Emission Database

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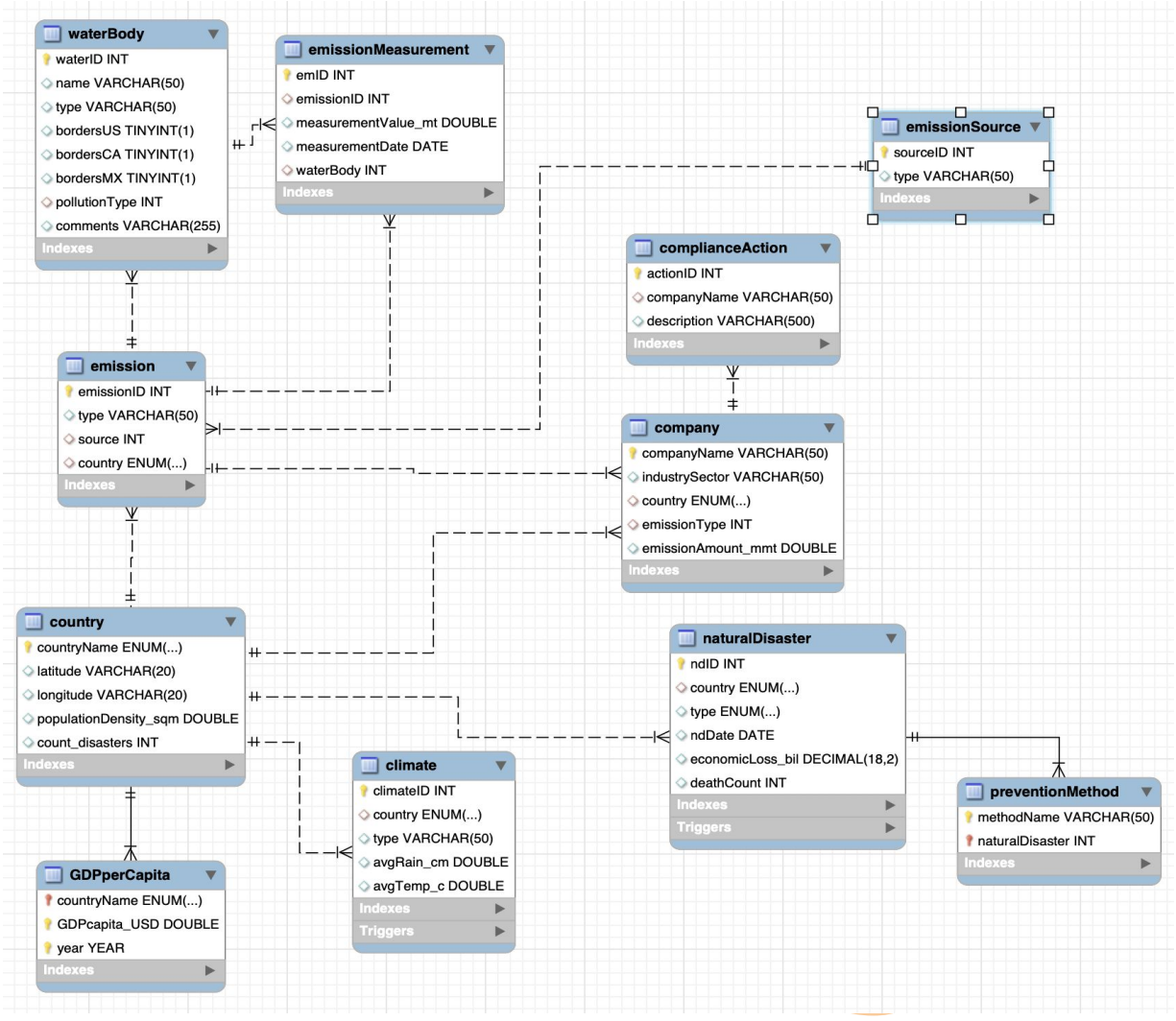
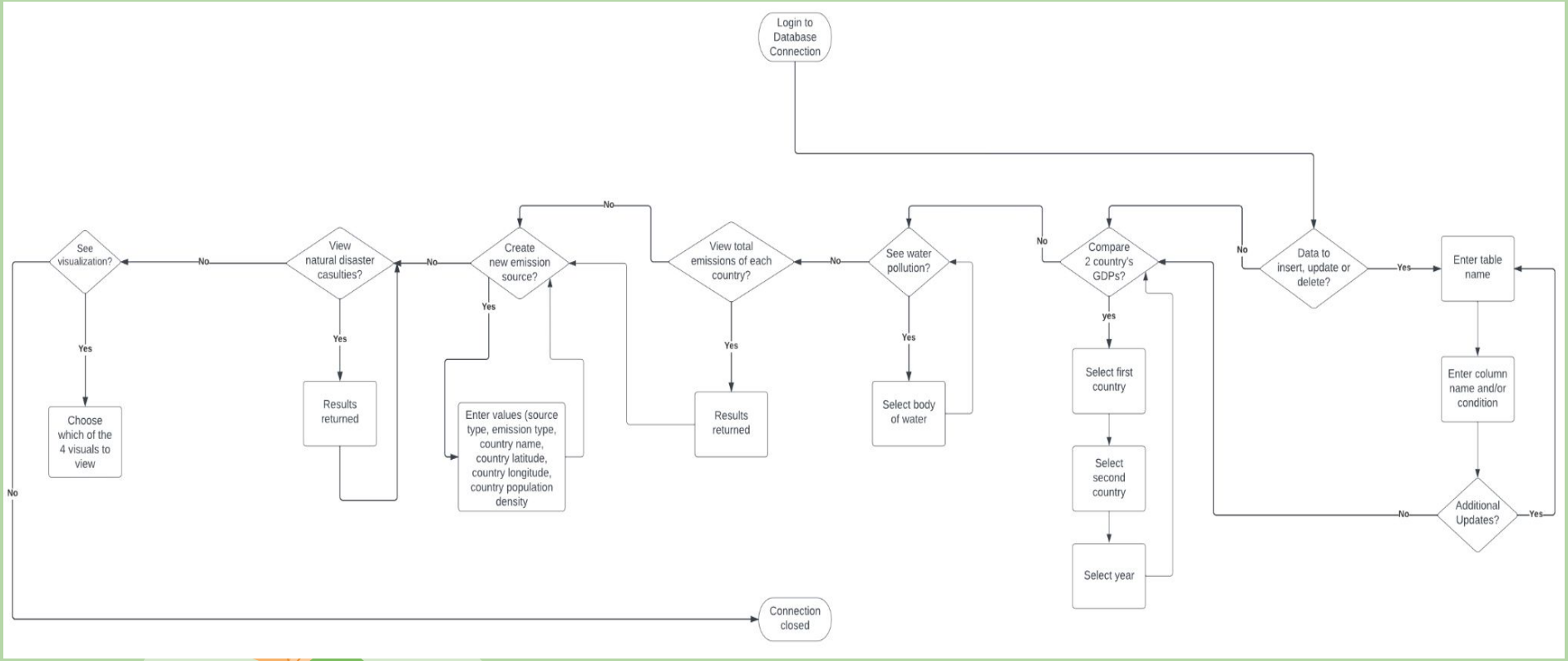
DATABASE SCHEMA

This database was created for students and scientists to view and update climate change data in North American countries. The purpose is to have the most up to date information on changes occurring in these countries.


waterBody
waterID INT
name VARCHAR(50)
type VARCHAR(50)
bordersUS TINYINT(1)
bordersCA TINYINT(1)
bordersMX TINYINT(1)
pollutionType INT
comments VARCHAR(255)
Indexes
emissionMeasurement
emID INT
emissionID INT
measurementValue_mt DOUBLE
measurementDate DATE
waterBody INT
Indexes
emissionSource
sourceID INT
type VARCHAR(50)
Indexes
complianceAction
actionID INT
companyName VARCHAR(50)
description VARCHAR(500)
Indexes
emission
emissionID INT
type VARCHAR(50)
source INT
country ENUM(...)
Indexes
company
companyName VARCHAR(50)
industrySector VARCHAR(50)
country ENUM(...)
emissionType INT
emissionAmount_mmt DOUBLE
Indexes
country
countryName ENUM(...)
latitude VARCHAR(20)
longitude VARCHAR(20)
populationDensity_sqm DOUBLE
count_disasters INT
Indexes
naturalDisaster
ndID INT
country ENUM(...)
type ENUM(...)
ndDate DATE
economicLoss_bil DECIMAL(18,2)
deathCount INT
Indexes
Triggers
preventionMethod
methodName VARCHAR(50)
naturalDisaster INT
Indexes
climate
climateID INT
country ENUM(...)
type VARCHAR(50)
avgRain_cm DOUBLE
avgTemp_c DOUBLE
Indexes
Triggers
GDPperCapita
countryName ENUM(...)
GDPcapita_USD DOUBLE
year YEAR
Indexes

Database Application Flow Diagram

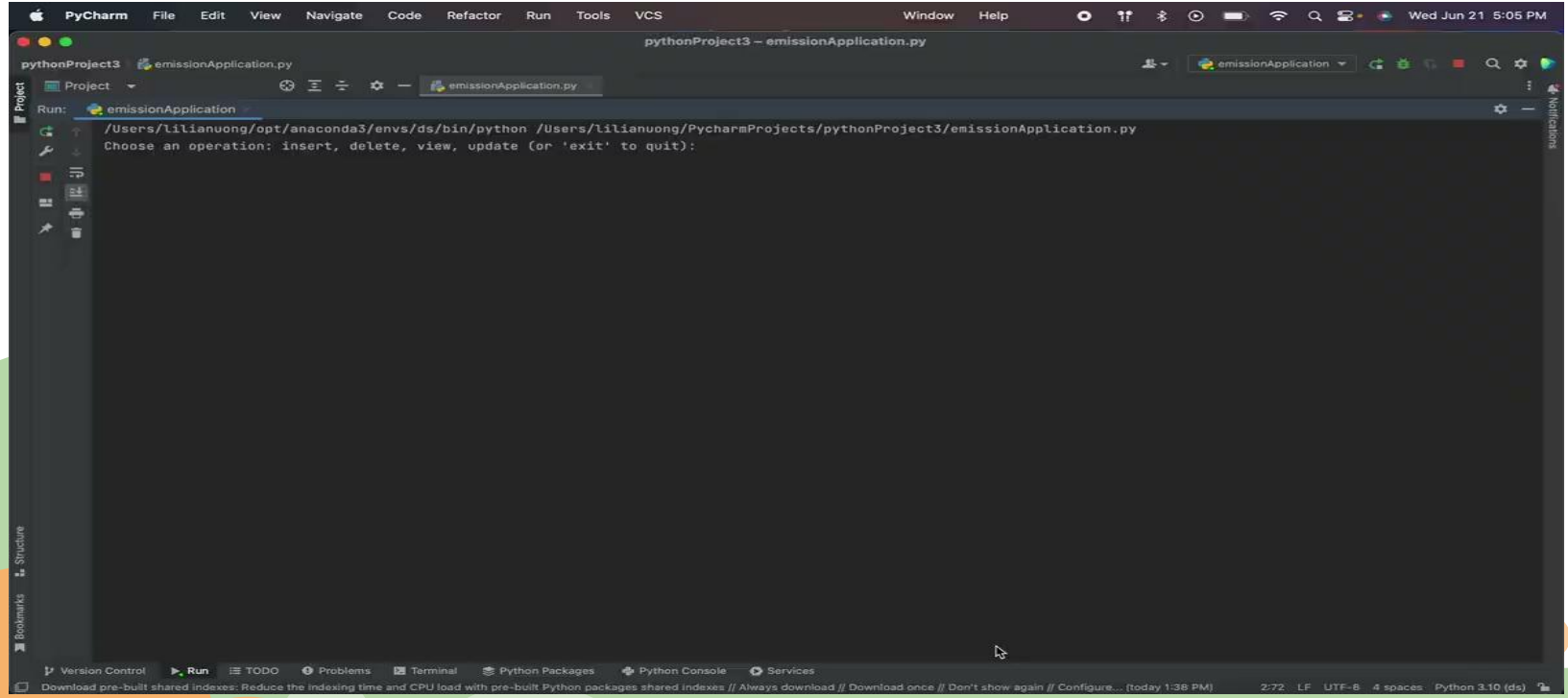


Database Application Description

1. User inputs their MySQL username and password.
2. User has a choice to insert, delete, view, or update the database or none of the above.
3. User will then be asked if they want to compare two countries' GDPs.
    a. If the user says yes, they will be asked to input the name of the two countries and the year in which they want to compare GDPs.
4. If not, then the user will be asked if they want to see how many times a body of water has been polluted.
    a. If the user says yes, they will be asked which body of water they want to view.
5. If not, then the user will be asked if they want to see each country's total emissions.
    a. If the user says yes, a table will be returned.
6. If not, then user will be asked if they want to create an emission source.
    a. If the user says yes they will be asked the information they want to input.
7. If not, then the user will be asked if they want to see the casualties from each natural disaster.
    a. If the user says yes, a table will be returned.
8. If not, the user will be asked if they want to see a visualization of the data
    a. If the user says yes, they will be asked which of 4 visuals they want to see
9. If not, then the application will end and the connection will close.

CRUD Demonstration 1: INSERT INTO ...

CRUD Demonstration 2: DELETE THE PREVIOUSLY INSERTED VALUE



CRUD Demonstration 3: READ VALUES IN A TABLE

CONCLUSION

- The significance of our database is to keep track of connections and comparisons between data
- Rightfully representing and storing data to show a country's climate impact
- Expanding the database to more countries: global
- More tables to represent additional climate change causes