

Task

Structure of the  
Function

Load Shapefile  
Bounding Box  
Create Grid  
Within Query  
Sublist  
Set radiometric  
resolution  
Flip array  
Save as tiff

Issues

# GIS+ Project

## Rasterizer

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# Task: Rasterizer

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### Issues

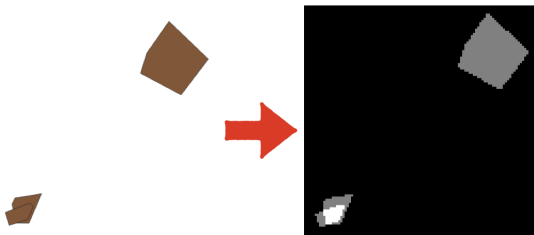


Figure: from shape to raster

# Load Shapefile with Fiona Package

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## Issues

```
43 | # collect geometries of shape file
44 | geometry_coll = spg.collection.GeometryCollection(
45 |     [shape(pol['geometry']) for pol in fiona.open(filepath)]
46 | )
```

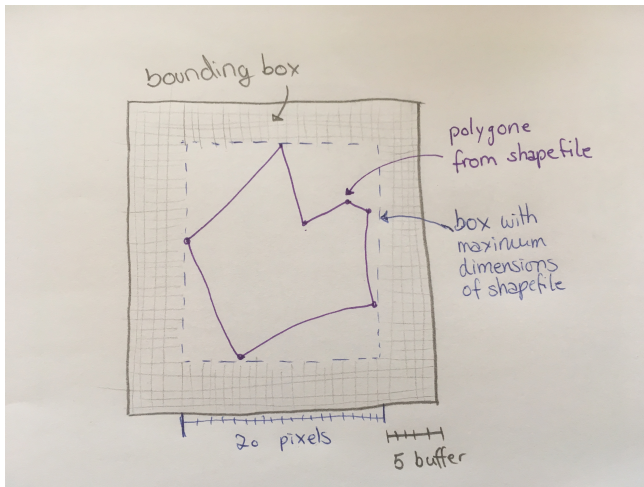
# Bounding Box

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## Issues



# Create a grid

## Task

### Structure of the Function

Load Shapefile

Bounding Box

**Create Grid**

Within Query

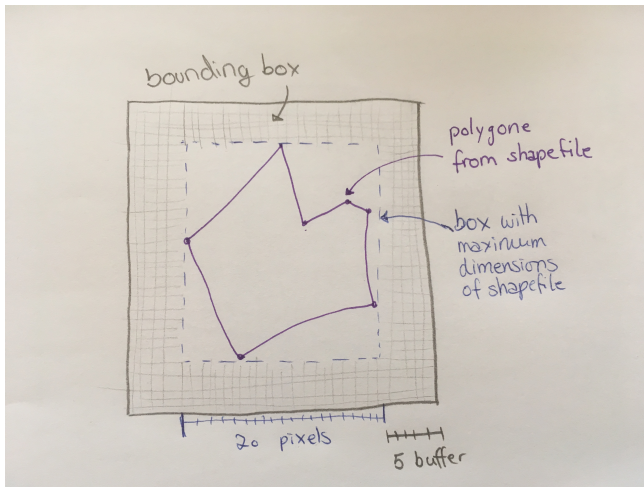
Sublist

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## Issues



# Within query

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```
86     within_list = []
87     for i in range(0, len(geometry_coll)):
88         if (isinstance(geometry_coll[i], spg.polygon.Polygon)):
89             step = [pixel.within(geometry_coll[i]) for pixel in geom_pixels]
90             if (isinstance(geometry_coll[i], spg.point.Point)):
91                 step = [
92                     (
93                         (pixel.x > (geometry_coll[i].x - 0.5 * resolution)) &
94                         (pixel.x <= (geometry_coll[i].x + 0.5 * resolution))
95                     ) &
96                     (
97                         (pixel.y > (geometry_coll[i].y - 0.5 * resolution)) &
98                         (pixel.y <= (geometry_coll[i].y + 0.5 * resolution))
99                     ) for pixel in geom_pixels
100                 ]
101
102             if (isinstance(geometry_coll[i], spg.linestring.LineString)):
103                 step = [pixel.within(geometry_coll[i].buffer(float(resolution)))
104                     for pixel in geom_pixels]
105             print('The process is running: {}'.format((round(100 *
106 i/len(geometry_coll),2))))
106             within_list.append(step)
```

# Sublist

## Task

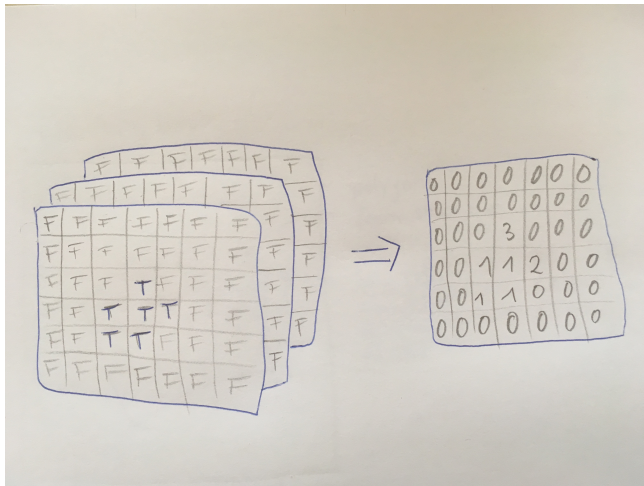
## Structure of the Function

- Load Shapefile
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- Within Query

### Sublist

- Set radiometric resolution
- Flip array
- Save as tiff

## Issues



# Set radiometric resolution

## Task

## Structure of the Function

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Within Query

Sublist

Set radiometric resolution

Flip array

Save as tiff

## Issues

```
117     # set radiometric resolution to 8bit
118     within_list_sum = np.round_(255 * (np.true_divide(within_list_sum,
max(within_list_sum))))
```



# Flip array

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## Issues

```
129 | # flip array for correct presentation  
130 | flipped_array = np.flipud(within_array)
```

# Save as tiff

## Task

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## Issues

```
139 | ##write image data to tiff file
140 | sk.external.tifffile.imwrite(outputname, flipped_array)
141 |
```

# Issues

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Issues

## Solved

- Set accurate resolution even if you dont know the range of the coordinates
- Raster-conversion for shp-types point, line and polygon
- Git

# Issues

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## Issues

### unsolved

- Save tiff-file with reference-system
- Define grey-values in tiff-file according to a specific attribute of the shapefile
- Possibility to choose radiometric resolution of tiff-file