



كلية تكنولوجيا الصناعة والطاقة



Information Technology Department  
2<sup>nd</sup> Year



جامعة برج العرب التكنولوجية  
BORG AL ARAB TECHNOLOGICAL UNIVERSITY

جامعه برج

العرب التكنولوجيه

Course: Intoduction to DB  
Semester: 1<sup>st</sup> term 2025/2026

Lecturers: Dr Nehal lazaly, Dr Dina Abdelhafiz

Assignment 4: SQL commands

## Assignment 4: Understanding One-to-One and One-to-Many Relationships in SQL

### Assignment Tasks:

1. Create SQL Tables:
  - Create the tables for the one-to-one relationship (person and passport).
  - Create the tables for the one-to-many relationship (student, course, and enrollment).
2. Insert Example Data:
  - Insert example records into the person and passport tables.
  - Insert example records into the student, course, and enrollment tables.
3. Demonstrate the Relationships:
  - Write SQL queries (use select command) to demonstrate the relationships:
    - One-to-One: Show how one person is linked to their passport.
    - One-to-Many: Show how a student is enrolled in multiple courses.

Show all your quires in a pdf formate and submit to LMS.

### 1. One-to-One Relationship:

We have Person and Passport. A person can have only one passport, and each passport is linked to exactly one person. We will model this relationship using two tables: 'person' and 'passport'.

Person Table :

Column Name	Data Type	Description
'person_id'	'INT'	A unique identifier for each person (Primary Key).
'name'	'VARCHAR(100)'	The name of the person.
'birthdate'	'DATE'	The birthdate of the person.

2. Passport Table :

Column Name	Data Type	Description
'passport_id'	'INT'	A unique identifier for each passport (Primary Key).
'person_id'	'INT'	The 'person_id' from the 'person' table (Foreign Key)
'passport_number'	'VARCHAR(20)'	The passport number.
'issue_date'	'DATE'	The date the passport was issued.
'expiry_date'	'DATE'	The expiry date of the passport.

Primary Key: 'passport\_id'

Foreign Key: 'person\_id' references 'person(person\_id)'

The relationship between the two tables is one-to-one: a person can have only one passport, and each passport is uniquely associated with one person.



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## 2. One-to-Many Relationship:

We have two tables: Author and Book. One author can write multiple books, but each book is written by only one author. We will model this one-to-many relationship using these two tables.

Author Table:

Column Name	Data Type	Description
author_id	INT	A unique identifier for each author (Primary Key).
name	VARCHAR(100)	The name of the author.
birthdate	DATE	The birthdate of the author.

Primary Key: author\_id

Book Table:

Column Name	Data Type	Description
book_id	INT	A unique identifier for each book (Primary Key).
author_id	INT	The author_id from the author table (Foreign Key).
title	VARCHAR(200)	The title of the book.
publication_year	YEAR	The year the book was published.

Primary Key: book\_id

Foreign Key: author\_id references author(author\_id)

The relationship between the two tables is one-to-many: one author can write multiple books, but each book is written by only one author.