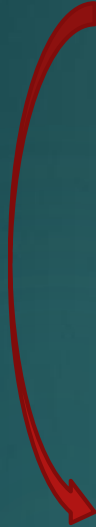
Geodata therefore identify:

► geographic location and

► characteristics natural and anthropogenic phenomena and the boundaries between them.

Geographic information

Spatial objects - have:

- geographic location

- spatial relationships

- Its attribute properties

- Its development over time - displayed by a dynamic description

Levels of abstraction reality determines how these objects are stored in the GIS

Geographic information

What is the content of GIS?

▶ **element/object, phenomenon, both = <u>entity</u>** - a formation no **longer divisible** , clearly distinguishable from other elements - object, phenomenon as

FSv CTU,

flood 12.8. 2004,

accident near Prachatice 1/1/1995

▶ **feature class** - a complete **system of features** with common properties - mostly displayed in the same way graphically

▶

colleges ,

floods,

traffic accidents

Geographic information

- **Entity** = element/object, phenomenon - its unambiguous determination given

  - **by inclusion in a class of elements in a unique database** and
  - **definite** inclusion in this class

- **feature class** - unambiguous determination given by a unique designation (attribute) in one database

  - feature class = *family house* - all family houses tend to have the same list of attributes, but may not have the same graphic attributes:
    - **class attributes** – descriptive data in the database
    - **graphic attributes** – display method on the monitor or for printing

Object-based (= vector GIS) vs. raster GIS

The lectures are further divided by type

- vector GIS
- raster GIS