

## Periodic Table Database

### Instructions

You are started with a `periodic_table` database that has information about some chemical elements. You can connect to it by entering `psql --username=freecodecamp --dbname=periodic_table` in the terminal. You may want to get a little familiar with the existing tables, columns, and rows. Read the instructions below and complete user stories to finish the project. Certain tests may not pass until other user stories are complete. Good luck!

### Part 1: Fix the database

There are some mistakes in the database that need to be fixed or changed. See the user stories below for what to change.

### Part 2: Create your git repository

You need to make a small bash program. The code needs to be version controlled with git, so you will need to turn the suggested folder into a git repository.

### Part 3: Create the script

Lastly, you need to make a script that accepts an argument in the form of an atomic number, symbol, or name of an element and outputs some information about the given element. In your script, you can create a PSQL variable for querying the database like this: `PSQL="psql --username=freecodecamp --dbname=<database_name> -t --no-align -c"`, add more flags if you need to.

### Notes:

If you leave your virtual machine, your database may not be saved. You can make a dump of it by entering `pg_dump -cC --inserts -U freecodecamp periodic_table > periodic_table.sql` in a bash terminal (not the psql one). It will save the commands to rebuild your database in `periodic_table.sql`. The file will be located where the command was entered. If it's anything inside the project folder, the file will be saved in the VM. You can rebuild the database by entering `psql -U postgres < periodic_table.sql` in a terminal where the `.sql` file is.

If you are saving your progress on freeCodeCamp.org, after getting all the tests to pass, follow the instructions above to save a dump of your database. Save the `periodic_table.sql` file, as well as the final version of your `element.sh` file, in a public repository and submit the URL to it on freeCodeCamp.org.

### Complete the tasks below

You should rename the `weight` column to `atomic_mass`

You should rename the `melting_point` column to `melting_point_celsius` and the `boiling_point` column to `boiling_point_celsius`

Your `melting_point_celsius` and `boiling_point_celsius` columns should not accept null values

You should add the `UNIQUE` constraint to the `symbol` and `name` columns from the `elements` table

Your `symbol` and `name` columns should have the `NOT NULL` constraint

You should set the `atomic_number` column from the `properties` table as a foreign key that references the column of the same name in the `elements` table

You should create a `types` table that will store the three types of elements

Your `types` table should have a `type_id` column that is an integer and the primary key

Your `types` table should have a `type` column that's a `VARCHAR` and cannot be null. It will store the different types from the `type` column in the `properties` table

You should add three rows to your `types` table whose values are the three different types from the `properties` table

Your `properties` table should have a `type_id` foreign key column that references the `type_id` column from the `types` table. It should be an `INT` with the `NOT NULL` constraint

Each row in your `properties` table should have a `type_id` value that links to the correct type from the `types` table

You should capitalize the first letter of all the symbol values in the `elements` table. Be careful to only capitalize the letter and not change any others

You should remove all the trailing zeros after the decimals from each row of the `atomic_mass` column. You may need to adjust a data type to `DECIMAL` for this. The final values they should be are in the `atomic_mass.txt` file

You should add the element with atomic number 9 to your database. Its name is Fluorine, symbol is F, mass is 18.998, melting point is -220, boiling point is -188.1, and it's a nonmetal

You should add the element with atomic number 10 to your database. Its name is Neon, symbol is Ne, mass is 20.18, melting point is -248.6, boiling point is -246.1, and it's a nonmetal

You should create a `periodic_table` folder in the project folder and turn it into a git repository with `git init`

Your repository should have a main branch with all your commits

Your `periodic_table` repo should have at least five commits

You should create an `element.sh` file in your repo folder for the program I want you to make

Your script (`.sh`) file should have executable permissions

If you run `./element.sh`, it should output only Please provide an element as an argument. and finish running.

If you run `./element.sh 1`, `./element.sh H`, or `./element.sh Hydrogen`, it should output only The element with atomic number 1 is Hydrogen (H). It's a nonmetal, with a mass of 1.008 amu. Hydrogen has a melting point of -259.1 celsius and a boiling point of -252.9 celsius.

If you run `./element.sh script` with another element as input, you should get the same output but with information associated with the given element.

If the argument input to your `element.sh` script doesn't exist as an `atomic_number`, `symbol`, or `name` in the database, the only output should be I could not find that element in the database.

The message for the first commit in your repo should be Initial commit

The rest of the commit messages should start with `fix:`, `feat:`, `refactor:`, `chore:`, or `test:`

You should delete the non existent element, whose `atomic_number` is 1000, from the two tables

Your `properties` table should not have a `type` column

You should finish your project while on the main branch. Your working tree should be clean and you should not have any uncommitted changes