In [1]:
```python
!pip install geemap
!pip install earthengine-api --upgrade
!pip install json
!pip install os
!pip install requests
!pip install numpy
!pip install matplotlib

import geemap
import ee
import json
import os
import requests
import numpy as np
import matplotlib.pyplot as plt

from geemap import geojson_to_ee, ee_to_geojson
from ipyleaflet import GeoJSON, Marker, MarkerCluster
```

Requirement already satisfied: geemap in c:\users\onur\anaconda3\lib\site-packages (0.8.7)
Requirement already satisfied: pillow in c:\users\onur\anaconda3\lib\site-packages (from geemap) (8.1.0)
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Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in c:\users\onur\anaconda3\lib\s
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Requirement already satisfied: pywin32>=1.0 in c:\users\onur\anaconda3\lib\site-pack
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Requirement already satisfied: nest-asyncio in c:\users\onur\anaconda3\lib\site-pack
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Requirement already satisfied: sniffio>=1.1 in c:\users\onur\anaconda3\lib\site-pack
ages (from anyio>=2.0.2->jupyter-server<2.0.0,>=0.3.0->voila->geemap) (1.2.0)
Requirement already satisfied: earthengine-api in c:\users\onur\anaconda3\lib\site-p
ackages (0.1.247)
Requirement already satisfied: google-auth>=1.4.1 in c:\users\onur\anaconda3\lib\sit
e-packages (from earthengine-api) (1.21.3)
Requirement already satisfied: google-api-python-client>=1.12.1 in c:\users\onur\ana
conda3\lib\site-packages (from earthengine-api) (1.12.8)
Requirement already satisfied: future in c:\users\onur\anaconda3\lib\site-packages
(from earthengine-api) (0.18.2)
Requirement already satisfied: six in c:\users\onur\anaconda3\lib\site-packages (fro
m earthengine-api) (1.15.0)
Requirement already satisfied: google-auth-httplib2>=0.0.3 in c:\users\onur\anaconda
3\lib\site-packages (from earthengine-api) (0.0.4)
Requirement already satisfied: google-cloud-storage in c:\users\onur\anaconda3\lib\s
ite-packages (from earthengine-api) (1.35.0)
Requirement already satisfied: httplib2<1dev,>=0.9.2 in c:\users\onur\anaconda3\lib
\site-packages (from earthengine-api) (0.18.1)
Requirement already satisfied: httplib2shim in c:\users\onur\anaconda3\lib\site-pack
ages (from earthengine-api) (0.0.3)
Requirement already satisfied: google-api-core<2dev,>=1.21.0 in c:\users\onur\anacon
da3\lib\site-packages (from google-api-python-client>=1.12.1->earthengine-api) (1.2
4.1)
Requirement already satisfied: uritemplate<4dev,>=3.0.0 in c:\users\onur\anaconda3\l
ib\site-packages (from google-api-python-client>=1.12.1->earthengine-api) (3.0.1)
Requirement already satisfied: requests<3.0.0dev,>=2.18.0 in c:\users\onur\anaconda3
\lib\site-packages (from google-api-core<2dev,>=1.21.0->google-api-python-client>=1.
12.1->earthengine-api) (2.25.1)
Requirement already satisfied: setuptools>=34.0.0 in c:\users\onur\anaconda3\lib\sit
e-packages (from google-api-core<2dev,>=1.21.0->google-api-python-client>=1.12.1->ea
rthengine-api) (51.1.2.post20210112)
Requirement already satisfied: protobuf>=3.12.0 in c:\users\onur\anaconda3\lib\site-
packages (from google-api-core<2dev,>=1.21.0->google-api-python-client>=1.12.1->eart
hengine-api) (3.14.0)
Requirement already satisfied: googleapis-common-protos<2.0dev,>=1.6.0 in c:\users\o
nur\anaconda3\lib\site-packages (from google-api-core<2dev,>=1.21.0->google-api-pyth
on-client>=1.12.1->earthengine-api) (1.52.0)
Requirement already satisfied: pytz in c:\users\onur\anaconda3\lib\site-packages (fr
om google-api-core<2dev,>=1.21.0->google-api-python-client>=1.12.1->earthengine-api)
(2020.5)
Requirement already satisfied: pyasn1-modules>=0.2.1 in c:\users\onur\anaconda3\lib
\site-packages (from google-auth>=1.4.1->earthengine-api) (0.2.8)
Requirement already satisfied: rsa<5,>=3.1.4 in c:\users\onur\anaconda3\lib\site-pac
kages (from google-auth>=1.4.1->earthengine-api) (4.7)
Requirement already satisfied: cachetools<5.0,>=2.0.0 in c:\users\onur\anaconda3\lib
\site-packages (from google-auth>=1.4.1->earthengine-api) (4.2.0)
Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in c:\users\onur\anaconda3\lib\s
ite-packages (from pyasn1-modules>=0.2.1->google-auth>=1.4.1->earthengine-api) (0.4.
8)
Requirement already satisfied: chardet<5,>=3.0.2 in c:\users\onur\anaconda3\lib\site
-packages (from requests<3.0.0dev,>=2.18.0->google-api-core<2dev,>=1.21.0->google-ap
i-python-client>=1.12.1->earthengine-api) (4.0.0)
Requirement already satisfied: idna<3,>=2.5 in c:\users\onur\anaconda3\lib\site-pack
ages (from requests<3.0.0dev,>=2.18.0->google-api-core<2dev,>=1.21.0->google-api-pyt
hon-client>=1.12.1->earthengine-api) (2.10)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\onur\anaconda3\lib
\site-packages (from requests<3.0.0dev,>=2.18.0->google-api-core<2dev,>=1.21.0->goog
le-api-python-client>=1.12.1->earthengine-api) (1.26.2)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\onur\anaconda3\lib\sit
e-packages (from requests<3.0.0dev,>=2.18.0->google-api-core<2dev,>=1.21.0->google-a
pi-python-client>=1.12.1->earthengine-api) (2020.12.5)
Requirement already satisfied: google-cloud-core<2.0dev,>=1.4.1 in c:\users\onur\ana

```
conda3\lib\site-packages (from google-cloud-storage->earthengine-api) (1.5.0)
Requirement already satisfied: google-resumable-media<2.0dev,>=1.2.0 in c:\users\onu
r\anaconda3\lib\site-packages (from google-cloud-storage->earthengine-api) (1.2.0)
Requirement already satisfied: google-crc32c<2.0dev,>=1.0 in c:\users\onur\anaconda3
\lib\site-packages (from google-resumable-media<2.0dev,>=1.2.0->google-cloud-storage
->earthengine-api) (1.1.1)
Requirement already satisfied: cffi>=1.0.0 in c:\users\onur\anaconda3\lib\site-packa
ges (from google-crc32c<2.0dev,>=1.0->google-resumable-media<2.0dev,>=1.2.0->google-
cloud-storage->earthengine-api) (1.14.4)
Requirement already satisfied: pycparser in c:\users\onur\anaconda3\lib\site-package
s (from cffi>=1.0.0->google-crc32c<2.0dev,>=1.0->google-resumable-media<2.0dev,>=1.
2.0->google-cloud-storage->earthengine-api) (2.20)
```

```
ERROR: Could not find a version that satisfies the requirement json
ERROR: No matching distribution found for json
ERROR: Could not find a version that satisfies the requirement os
ERROR: No matching distribution found for os
Requirement already satisfied: requests in c:\users\onur\anaconda3\lib\site-packages
(2.25.1)
Requirement already satisfied: idna<3,>=2.5 in c:\users\onur\anaconda3\lib\site-pack
ages (from requests) (2.10)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\onur\anaconda3\lib\sit
e-packages (from requests) (2020.12.5)
Requirement already satisfied: chardet<5,>=3.0.2 in c:\users\onur\anaconda3\lib\site
-packages (from requests) (4.0.0)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\onur\anaconda3\lib
\site-packages (from requests) (1.26.2)
Requirement already satisfied: numpy in c:\users\onur\anaconda3\lib\site-packages
(1.19.2)
Requirement already satisfied: matplotlib in c:\users\onur\anaconda3\lib\site-packag
es (3.3.2)
Requirement already satisfied: numpy>=1.15 in c:\users\onur\anaconda3\lib\site-packa
ges (from matplotlib) (1.19.2)
Requirement already satisfied: pillow>=6.2.0 in c:\users\onur\anaconda3\lib\site-pac
kages (from matplotlib) (8.1.0)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\onur\anaconda3\lib\site
-packages (from matplotlib) (1.3.0)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.3 in c:\users
\onur\anaconda3\lib\site-packages (from matplotlib) (2.4.7)
Requirement already satisfied: python-dateutil>=2.1 in c:\users\onur\anaconda3\lib\s
ite-packages (from matplotlib) (2.8.1)
Requirement already satisfied: certifi>=2020.06.20 in c:\users\onur\anaconda3\lib\si
te-packages (from matplotlib) (2020.12.5)
Requirement already satisfied: cycler>=0.10 in c:\users\onur\anaconda3\lib\site-pack
ages (from matplotlib) (0.10.0)
Requirement already satisfied: six in c:\users\onur\anaconda3\lib\site-packages (fro
m cycler>=0.10->matplotlib) (1.15.0)
```

In [11]:
```python
Map = geemap.Map(center=[41.1020, 29.0249], zoom = 10)

dataset = ee.Image('COPERNICUS/CORINE/V20/100m/2012')

ee_class_table = """
111     E6004D  Artificial surfaces > Urban fabric > Continuous urban fabric
112     FF0000  Artificial surfaces > Urban fabric > Discontinuous urban fabric
121     CC4DF2  Artificial surfaces > Industrial, commercial, and transport units >
122     CC0000  Artificial surfaces > Industrial, commercial, and transport units >
123     E6CCCC  Artificial surfaces > Industrial, commercial, and transport units >
124     E6CCE6  Artificial surfaces > Industrial, commercial, and transport units >
131     A600CC  Artificial surfaces > Mine, dump, and construction sites > Mineral e
132     A64DCC  Artificial surfaces > Mine, dump, and construction sites > Dump site
133     FF4DFF  Artificial surfaces > Mine, dump, and construction sites > Construct
141     FFA6FF  Artificial surfaces > Artificial, non-agricultural vegetated areas >
142     FFE6FF  Artificial surfaces > Artificial, non-agricultural vegetated areas >
211     FFFFA8  Agricultural areas > Arable land > Non-irrigated arable land
212     FFFF00  Agricultural areas > Arable land > Permanently irrigated land
213     E6E600  Agricultural areas > Arable land > Rice fields
221     E68000  Agricultural areas > Permanent crops > Vineyards
```

```
222      F2A64D   Agricultural areas > Permanent crops > Fruit trees and berry plantat
223      E6A600   Agricultural areas > Permanent crops > Olive groves
231      E6E64D   Agricultural areas > Pastures > Pastures
241      FFE6A6   Agricultural areas > Heterogeneous agricultural areas > Annual crops
242      FFE64D   Agricultural areas > Heterogeneous agricultural areas > Complex cult
243      E6CC4D   Agricultural areas > Heterogeneous agricultural areas > Land princip
244      F2CCA6   Agricultural areas > Heterogeneous agricultural areas > Agro-forestr
311      80FF00   Forest and semi natural areas > Forests > Broad-leaved forest
312      00A600   Forest and semi natural areas > Forests > Coniferous forest
313      4DFF00   Forest and semi natural areas > Forests > Mixed forest
321      CCF24D   Forest and semi natural areas > Scrub and/or herbaceous vegetation a
322      A6FF80   Forest and semi natural areas > Scrub and/or herbaceous vegetation a
323      A6E64D   Forest and semi natural areas > Scrub and/or herbaceous vegetation a
324      A6F200   Forest and semi natural areas > Scrub and/or herbaceous vegetation a
331      E6E6E6   Forest and semi natural areas > Open spaces with little or no vegeta
332      CCCCCC   Forest and semi natural areas > Open spaces with little or no vegeta
333      CCFFCC   Forest and semi natural areas > Open spaces with little or no vegeta
334      000000   Forest and semi natural areas > Open spaces with little or no vegeta
335      A6E6CC   Forest and semi natural areas > Open spaces with little or no vegeta
411      A6A6FF   Wetlands > Inland wetlands > Inland marshes
412      4D4DFF   Wetlands > Inland wetlands > Peat bogs
421      CCCCFF   Wetlands > Maritime wetlands > Salt marshes
422      E6E6FF   Wetlands > Maritime wetlands > Salines
423      A6A6E6   Wetlands > Maritime wetlands > Intertidal flats
511      00CCF2   Water bodies > Inland waters > Water courses
512      80F2E6   Water bodies > Inland waters > Water bodies
521      00FFA6   Water bodies > Marine waters > Coastal lagoons
522      A6FFE6   Water bodies > Marine waters > Estuaries
523      E6F2FF   Water bodies > Marine waters > Sea and ocean

"""

landCover = dataset.select('landcover')
Map.addLayer(landCover, {}, 'CORINE Land Cover')

legend_dict = geemap.legend_from_ee(ee_class_table)

Map.add_legend(legend_title="CORINE Global Land Cover", legend_dict=legend_dict)

Map
```

In [12]:
```
# Draw any shapes on the map using the Drawing tools before executing this code bloc
feature = Map.draw_last_feature
roi = feature.geometry()

output_dir = r"C:\Users\Onur\Desktop\rs_p\output"

out_dir = os.path.join(os.path.expanduser('~'), output_dir)
filename = os.path.join(out_dir, 'landuse.')
```

In [14]:
```
#Exporting each band as one image
geemap.ee_export_image(dataset, filename=filename, scale=90, region=roi, file_per_ba
```

```
Generating URL ...
Downloading data from https://earthengine.googleapis.com/v1alpha/projects/earthengin
e-legacy/thumbnails/90056b345516482a26c04d932a774157-4c2d680ddbb593c5fb50e3b823b2047
3:getPixels
Please wait ...
Data downloaded to C:\Users\Onur\Desktop\rs_p\output
```

In [ ]: