Assignment 14: SQL Queries

(60 Points Total, 4 Points per question, 2 Points for SQL, 2 Points for answer)

Data available under Resources>Portland Data.

The **portland_data.gpkg** GeoPackage contains three data layers for Portland, Oregon:

neighborhoods: boundaries of Portland neighborhoods

park_trees: mapped trees in parks

street_trees: mapped trees along streets

The neighborhood boundaries were obtained from the City of Portland (https://www.portlandoregon.gov/28130) while the tree inventory data were obtained from the City of Portland Office of Parks & Recreation (https://www.portlandoregon.gov/parks/article/433143).

Use these data and the DB Manager within QGIS to answer the following questions. For each question, you will need to provide your answer and the SQL code you used to obtain it.

Questions

1. How many different **genera** are present in the **park_trees** dataset (Hint: Use "Genus" attribute)?
2. Which **genus** has the largest number of trees in the **park_trees** dataset (Hint: Use "Genus" attribute)?
3. How many **genera** have more than 200 trees present in the **park_trees** dataset (Hint: Use "Genus" attribute)?
4. How many trees in the **park_trees** dataset have a **DBH** larger than 45 and are in the *Quercus* **genus** (Hint: Use "DBH" and "Genus" attributes)?
5. How many different species are present in the *Acer* **genus** in the **park_trees** dataset (Hint: Use the "Genus" and "Genus_spec" attributes)?
6. How many trees in the **park_trees** dataset are in the **Acer genus** and in Poor condition? (Hint: Use the "Genus" and "Condition" attributes)?
7. Which **species** in the *Acer* **genus** has the highest average **DBH** for all trees of that species present in the **park_trees** dataset (Hint: Use the "Genus", "Genus_spec", and "DBH" attributes)?
8. How many trees in the **park_trees** dataset have a **height** between 50 and 80 (Hint: Use the "TreeHeight" attribute)?
9. How many trees in the **park_trees** dataset have a **height** between 50 and 80, a **DBH** larger than 30, and are in the *Ulmus* **genus** (Hint: Use the "TreeHeight", "DBH", and "Genus" attributes)?

10. How many trees in the **park_trees** dataset are in **Fair Condition** and are in the *Betula* or *Pinaceae* **genus** (Hint: Use the "TreeHeight", "DBH",a nd "Genus" attributes)?
11. Which **neighborhood** (as identified by the "NAME" attribute) has the largest number of trees in the **park_trees** dataset (Hint: use a spatial query)?
12. Which **neighborhood** (as identified by the "NAME" attribute) has the largest number of trees in the **park_trees** dataset that are of the **genus** *Acer* (Hint: use a spatial query and the "Genus" attribute)?
13. How many trees from the **park_trees** data set **are within** 50 meters of the **centroid** of any **neighborhood** (Hint: use a spatial query)?
14. Which **neighborhoods touch** or **share a boundary** with the 'VERNON' **neighborhood** (Hint: use a spatial query and the "NAME" attribute)?
15. How many **neighborhoods** have a **portion** of their land area within 2 kilometers of the 'VERNON' **neighborhood** (Hint: use a spatial query and the "NAME" attribute)?

Deliverables

- Plain text document with answers to each question along with the SQL syntax used.