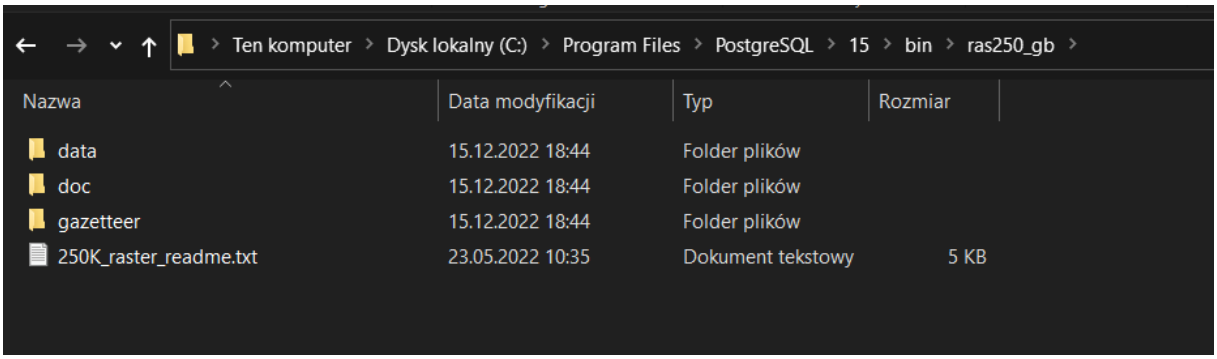
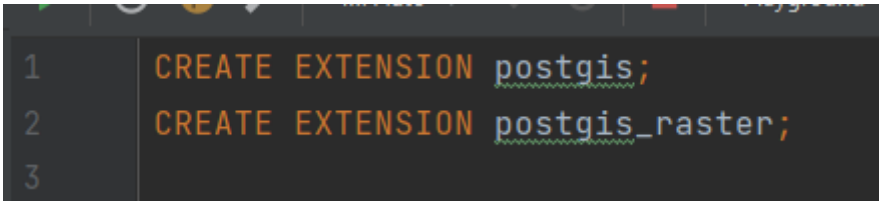
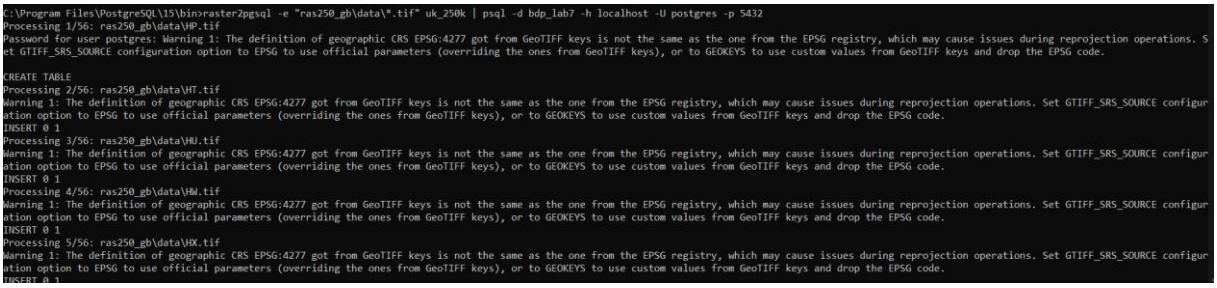
Ex 1



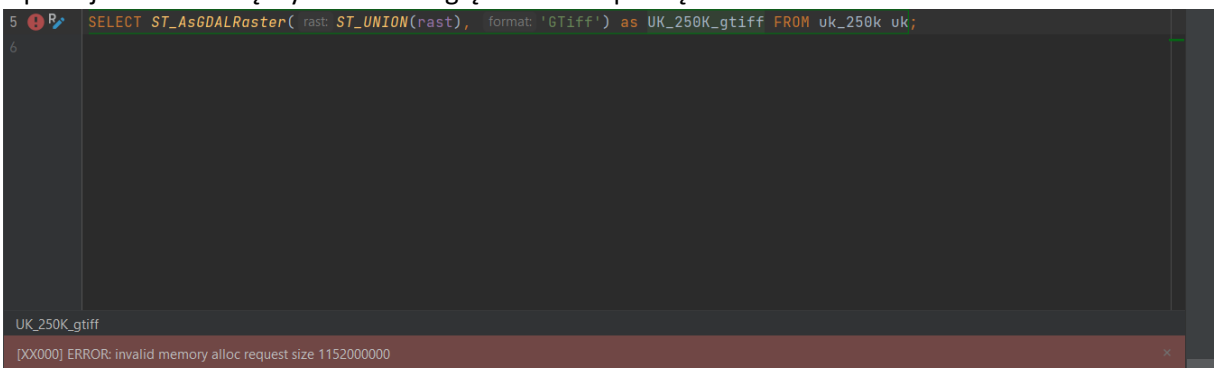
Ex 2





Ex 3

Operacji nie udało się wykonać ze względu na brak pamięci:



Ex 4

Ex 5

```
C:\Program Files\PostgreSQL\15\bin>shp2pgsql -e "folder\national_parks.shp" parks | psql -d bdp_lab7 -h localhost -U postgres -p 5432
Field fid is an FTDouble with width 11 and precision 0
Shapefile type: Polygon
Postgis type: MULTIPOLYGON[2]
Password for user postgres:
SET
SET
CREATE TABLE
ALTER TABLE
    |    |    |    |    |addgeometrycolumn
------------------------------------------------------------
 public.nationalparks.geom SRID:0 TYPE:MULTIPOLYGON DIMS:2
(1 row)

INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
```

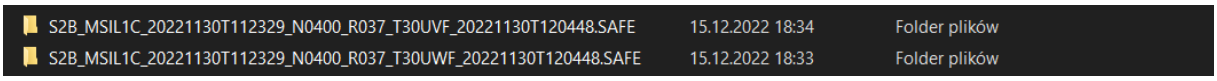
Ex 6

```
CREATE TABLE uk_lake_disctrict AS SELECT st_union(st_clip( rast: uk.rast,  geom: p.geom)) FROM uk_250k uk
INNER JOIN parks p ON st_intersects( geog1: p.geom,  geog2: uk.rast) WHERE p.gid = 1;
```

Ex 7

```
CREATE TABLE out_put AS
SELECT lo_from_bytea(0,
 ST_AsGDALRaster( rast: ST_Union(st_clip( rast: uk.rast,  geom: uld.geom)),  format: 'GTiff',
 options: ARRAY['COMPRESS=DEFLATE',
'PREDICTOR=2', 'PZLEVEL=9'])
 ) AS loid
FROM uk_250k uk INNER JOIN uk_lake_disctrict uld ON st_intersects( geog1: uld.geom,  geog2: uk.rast)
WHERE uld.gid = 1;
SELECT lo_export(loid, 'C:\Program Files\PostgreSQL\13\bin\parks\parks.tiff') FROM out_put;
SELECT lo_unlink(loid)
FROM out_put;
```

Ex 8



Ex 9

```
C:\Program Files\PostgreSQL\15\bin>raster2pgsql -e -t 8192x8192 "C:\Program Files\PostgreSQL\15\bin\S2B_
MSIL1C_20221130T112329_N0400_R037_T30UVF_20221130T120448.SAFE\GRANULE\L1C_T30UVF_A029950_20221130T112331
\IMG_DATA\*.jp2" sentinel | psql -d bdp_lab7 -h
```

Ex 10

```
CREATE TABLE ndvi AS
WITH r AS (
SELECT st_clip( rast: s.rast, geom: st_Transform(uld.geom , 32630)) as rast from sentinel s
    inner join uk_lake_disctrict uld on  st_intersects( geog1: st_Transform(uld.geom , 32630), geog2: s.rast) where uld.gid = 1
)
SELECT
 ST_MapAlgebra(
 rastbandargset: r.rast, callbackfunc: 1,
 pixeltype: r.rast, extenttype: 4,
 customextent: '([rast2.val] - [rast1.val]) / ([rast2.val] +
[rast1.val])::float', distancex: '32BF'
 ) AS rast
FROM r
```

Ex 11

```
CREATE TABLE out_put2 as
SELECT lo_from_bytea(0,
 ST_AsGDALRaster( rast: ST_Union(st_union(ndwi.rast)), format: 'GTiff',
 options: ARRAY['COMPRESS=DEFLATE',
'PREDICTOR=2', 'PZLEVEL=9'])
 ) AS loid
FROM ndwi;
SELECT lo_export(loid, 'C:\Program Files\PostgreSQL\15\bin\parks\ndwi.tiff') FROM out_put2;
SELECT lo_unlink(loid)
FROM out_put2;
```