Assignment 3: Data Queries

(60 Points, 4 Points per Question)

Data available under Resources>UK Data.

The provided uk_data.gpkg GeoPackage contains a variety of data layers for the United Kingdom, including the following that you will use in this assignment:

**uk_bound**: boundary of entire United Kingdom

**countries_bound**: boundaries of England, Wales, Scotland, and Northern Ireland

**district_bound**: all districts in the United Kingdom

**geo_bedrock**: bedrock geology

**geo_surficial**: surficial geology

**geo_faults**: fault lines

**geo_dykes**: geologic dykes

**airports**: major airports

**places**: major cities

**roads**: major roads

**railroads**: major railroads

The geology data are from the British Geological Survey. The political boundaries are from the United Kingdom Data Service. All other layers are from Natural Earth.

Use these layers, Select by Location, and Select by Attribute to answer the following questions. All questions can be answered with just querying methods.

*There are some geometric issues with the geology data that will cause some tools to fail. To prevent this issue, you need to set “Invalid features filtering” to “skip (ignore) features with invalid geometries.” This is available here: Settings > Options > General.

Questions

1. How many districts have mapped faults passing through them?
2. How many districts have mapped dykes passing through them?
3. How many districts contain at least some “CHALK” bedrock geology (hint: use “RCS_D” field)?
4. How many districts contain at least some geologic formations from the Silurian Period (hint: use “MIN_PERIOD” field)?
5. How many districts contain some peat surficial geology (hint: use “LEX_D” field)?
6. How many bedrock geology features are mafic tuff that formed during the Carboniferous period (hint: use “RCS_D” and “MIN_PERIOD” fields)?
7. How many districts have a road and a railroad line passing through them?
8. How many surficial geology features are of the type alluvium (hint: use “LEX_D” field).
9. How many of the districts occur completely within the country of Wales?
10. How many districts contain an airport?
11. In the roads dataset, how many features are of the type “Major Highway” (hint: use “type” field)?
12. In the roads dataset, how many are major highways that at least partially pass through Wales?
13. How many dykes formed during the Silurian period (hint: use “MIN_PERIOD” field)?
14. How many dykes formed during the Silurian period and are of the type “FELSIC-ROCK” (hint: use the “RCS_D” field)?
15. How many dykes occurred during the Silurian period, are of the type “FELSIC ROCK”, and are completely within the country of Scotland?