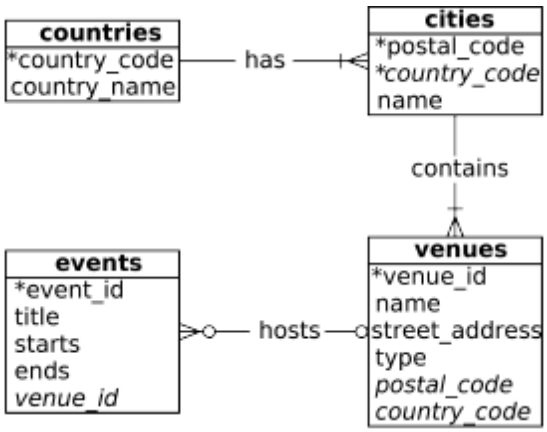
ECE:5995 Modern Databases – Fall 2023

Homework 3 – Relational databases – Postgresql – CRUD via a Menu Interface Due Wednesday Oct 4, 2023 @ 11:59pm.

Task 0. In your **homework** schema execute the hw3.sql file to recreate and populate the countries, cities, venues, and events tables from lecture (review lec02-lec05 if you want to revisit what we did in class).

Task 1. The goal of this assignment is to become comfortable connecting a database to an application. You need to create an application that lets a user interact and manage the following tables from our in- class example:



The interface you design does not need to look polished or be complex (a command line interface will do), but it must take input from the user and execute the desired query (and handle errors/exceptions related to the input or what a query execution returns – possible query error due to constraints we imposed on the attributes).

You may use the language of your choice, but we suggest Java or Python. Your first step should be to connect your Postgresql database to your application (there are many resources online that walk you through this process). Here are a few helpful links:

Python - https://www.postgresqltutorial.com/postgresql-python/connect/
Java - https://www.postgresqltutorial.com/postgresql-jdbc/connecting-to-postgresql-database/

You will need the server address (host and port number), database, a username, and a password to connect to the server –
Server address is: **s-l112.engr.uiowa.edu**
Port: **5432**

The database name should be hardcoded, and it is the same as your username: studentXX
To protect your privacy, we have provided a credentials.txt file to store your username and password locally (DO NOT SUBMIT THIS FILE). We will use our own credentials file. Locally,

replace the first line with your username and the second line with your password. Use this file to read in the username and password credentials. DO NOT HARDCODE YOUR USERNAME AND PASSWORD.

Print a message after successful connection to your Postresql database.

Task 2. Once your database is connected, the next step is to design your menu interface. As mentioned above, this can be a command line interface. Unless explicitly stated, you should NOT add any additional constraints to the database but you are welcome to define views or functions if convenient. Your interface should handle errors/database messages and communicate these to the user within the program. If an error is encountered your program should prompt the user with a decision on what to do next (re-enter query, exit to main, etc)

Your menu interface should have the following functionality:

- List all the countries
- Search for/select a city/cities based on postal code, country code, and/or name
- Add a new city to the cities table
- Update a city name, country code, and/or postal code
- Delete a city

Task 3: We'll now move on to adding some venue functionality. Before adding to the menu, we're going to add a few things to our database:

1.) Create an inactive attribute in the venues table that acts as a flag indicating whether a venue is active or not.

2.) Create a rule for the venues table – instead of deleting the venue(s) this rule will set the active flag to false and the venue information will persist in the table.

After making the above changes, we can now add to our menu. Please add the following functionality:

- List all the active venues given a country code
- List of the inactive venues
- Delete a venue using the venue name (NOTE: it may be helpful to list all the venues that match your DELETE criteria before proceeding to delete/deactivate these venues to let the user confirm)

Task 4: Lastly, we'll use the add_event procedure we defined in class (which will already be included in your database if you ran the hw3.sql file) to add some functionality. You must

prompt the user for the event information and use the add_event procedure to insert the specified event into the table. Please add the following to the menu:

- Add an event

Submission:
Submit your program file(s) to the dropbox in ICON by **Wednesday Oct 4 @ 11:59pm.**