

1 Parsing data, geocoding

Students: Matěj, Slezák, Bzdúšek

Create a Python script which will download and parse data from some webpage (e.g. <http://www.roman-empire.net/diverse/battles.html>), geocodes it (convert names of places to geographical coordinates) and returns a file with geometry (SHP, GeoJSON), map image (e.g. with Kartograph.py <http://kartograph.org/>) or other outputs.

Use e.g. <http://www.datasciencetoolkit.org/> API for geocoding.

2 Weather

Students: Vilímková, Pelikánová, Kundriková, Kakáčová

Create a tool (Python script) which will print current weather and/or the weather forecast for specified location (either name of the city/location or coordinates). If the location is specified by name, geocode it into coordinates or use a service which geocodes locations for you. Use some online service to get data (e.g. openweathermap.org or DarkSky.net). Example of a similar tool:

simon ~ weather Brno

Current conditions for Brno, South Moravian:

3° • feels like 0° • 3 mps wind • clear

Mon Nov 27 2017 4° -3° ▲* partly cloudy 5% chance precip * 7:23am ☾ 4:02pm	Tue Nov 28 2017 4° -1° ▲ clouds 13% chance precip * 7:24am ☾ 4:01pm	Wed Nov 29 2017 3° 0° * snow 64% chance precip * 7:25am ☾ 4:00pm	Thu Nov 30 2017 3° 0° * snow 77% chance precip * 7:27am ☾ 4:00pm
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Powered by DarkSky.net

3 Generating overview maps

Students: Hasenöhrlová, Švedová, Češek

Create a tool (Python script), which generates overview maps of e.g. tourist centres / Czech Republic or Europe map with a location you want to highlight (e.g. Vidnava with the main region cities in Czech).

Use for example Kartograph.py and OpenStreetMap with Overpass API or GeoJSON files prepared from ArcČR / similar data.

4 Hydrology tools

Students: Klocová, Abdelrahman, Kvarda, Willmann

TBA – generating Thiessen polygons, precipitation modelling, etc.