ENSF_607_Assignment3_Exercise1

ER Diagram:

Student	
PK	**StudentId**
	FirstName
	LastName
	Location

Registration	
PK	**RegistrationId**
FK	StudentId
FK	CourseId

Course	
PK	**CourseId**
	CourseName
	CourseTitle
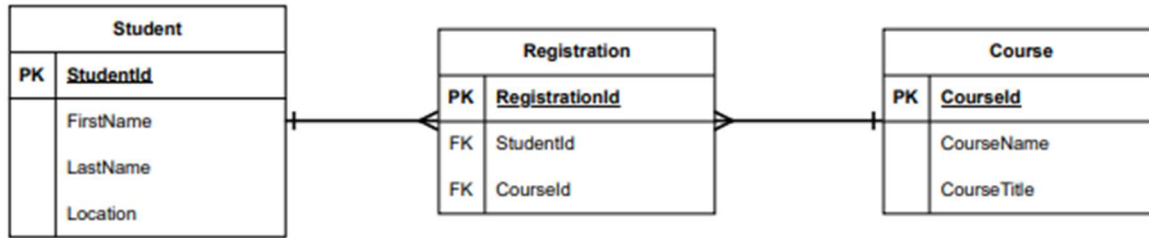
Screen print of database:

```
MySQL 8.1 Command Line Cli    ×    +    ∨

mysql> DESCRIBE registration;
+----------------+--------------+------+-----+---------+-------+
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| RegistrationId | varchar(10)  | NO   | PRI | NULL    |       |
| CourseId       | varchar(10)  | YES  | MUL | NULL    |       |
| StudentId      | varchar(10)  | YES  | MUL | NULL    |       |
+----------------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESCRIBE student;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| StudentId | varchar(10)  | NO   | PRI | NULL    |       |
| FirstName | varchar(50)  | YES  |     | NULL    |       |
| LastName  | varchar(50)  | YES  |     | NULL    |       |
| Location  | varchar(100) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> DESCRIBE course;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| CourseId    | varchar(10)  | NO   | PRI | NULL    |       |
| CourseName  | varchar(50)  | YES  |     | NULL    |       |
| CourseTitle | varchar(50)  | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql> ;
ERROR:
No query specified

mysql>
mysql>
mysql>
mysql>
```

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```
mysql> SELECT *FROM course
    -> ;
+----------+------------+-------------+
| CourseId | CourseName | CourseTitle |
+----------+------------+-------------+
| c1       | Math       | Academic    |
| c2       | Science    | Academic    |
| c3       | History    | Academic    |
| c4       | Gym        | Sports      |
| c5       | Careers    | Business    |
| c6       | French     | Languages   |
| c7       | Spanish    | Languages   |
| c8       | English    | Languages   |
| c9       | Business   | Business    |
+----------+------------+-------------+
9 rows in set (0.00 sec)

mysql> SELECT *FROM student
    -> ;
+-----------+-----------+-----------+-------------------+
| StudentId | FirstName | LastName  | Location          |
+-----------+-----------+-----------+-------------------+
| 1         | Jeremy    | Sugimoto  | London, ON        |
| 2         | Matt      | Defilippo | Waterloo, ON      |
| 3         | John      | Smith     | Calgary,AB        |
| 4         | Jim       | Carey     | Medicine Hat, AB  |
| 5         | Ron       | Burgandy  | Pickering, ON     |
| 6         | Gi-E      | Thang     | Calgary ,AB       |
| 7         | Shadman   | Sajd      | Calgary, AB       |
| 8         | Ryan      | Reynolds  | Vancouver, BC     |
+-----------+-----------+-----------+-------------------+
8 rows in set (0.00 sec)

mysql> SELECT *FROM registration;
+----------------+----------+-----------+
| RegistrationId | CourseId | StudentId |
+----------------+----------+-----------+
| R1             | C1       | 1         |
| R10            | C2       | 8         |
| R2             | C1       | 2         |
| R3             | C1       | 3         |
| R4             | C1       | 4         |
| R5             | C2       | 1         |
| R6             | C2       | 5         |
| R7             | C2       | 6         |
| R8             | C7       | 8         |
| R9             | C8       | 8         |
+----------------+----------+-----------+
10 rows in set (0.00 sec)

mysql>
```

Screen print of JDBC Install:
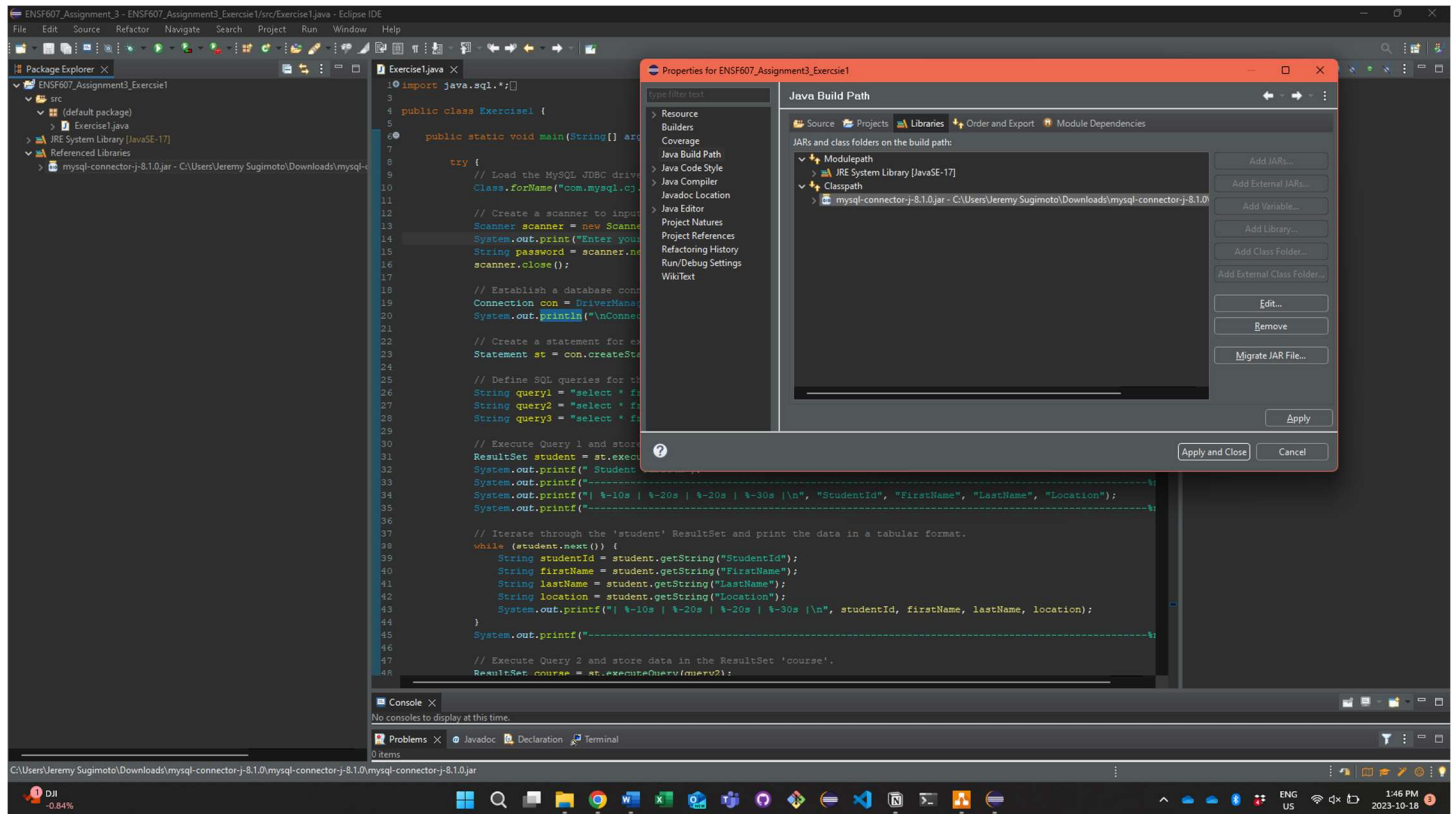
Commented Source Code:

import java.sql.*;

import java.util.*;

public class Exercise1 {

    public static void main(String[] args) throws SQLException {

        try {

            // Load the MySQL JDBC driver.

            Class.forName("com.mysql.cj.jdbc.Driver");

            // Create a scanner to input the database password.

            Scanner scanner = new Scanner(System.in);

            System.out.print("Enter your Password: ");

            String password = scanner.next();

            scanner.close();

```java
// Establish a database connection with the provided URL, username, and password.
Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/student_database", "root", password);
System.out.println("\nConnection Established successfully\n");


// Create a statement for executing SQL queries.
Statement st = con.createStatement();


// Define SQL queries for the three tables.
String query1 = "select * from student";
String query2 = "select * from course";
String query3 = "select * from registration";


// Execute Query 1 and store data in the ResultSet 'student'.
ResultSet student = st.executeQuery(query1);
System.out.printf(" Student Table\n");
System.out.printf("--------------------------------------------------------------------------------------------%n");
System.out.printf("| %-10s | %-20s | %-20s | %-30s |\n", "StudentId", "FirstName", "LastName", "Location");
System.out.printf("--------------------------------------------------------------------------------------------%n");


// Iterate through the 'student' ResultSet and print the data in a tabular format.
while (student.next()) {
    String studentId = student.getString("StudentId");
    String firstName = student.getString("FirstName");
    String lastName = student.getString("LastName");
    String location = student.getString("Location");
    System.out.printf("| %-10s | %-20s | %-20s | %-30s |\n", studentId, firstName, lastName, location);
}
System.out.printf("--------------------------------------------------------------------------------------------%n\n");


// Execute Query 2 and store data in the ResultSet 'course'.
ResultSet course = st.executeQuery(query2);
System.out.printf(" Course Table\n");
System.out.printf("----------------------------------------------------------------\n");
```

```java
System.out.printf("| %-10s | %-20s | %-20s |\n", "CourseId", "CourseName", "CourseTitle");
System.out.printf("-----------------------------------------------------------\n");


// Iterate through the 'course' ResultSet and print the data in a tabular format.
while (course.next()) {
    String courseId = course.getString("CourseId");
    String courseName = course.getString("CourseName");
    String courseTitle = course.getString("CourseTitle");
    System.out.printf("| %-10s | %-20s | %-20s |\n", courseId, courseName, courseTitle);
}
System.out.printf("-----------------------------------------------------------\n");


// Execute Query 3 and store data in the ResultSet 'registration'.
ResultSet registration = st.executeQuery(query3);
System.out.printf(" Registration Table\n");
System.out.printf("---------------------------------------\n");
System.out.printf("| %-10s | %-10s | %-10s |\n", "RegistrationId", "CourseId", "StudentId");
System.out.printf("---------------------------------------\n");


// Iterate through the 'registration' ResultSet and print the data in a tabular format.
while (registration.next()) {
    String registrationId = registration.getString("RegistrationId");
    String courseId = registration.getString("CourseId");
    String studentId = registration.getString("StudentId");
    System.out.printf("| %-10s | %-10s | %-10s |\n", registrationId, courseId, studentId);
}
System.out.printf("---------------------------------------\n\n");


// Close the database connection.
con.close();


System.out.println("Query executed...");
```

```
        } catch (Exception e) {

            // Handle any exceptions that may occur during database connection or query execution.

            System.out.println(e);

        }

    }

}
```

Output of 3 Queries:


```
ENSF607_Assignment_3 - ENSF607_Assignment3_Exercsie1/src/Exercise1.java - Eclipse IDE
File   Edit   Source   Refactor   Navigate   Search   Project   Run   Window   Help

Console ×
<terminated> Exercise1 [Java Application] C:\Users\Jeremy Sugimoto\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.7.v20230425-1502\jre\bin\
Enter your Password: Kirboidz1999

Connection Established successfully

 Student Table
------------------------------------------------------------------------------------------------
| StudentId  | FirstName        | LastName         | Location             |
------------------------------------------------------------------------------------------------
| 1          | Jeremy           | Sugimoto         | London, ON           |
| 2          | Matt             | Defilippo        | Waterloo, ON         |
| 3          | John             | Smith            | Calgary,AB           |
| 4          | Jim              | Carey            | Medicine Hat, AB     |
| 5          | Ron              | Burgandy         | Pickering, ON        |
| 6          | Gi-E             | Thang            | Calgary ,AB          |
| 7          | Shadman          | Sajd             | Calgary, AB          |
| 8          | Ryan             | Reynolds         | Vancouver, BC        |
------------------------------------------------------------------------------------------------


 Course Table
-----------------------------------------------------------------
| CourseId   | CourseName       | CourseTitle      |
-----------------------------------------------------------------
| c1         | Math             | Academic         |
| c2         | Science          | Academic         |
| c3         | History          | Academic         |
| c4         | Gym              | Sports           |
| c5         | Careers          | Business         |
| c6         | French           | Languages        |
| c7         | Spanish          | Languages        |
| c8         | English          | Languages        |
| c9         | Business         | Business         |
-----------------------------------------------------------------|


 Registration Table
-------------------------------------------------
| CourseId   | CourseName | CourseTitle |
-------------------------------------------------
| R1         | C1         | 1           |
| R10        | C2         | 8           |
| R2         | C1         | 2           |
| R3         | C1         | 3           |
| R4         | C1         | 4           |
| R5         | C2         | 1           |
| R6         | C2         | 5           |
| R7         | C2         | 6           |
| R8         | C7         | 8           |
| R9         | C8         | 8           |
-------------------------------------------------


Query executed...
```

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