**Database build assignment**

**Objective:**  
This assignment builds on your team's database design from the **Architecture and Design Project**. The goal is to implement your design by creating and managing a database in AWS, populating it with test data, and validating its functionality. This team project will prepare your group for subsequent development activities by ensuring the database is fully operational and aligned with your application’s requirements.

**Assignment Requirements**

1. **Use the Team's Database Design:**
   * Correct your database schema created during the **Architecture** project; ensure it meets third-normal form standards (if necessary).
2. **Create the Database in AWS RDS:**
   * Set up a MySQL database instance in AWS RDS.
   * Create tables based on your team’s schema and establish proper relationships between them.
3. **Load Test Data:**
   * Write an SQL script to populate each table with **realistic test data** based on your application use case.

* **Courses:** At least 5 entries (e.g., INFO 465, MKTG 302).
* **Departments:** At least 2 departments (e.g., Information Systems, Marketing).
* **Students:** At least 10 students.
* **Instructors:** At least 5 instructors.
* **Sessions:** At least 5 rows referencing entries that are in the Courses table, with varying modalities and maximum student capacities.

1. **Functional Testing:**

* Develop **three SQL queries** to validate the database and relationships. Examples:
  + List all students registered for a specific course session.
  + Find all instructors teaching in the Information Systems department.
  + Retrieve the number of available slots in a specific session.
  + Identify students registered for more than one session.

1. **Team Responsibilities** Each team member must contribute meaningfully to the project. Roles may include:
   * **Database Administrator:** Leads the RDS setup and schema implementation.
   * **Data Engineer:** Writes the SQL scripts and populates the database with test data.
   * **Quality Assurance (QA) Analyst:** Designs and executes the test queries to validate functionality.
   * **Project Manager:** Coordinates team activities and ensures timely submission of deliverables.
2. **Deliverables:**
   * **Database Schema:** Refine and submit your final Entity-Relationship (ER) diagram, incorporating any adjustments made during implementation.
   * **SQL Script:** Provide a .sql file with the scripts to create the schema and populate the database with test data.
   * **Query Results:** Document the results of your test queries. Include the SQL commands and screenshots of the query outputs.
   * **Database Endpoint:** Provide the AWS RDS endpoint URL for instructor verification. (Credentials should not be shared; this is for demonstration purposes.)
   * Include a **team contribution summary** in your submission, outlining each member’s role and contributions.

**Submission Instructions**

* Compress your team’s deliverables into a single .zip file.

**Resources:**

* INFO 300 exercises to build a database, run a script, install MySQL table: [Database Build](https://virginiacommonwealth.instructure.com/courses/113521/files?preview=13410647), [MySQL Install](https://virginiacommonwealth.instructure.com/courses/113521/files?preview=13410648)
* MySQL create tables syntax reference: [MySQL Create Tables](https://dev.mysql.com/doc/refman/8.0/en/create-table.html)
* AWS RDS documentation: [AWS RDS](https://docs.aws.amazon.com/rds/)

**Rubric:**

* Design is fully compliant with third normal form: 10 points
* Proper schema implementation: 30 points
* SQL script for test data: 30 points
* Test queries: 20 points
* RDS connection: 5 points
* Team contribution: 5 points