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:

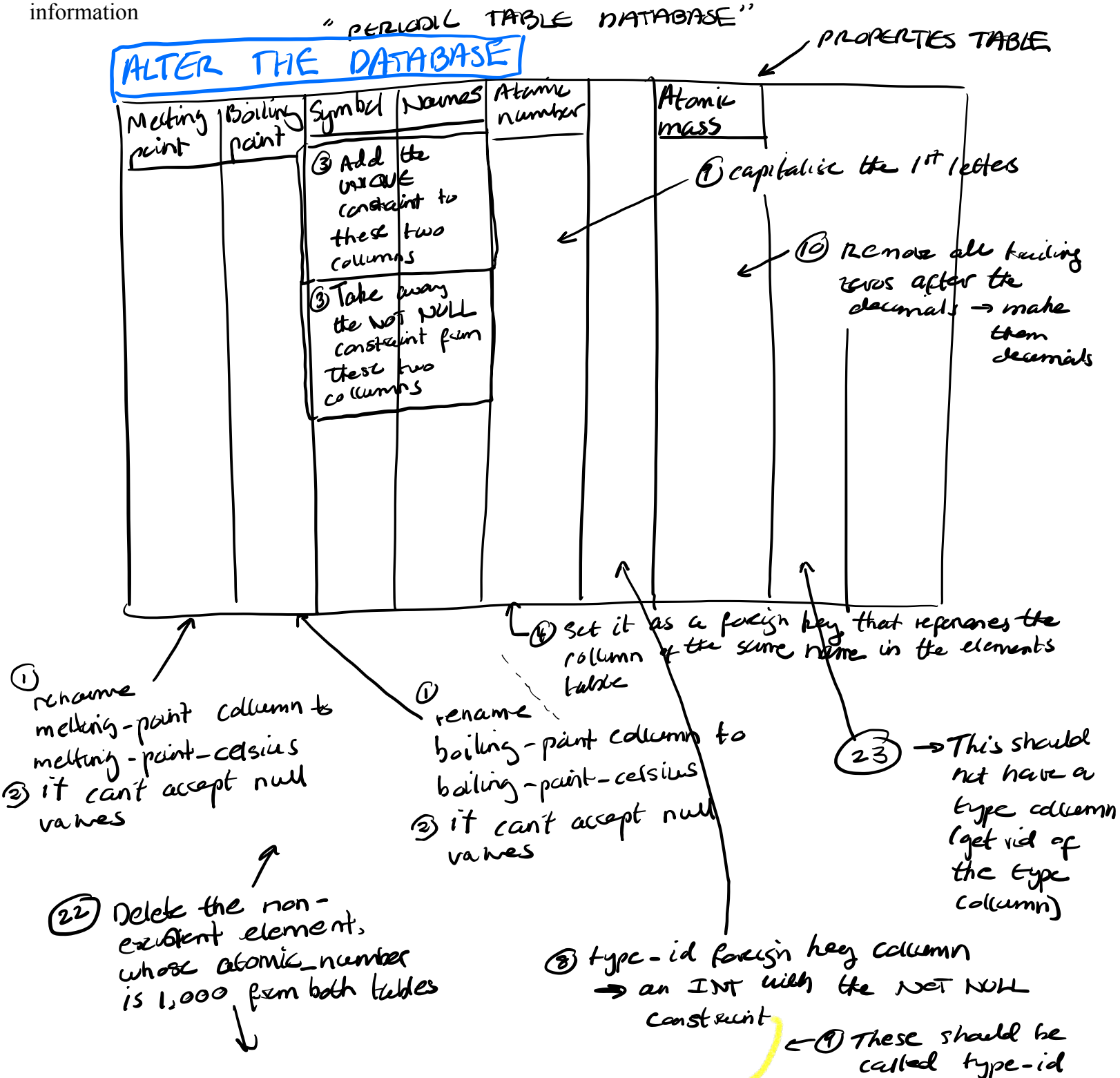
You should delete the non existent element, whose atomic_number is 1000, from the two tables

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

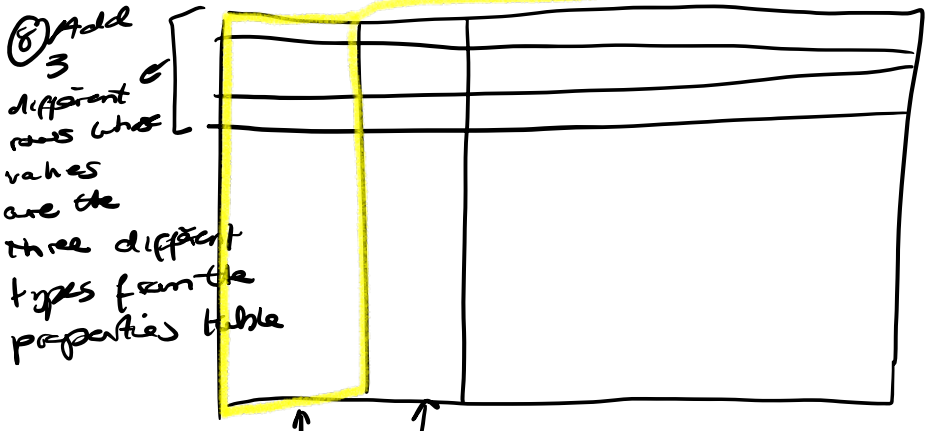
-> periodic table database <- we are given it
-> connect to it using the line in the instructions

Project outline
-> #1 fix the database -> we are changing certain parts of the database
-> make a dump of the database before it is left
-> there is a command for doing this in the project instructions
-> it has to be entered in a terminal which isn't in the virtual machine, or it will be saved elsewhere
-> there is also a command for rebuilding this in the project instructions
-> this has to be entered in a Bash, not psql prompt
-> save the final file and submit it to freeCodeCamp
-> #2 create a git repo -> git init (we are making a bash program); this is to version control the project
-> #3 create the script
-> the argument is the name of the atom
-> the output is information about that atom <- you can create a PSQL variable for querying for this information



values

⑤ Create a TYPES table



⑥ type_id collumn that is an integer and the primary key

⑦ type column → VARCHAR, cannot be null

ADD ELEMENTS TO THE DATABASE

⑪ → Add Flourine to the database → F, nonmetal (type)
→ mass = 18.998
→ melting point = −220
→ boiling point = −188.21

⑫ → Then adding Neon to the database → Ne
→ mass = 20.18
→ melting point = −248.6
→ boiling point = −246.1
→ nonmetal

MAKING A GIT REPOSITORY

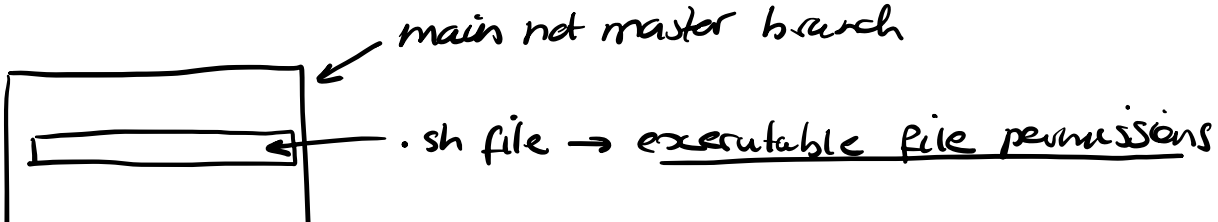
⑬ → create a periodic-table folder → git init it

⑭ → change the branch name from master to main

⑮ → so now we have a repo with commits − at least x 5

⑯ → element.sh file ← using touch

THE PROJECT.SH FILE



periodic-table repository

(17) → you went the output of ./element.sh to be "Please provide an element as an argument"

(18) → TESTING THE PROJECT.SH FILE
- run ./element.sh 1
./element.sh H
./element.sh Hydrogen
→ the outputs should be:
- nonmetal
- H
- mass=1.008 amu
- melting point=-259.1°C
- boiling point=-252.9°C

(19) - with another element as input, you will get the same output but with different information

(20) - if a random element which doesn't exist is entered, it should be "I could not find that element in the database"

the program output

(26) → CHANGING COMMIT HISTORIES
Initial commit
fix: ....
feat: ...
refactor: ...
chore: ...
test: ...

CHANGING THE COMMIT HISTORIES

(24) → finish the project while on the main branch
→ make sure the working tree is clean → so all of the changes have been committed