Lab Experiment 6

To demonstrate the implementation of an ERD in SQL

Objectives

- Understanding the Entity-Relationship models and demonstrating the ability to implement in an SQL database.

Introduction

Refer to the lecture notes for understanding the core concepts of entity-relationship models.

For this lab, refer to Fig. 1. that gives all the necessary entities, their attributes and the relationships between them along with cardinality and other optionality.

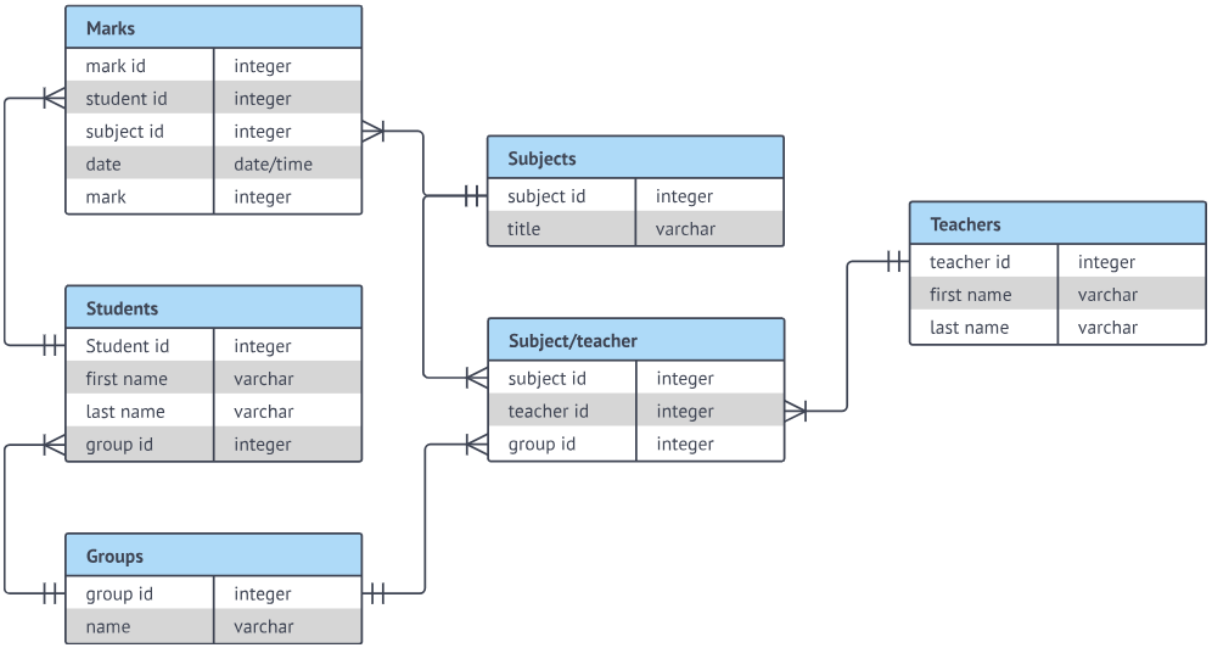

Fig. 1. A basic ER model of a school

Tasks

Task 1: To implement an ERD as per the given requirements, entity sets must be created as provided.

Task 2: Constraints/rules must be specified for all entities as per the relationships in Fig. 1.

Task 3: Populate the data with instances.

Some example subjects to be added: Islamic Studies, Discrete Mathematics, Linear Algebra, Digital Logic Design, Programming Fundamentals, Islamic Studies, Engineering Professionalism, Probability Methods in Engineering, Signals and Systems, Electronic Devices and Circuits, Data Structures and Algorithms, Computer-Aided Engineering Design, Control Systems, Data Communication and Computer Networks, Microprocessor Systems and Interfacing, Software Engineering Concepts, French, Business Communication Workshop, Internet of Things, VLSI Design, Digital Image Processing, Game Development, Machine Learning, Computer Architecture, Entrepreneurship

Teachers to be added:

Mr. Usman Rafiq, Dr. Jehangir Arshad, Mr. Modassir Ishfaq, Dr. Imran Ahmed, Dr. Arsla Khan, Mr. Ahmad Mudassir, Dr. Zaid Ahmed, Ms. Wajeeha Khan, Mr. Moazzam Ali Sahi, Dr. Muhammad Jawad, Dr. Mirza Tariq Humayun, Dr. Muhammad Jawad, Dr. Abbas Javed, Dr. Bilal Zafar Amin, Ms. Hina Munir, Dr. Muhammad Naeem Awais, Dr. Ikram Ullah Khosa, Dr. Sobia Baig

Groups: BCE,BEE-P, BEE-E, BEE-T

Task 4: Analyze your implementation and see if the rules are implemented appropriately for all entities.

Task 5: Retrieve the name of all students and teachers (Hint: Union operator)

Task 6: Retrieve the name of all students of BCE group.

Task 7: Retrieve the name of all teachers who taught the students of BEE-E group.

Task 8: Retrieve the name of all students & subject name who were registered in any subject taught by Dr. Abbas Javed

Task 9: Supposedly, there is a student named Ali. Retrieve all subjects studied by Ali.

Task 10: Building upon the previous task, retrieve the obtained marks too

Task 11: Continuing from the previous task, retrieve the teachers along with the previous details as well.

Task 12: Retrieve the name of all subjects taught by Dr. Arsla Khan

Task 13: Retrieve the name of students who are part of BEE-T group

Task 14: Retrieve the name of teachers who are not teaching any subject

Task 15: Retrieve the name of students along with their grades for the subjects that were taught by Dr. Zaid Ahmed

Rubric for Lab Assessment

The student performance for the assigned task during the lab session was:			
Excellent	The student completed assigned tasks without any help from the instructor and showed the results appropriately.	4	
Good	The student completed assigned tasks with minimal help from the instructor and showed the results appropriately.	3	
Average	The student could not complete all assigned tasks and showed partial results.	2	
Worst	The student did not complete assigned tasks.	1	

Instructor Signature: _____ Date: _____