Database design

CSE3207 Project #1

Assignment Date : April 1, 2025
Due Date : May 4, 2025

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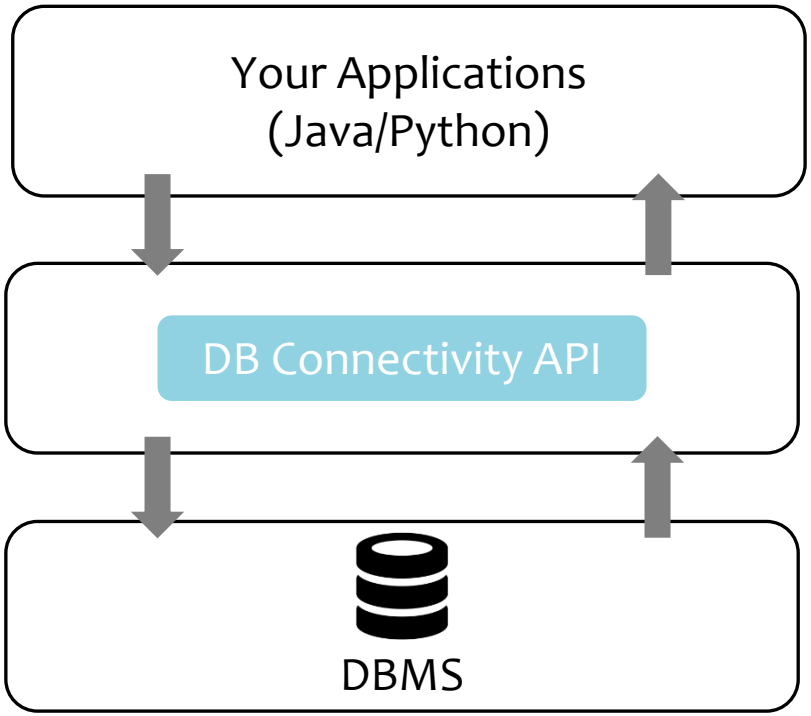
Project Description

- You'll make a code on Java/Python to control the DBMS



Project Description

- Translate given statements into SQLs and process the query using your application
  - Initial data input
  - Insert award data
  - Insert reservation data
  - Insert rating data
  - Select statements
  - Update statements
  - Delete statements

(See project specification)

Project Description

- You need to design database for Restaurant
- You need to design 12 tables in DB

restaurant(restaurantID, restaurantName, location, establishedYear, avgRate)

dish(dishID, dishName, price, cuisineType, isSeasonal)

chef(chefID, chefName, specialty, dateOfBirth)

cook(dishID, chefID)

serve(restaurantID, dishID)

work(restaurantID, chefID)

customer(customerID, customerName, dateOfBirth, preference)

review(customerID, restaurantID, rating, comment, reviewDate)

award(awardID, awardName)

restaurantObtain(restaurantID, awardID, year)

chefObtain(chefID, awardID, year)

reservation(restaurantID, customerID, reservationDate, numberOfPeople)

Project Description

- Initial data

Restaurant				
Name	**Chef**	**Dish**	**Location**	**Established Year**
Ember & Thyme	Luca Romano	Truffle Tagliatelle	Montreal	2001
		Pistachio Pesto Pici		
La Mer Bleue	Luca Romano	Truffle Tagliatelle	London	1998
		Saffron Seafood Paella		
Basilico	Mei Tanaka	Yuzu Glazed Chicken Skewers	Osaka	2005
		Grilled Lemongrass Tofu		
The Hidden Fork	Gabriel Lefevre	Duck with Orange Reduction	Athens	2010
		Cajun Butter Shrimp		
Saffron Garden	Hana Kim	Citrus-Marinated Sashimi	Seoul	2003
		Cold Buckwheat Noodle Stack		

Dish			
Name	**Price**	**Cuisine Type**	**IsSeasonal**
Truffle Tagliatelle	200	Italian	False
Pistachio Pesto Pici	100	Mediterranean	True
Saffron Seafood Paella	130	Spanish	False
Yuzu Glazed Chicken Skewers	245	Japanese	True
Grilled Lemongrass Tofu	270	Vietnamese	True
Duck with Orange Reduction	420	French	False
Cajun Butter Shrimp	380	Cajun	False
Citrus-Marinated Sashimi	145	Japanese	True
Cold Buckwheat Noodle Stack	450	Korean	True

Chef		
Name	**Specialty**	**Date of Birth**
Luca Romano	Pasta Making	1972.4.25
Mei Tanaka	Grilling	1965.8.12
Gabriel Lefevre	Sauce Crafting	1988.10.28
Hana Kim	Knife Work	1983.3.3

Customer		
Name	**Date of Birth**	**Preference**
Olivia Chen	1992.05.14	Vegetarian
Brian Kim	1988.10.25	Meat Lover
Chloe Park	1992.04.09	Spicy Lover
Daniel Choi	1980.12.01	Low-Carb
Emily Han	1999.03.20	Pasta Lover
James Yoo	1974.07.07	Gluten-Free
Grace Jung	2002.01.16	Seafood Enthusiast
Kevin Lim	1990.08.30	Dairy-Free
Rachel Song	1985.11.14	Vegan
Thomas Shin	1968.05.03	Anything with Cheese

Project Description

Queries

1. Create the tables and insert the proper data based on the provided data. You should make the restaurant, chef, dish, and customer tables first and insert data into other related tables.
2. Insert the proper data from the following statements.
    - 2.1. Mei Tanaka won the “Best Grilling Performance” award in 2021
    - 2.2. Gabriel Lefevre won the “Best Italian Cuisine” award in 2015
    - 2.3. The restaurant Ember & Thyme won the “Best Interior Design” award in 2003
    - 2.4. Hana Kim won the “Best Baking Technique” award in 2014 and the “Chef of the Year” award in 2020
    - 2.5. The restaurant La Mer Bleue won the “Best Pasta Restaurant” award in 2016
    - 2.6. The restaurant The Hidden Fork won the “Best Fusion Menu” award in 2018
    - 2.7. Kevin Lim made a reservation for 2 people at Saffron Garden on December 1st, 2024.
    - 2.8. Grace Jung made a reservation for one person at The Hidden Fork on November 8th, 2023.
3. Insert data to the proper tables based on the following statements and update avgRate if necessary.
    - 3.1 Brian Kim rates 5 to “Ember & Thyme”.
    - 3.2 Daniel Choi rates 5 to the restaurants where the chef is “Luca Romano”.
    - 3.3 Emily Han rates 3 to the restaurants where the chef specializes in Grilling on March 15th, 2025.
    - 3.4 James Yoo rates 4 to the restaurants that serve “Japanese” dishes on March 18th, 2025, leaving the comment “Fresh flavors”.
    - 3.5 Rachel Song rates 4 to the restaurants located in “Montreal” on March 20th, 2025, with the comment “Cozy place”.
4. Select the names of the restaurants where the chef(s)’ specialty is “Sauce Crafting”.
5. Select the names of the chef(s) who work at more than one restaurant.
6. Delete the restaurants established before 2002, along with all related data from other tables.
7. Delete all customers and delete all associated data from related tables.
8. Delete all tables and data.

Project Description

- Output example 1.

```
연결 성공
Table created!
Initial data inserted!

Statement : Winona Ryder won the “Best supporting actor” award in 1994
Translated SQL : SELECT actorID FROM actor WHERE actorName='Winona Ryder'
Translated SQL : INSERT IGNORE INTO award (awardName) VALUES ('Best supporting actor')
Translated SQL : SELECT awardID FROM award WHERE awardName='Best supporting actor'
Translated SQL : INSERT INTO actorObtain  VALUES (2, 1, 1994)
-----< award >-----
                awardID                 awardName
                      1      Best supporting actor
-----< actorObtain >-----
                actorID                   awardID                      year
                      2                         1                      1994

Statement : Andrew Garfield won the “Best supporting actor” award in 2011
Translated SQL : SELECT actorID FROM actor WHERE actorName='Andrew Garfield'
Translated SQL : INSERT IGNORE INTO award (awardName) VALUES ('Best supporting actor')
Translated SQL : SELECT awardID FROM award WHERE awardName='Best supporting actor'
Translated SQL : INSERT INTO actorObtain  VALUES (7, 1, 2011)
-----< award >-----
                awardID                 awardName
                      1      Best supporting actor
-----< actorObtain >-----
                actorID                   awardID                      year
                      2                         1                      1994
                      7                         1                      2011
```

Before run your application, assume that the database is empty

You should show the result for translated insert/deletes/updates queries and all the updated tables for each statement

Project Description

- Output example 2.

```
Statement: Winona Ryder won the “Best supporting actor” award in 1994
Translated SQL: INSERT into award values('1', 'Best supporting actor')
Updated Tables
award table
+-----------------------------
|awardID        |awardName
|1              |Best supporting actor

Translated SQL: INSERT into actorObtain values('2', '1', 1994)
Updated Tables
actorObtain table
+-----------------------------------
|actorID        |awardID        |year
|2              |1              |1994
```

Project Description

- **Rules in project**

  (if you don't follow this, you can have penalty)

  1. Programming Languages: JAVA / Python
  2. DBMS: PostgreSQL (mandatory)
  3. You should use DB connector by JDBC(or psycopg2)
  4. **DBMS setting**
     - Database name: **project_restaurant**
     - Root id: **postgres** // Password: **cse3207**
     - Port: **5432**
     - Tables are should be named as project specification
     - Database should be installed at localhost
  5. Recommend full variable name

     not recommended: name, pw, htn

     recommend: username, db_password, hostNumber

Environmental Setting

- **Grading environment** (I'll run & check your code on following environment)
  - OS : Windows 11 (64-bit)
  - Java version: OpenJDK 11 / Python version: Python 3.7
  - PostgreSQL: 17.4
  - PostgreSQL JDBC: 4.2 Driver (42.7.5)

⚠ Please ensure that all filenames, table names, and column names use the correct capitalization.

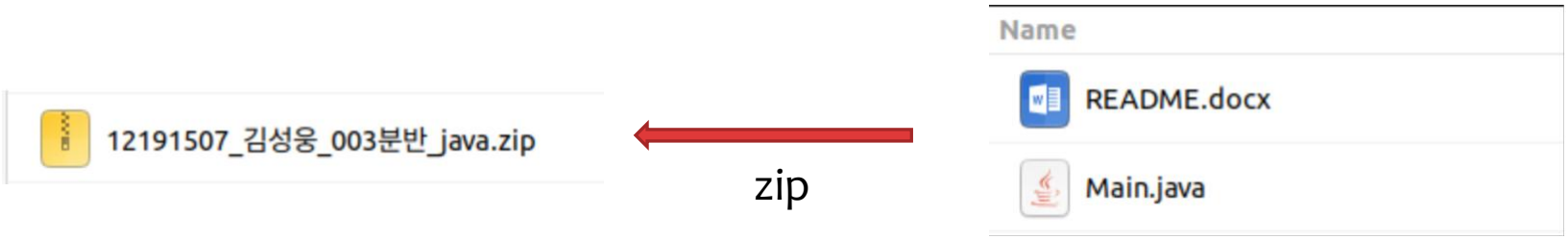
Submission

- To the I-Class website
- Upload a zip file containing the followings:
  - All the source files and execution file
  - **README.doc explaining**:
    - What you've implemented and what you've NOT
    - Brief explanation of your implementation
      (Do not try to make it look fancy, less than 1 page)
    - How to compile and run
    - Result display for all queries
    - Talk about your experience of doing this project
    - Contact information (just in case)

Submission

- **Your submission ZIP file must have only:**
  - Java source code (you should submit only one source code file)
  - README.doc

  Example :



Do NOT include other module except main.java (main.py)

Submission Form: **학번_이름_분반_언어.zip**

Environmental Setting

1. Install postgreSQL

   (https://www.postgresql.org/download/)
2. Set DBMS
3. Install JDBC (in Java)

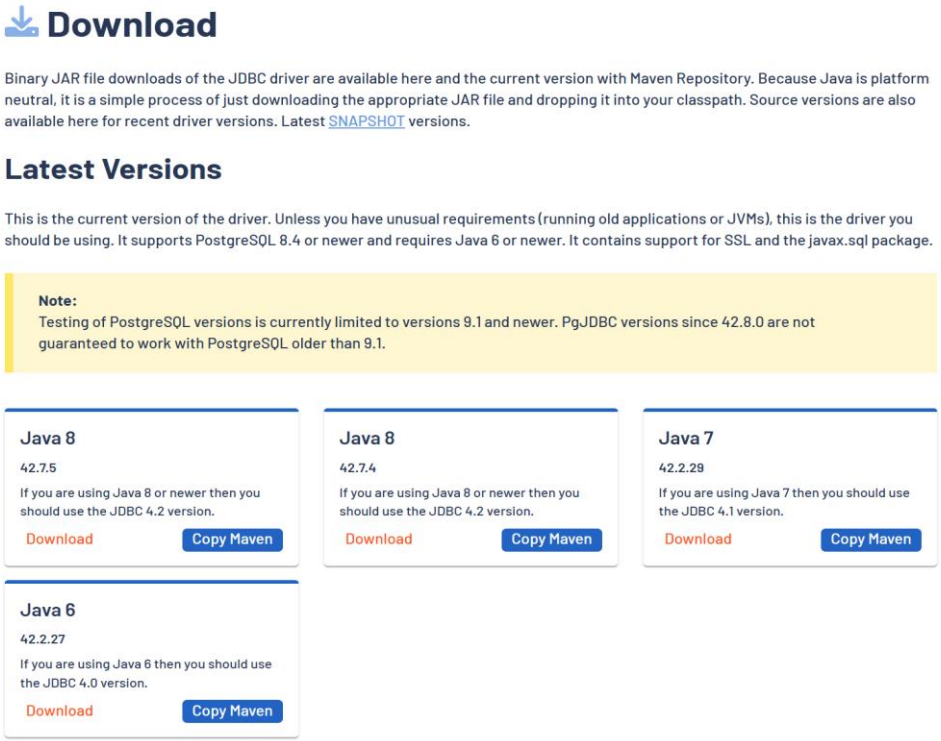
   (https://jdbc.postgresql.org/download/)
4. Set JDBC (in java)
5. Check DB connection on IDLE (Eclipse or Intellij etc…)

Environmental Setting

- **DBMS setting** (You **must** follow below setting!)
  - Database name: **project_restaurant**
  - Root id: **postgres**
  - Password: **cse3207**
  - Port: **5432**
  - Host: **localhost (127.0.0.1)**

2. Install JDBC (Java)

1. Go to https://jdbc.postgresql.org/download/
2. Download and unzip file



2. Install JDBC (Java)

3. Prepare '**postgresql-42.7.5.jar**' file
4. Add library in JAVA idle

In eclipse, Properties – Java Build Path – Libraries – Add External JARs

In IntelliJ, Project Structure – Libraries – click + button – Java – find jar file

5. test DB connection in Java Idle

2. Install JDBC (Java)

Test code

```
import java.sql.*;

public class Main {
   public static void main(String[] args) throws Exception {
      try {
         Class.forName("org.postgresql.Driver");
      } catch (ClassNotFoundException e) {
         System.out.println("Where is your PostgreSQL JDBC Driver? Include in your library path!");
         e.printStackTrace();
         return;
      }
      System.out.println("PostgreSQL JDBC Driver Registered!");
      /// if you have a error in this part, check jdbc driver(.jar file)

      Connection connection = null;

      try {
         connection = DriverManager.getConnection(
               "jdbc:postgresql://127.0.0.1:5432/project_restaurant", "postgres", "cse3207");
      } catch (SQLException e) {
         System.out.println("Connection Failed! Check output console");
         e.printStackTrace();
         return;
      }
      /// if you have a error in this part, check DB information (db_name, user name, password)

      if (connection != null) {
         System.out.println(connection);
         System.out.println("You made it, take control your database now!");
      } else {
         System.out.println("Failed to make connection!");
      }
      ////////////////////////////////////////////////////
      ////////// write your code on this ////////////
      ////////////////////////////////////////////////////
      connection.close();
   }
}
```

Environmental Setting

Recommended: Google may know everything, google it first plz…!

If you have any problems, after trying to solve it through google, you still can't solve it, then please feel free to contact me ☺

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