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Faculty of Environment and Natural Resources
Module: GIS Plus
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Project 06: Rasterizer Function

Abstract

1 Aim of the Project

The aim of this project was to create a rasterizing tool that generates a raster-file from a given shape-file. The idea of such a rasterizing tool is to load the geometries of a shape-file into a geometry collection, implement a regular grid within the bounding box of this geometry collection and assign a value to each grid cell. For the value assignment it's either possible to use attribute values of the geometry or to use a binary format depending on the presence of a geometry.

Approach

To approach this task we first of all we developed a script which randomly generates geometries –polygons, points and linestrings– and saves them as shape files. Those shape files served as test data.
This file displays the geometries from a shapfile, which was given as input to the function. The spatial resolution and name of the output-file can be defined as input to the function. For the case that no shapefile is available to run the function, a code to generate random geometries is provided.

2 Structure of the function

2.1 Load in the shapefile

To load in the shapefile, the fiona-package is used. Every geometry-object of the shapefile is stored in a GeometryCollection from the shapely-package.

2.2 Defining the bounding box

We create a buffer around the actual shape of the shapefile which will look prettier in the resulting image.

```
class MyClass(Yourclass):
                def __init__(self, my, yours):
                bla = '5 1 2 3 4'
                print bla
```

2.3 R Code

```
#=====================================================
#                         Function Header
#======================================================
def rasterizer(filepath,
        pixels=100,
        buffer_value=10,
        outputname="output.tiff",
        save=True,
        preview=True):
```

3 Issues

3.1 Solved

3.2 Unsolved