Zad 2

raster2pgsql -s 3763 -N -32767 -t 100x100 -I -C -M -d C:\bdp\lab7\ras250_gb\ras250_gb\data\TV.tif rasters.uk_250k | psql -d lab6 -U postgres

Zad 3

```
create index idx_intersects_rast_gist ON rasters..uk_250k using gist (ST_ConvexHull(rast));
select AddRasterConstraints('rasters'::name, 'uk_250k'::name,'rast'::name);

CREATE TABLE tmp_out1 AS
SELECT lo_from_bytea(0,
ST_AsGDALRaster(ST_Union(rast), 'GTiff', ARRAY['COMPRESS=DEFLATE',
'PREDICTOR=2', 'PZLEVEL=9'])
) AS loid
FROM rasters.uk_250k;

SELECT lo_export(loid, 'C:\bdp\lab7\result.tiff')
FROM tmp_out1;

SELECT lo_unlink(loid)
  FROM tmp_out1;
```

Za długi czas wykonywania.

Zad 4

```
C:\Program Files\PostgreSQL\14\bin>ogr2ogr C:\bdp\lab7\Zad4 C:\Users\48792\Downloads\OS_Open_Zoomstack\OS_Open_Zoomstack.gpkg
Warning 1: 2GB file size limit reached for C:\bdp\lab7\Zad4\contours.shp. Going on, but might cause compatibility issues with third party softwa
re
Warning 1: One or several characters couldn't be converted correctly from UTF-8 to ISO-8859-1.  This warning will not be emitted anymore.
Warning 6: Normalized/laundered field name: 'name1language' to 'name1langu'
Warning 6: Normalized/laundered field name: 'name2language' to 'name2langu'
Warning 1: One or several characters couldn't be converted correctly from UTF-8 to ISO-8859-1.  This warning will not be emitted anymore.
```

Zad 5

```
C:\Program Files\PostgreSQL\14\bin>shp2pgsql -D -I C:\bdp\lab7\Zad4\national_parks.shp national_parks | psql -U postgres -h localhost -p 5432 -d
 lab6
Field fid is an FTDouble with width 11 and precision 0
Shapefile type: Polygon
Postgis type: MULTIPOLYGON[2]
Password for user postgres:
SET
SET
BEGIN
CREATE TABLE
ALTER TABLE
                    addgeometrycolumn
--------------------------------------------------------
 public.national_parks.geom SRID:0 TYPE:MULTIPOLYGON DIMS:2
(1 row)

COPY 39
CREATE INDEX
COMMIT
ANALYZE
```

Query Editor

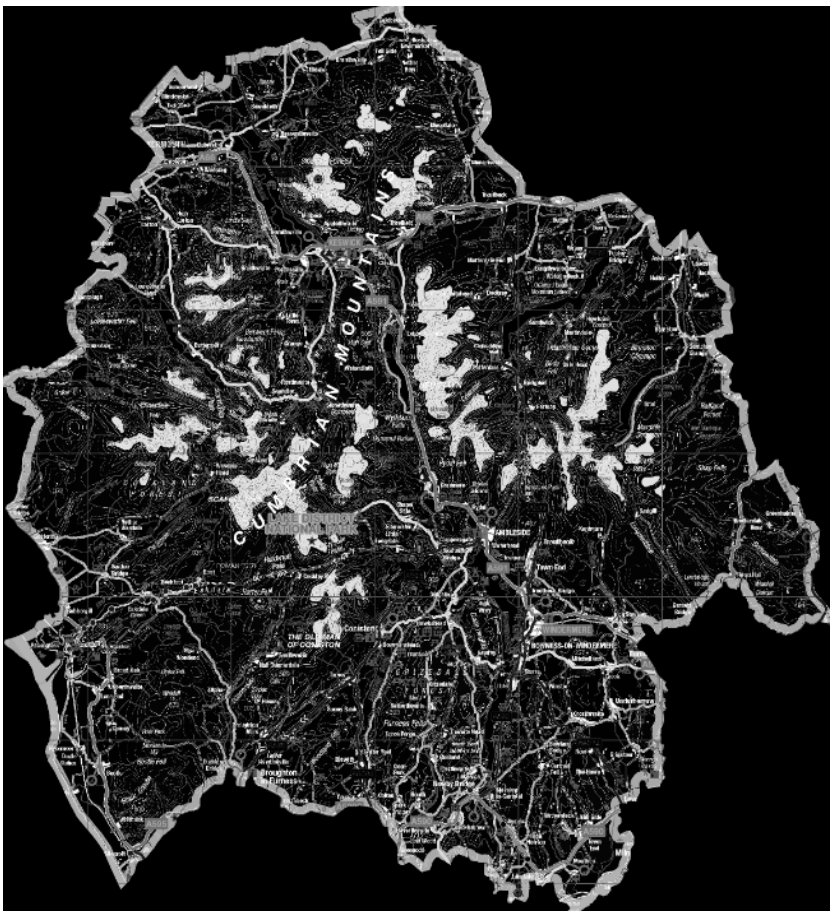
```
1  select * from national_parks
```

Data Output

	gid [PK] integer	fid double precision	geom geometry
1	1	0	0106000000010000000103000000010000001A040000D078E9A611C4154120C05B60850D1F
2	2	1	0106000000010000000103000000010000000AE0400000000000006A18410000000060A71B
3	3	2	0106000000010000000103000000010000004E0400000000000804F1241000000003066094
4	4	3	0106000000010000000103000000010000006D0400000000000C631341000000004A8527
5	5	4	0106000000010000000103000000010000000C2020000000000307F0E4100000000E0EFF14
6	6	5	0106000000010000000103000000010000000D7030000000000804F1241000000003036004

Zad 6 & 7

```
18  --zad 6 & 7
19  SELECT UpdateGeometrySRID('national_parks','geom',4277);
20
21  CREATE TABLE uk_lake_district AS
22  SELECT a.rid, ST_Clip(a.rast, b.geom, true) as rast
23  FROM rasters.uk_250k AS a, national_parks AS b
24  where b.gid = 1 and ST_Intersects(b.geom, a.rast);
25
26  select * from uk_lake_district;
27
28  CREATE TABLE tmp_out AS
29  SELECT lo_from_bytea(0,
30  ST_AsGDALRaster(ST_Union(rast), 'GTiff', ARRAY['COMPRESS=DEFLATE',
31  'PREDICTOR=2', 'PZLEVEL=9'])
32  ) AS loid
33  FROM uk_lake_district;
34
35  SELECT lo_export(loid, 'C:\bdp\lab7\result\zad7.tiff')
36  FROM tmp_out;
37
38  SELECT lo_unlink(loid)
39  FROM tmp_out;
40
```



Zad 8 & 9

```
C:\Program Files\PostgreSQL\14\bin>raster2pgsql.exe -s 3763 -N -32767 -t 100x100 -I -C -M -d "C:\bdp\lab7\T30U
0T112349_SCL_20m.jp2" rasters.sentinel | psql -d lab6 -h localhost -U postgres -p 5432
```

Zad 10

```
create index  idx_rast_sentinel_gist on rasters.sentinel
using gist(ST_ConvexHull(rast));

select AddRasterConstraints('rasters'::name, 'sentinel'::name, 'rast'::name);


create or replace function ndvi(
    value double precision [] [] [],
    pos integer [][],
    VARIADIC userargs text []
)
returns double precision as
$$
begin
    return (value [2][1][1] - value [1][1][1])/(value [2][1][1]+value [1][1][1]);
end;
$$
language 'plpgsql' immutable cost 1000;

create table ndvi as
with r as (
    select * from rasters.sentinel
)

select r.rid,ST_MapAlgebra(
    r.rast, ARRAY[1,4],
    'ndvi(double precision[], integer[],text[])'::regprocedure,
    '32BF'::text
) as rast
from r;
```

```
create table intersect_sentinel as
select a.rid, ST_CLIP(a.rast, b.geom, true) as rast
from ndvi as a, national_parks as b
where b.gid=1 and st_intersects(b.geom, a.rast)

select * from intersect_sentinel;

```

Data Output

rid integer	rast raster

Nie ma części wspólnej.

Zad 11

```
CREATE TABLE tmp_out4 AS
SELECT lo_from_bytea(0,
ST_AsGDALRaster(ST_Union(rast), 'GTiff', ARRAY['COMPRESS=DEFLATE',
'PREDICTOR=2', 'PZLEVEL=9'])
) AS loid
FROM ndvi;

SELECT lo_export(loid, 'C:\bdp\lab7\result\zad11.tiff')
FROM tmp_out4;

SELECT lo_unlink(loid)
FROM tmp_out4;
```