Practical 11 – Subquery

Objectives of this practical

- To formulate subqueries
- To use subqueries as an alternative to JOINs
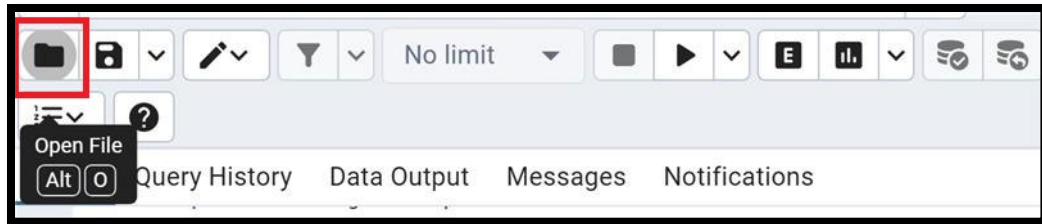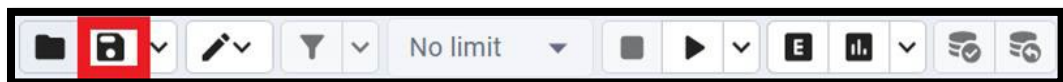
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BrightSpace Submission

You are required to **submit** your answers for the **MCQ Section** & **all parts of Section A Question 1.**
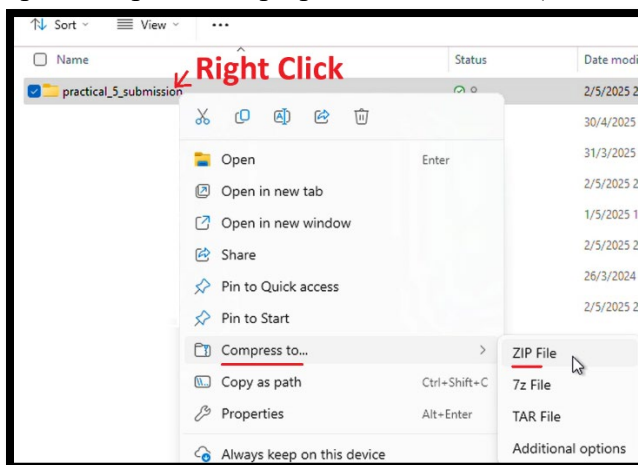
- Download the practical_11_submission.zip from BrightSpace.
- **Unzip** the zip file. There will be a root folder with the necessary files.
- Do **NOT** rename the file's name or file's extension.
- **Use** the files **directly,** do not create copies.
- Fill the answers to the MCQs using the **mcq.xlsx file**.
- Fill the sql query to each question using the provided **.sql files**.
- Input **only one** statement for each .sql file.
  - You can open the .sql file directly in PgAdmin using the Query Tool

To save the file:

- Upon completion, zip up the **root folder**. (Do not zip at any higher-level folder)

- Submit the zip file on BrightSpace using the submission link.
- Download your submission to **check that the correct** folder and contents had been submitted.

MCQ Section

1. What is a subquery in SQL?
   a) A query that modifies data
   b) A query inside another query
   c) A query that joins two tables
   d) A stored procedure

2. Which keyword is used when a subquery returns multiple rows?
   a) =
   b) IN
   c) LIKE
   d) EXISTS

3. What is the output of this query?

    SELECT name FROM departments
    WHERE id NOT IN (SELECT dept_id FROM employees);

    a) Departments with employees
    b) All departments
    c) Departments with no employees
    d) Employee names

Section A: Subqueries
Scalar Subquery

1.
    a)

	List the admission number, the name of the student who scored above average for DBMS module. Display their DBMS marks and grade, sorted in descending order of mark.

	adm_no character	stud_name character varying (30)	mark integer	grade character
1	A007	Adeline	88	A
2	A004	Mike	80	A

    b)

List the admission number, the name of the student who scored above the average mark of other students (exclude own marks) for JPRG module.   Display their JPRG marks and grade, sorted in descending order of mark.   (Hint – Adapt from the query above with some changes)

	adm_no character	stud_name character varying (30)	mark integer	grade character
1	A004	Mike	88	A
2	A007	Adeline	84	A

Table Subquery

2.
    a)

Which departments are led by a female head of department?

	dept_code [PK] character varying (5)	dept_name character varying (100)	hod character	no_of_staff integer	max_staff_strength integer	budget numeric (9,2)	expenditure numeric (9,2)	hod_appt_date date
1	SOC	School of Computing	S001	82	92	90000.00	45000.00	2009-04-01
2	SB	School of Business	S006	86	90	80000.00	88000.00	1996-10-01
3	DPO	Deputy Principal's Office	T002	3	3	6000.00	[null]	[null]

b)

List all information of those modules with pre-requisites.

	mod_code [PK] character varying (10)	mod_name character varying (100)	credit_unit integer	mod_coord character
1	AIP	Accounting Informatics Project	4	S018
2	AIS	Accounting Information System	4	S019
3	CRM	Customer Relationship Managem…	3	S019
4	DM	Data Mining	4	S018
5	SAD	Software Application Development	8	S020
6	SDT	Software Development Technique	5	S019

c)

Which departments have more than 5 full-time staff, and among them, how many staff members earn more than $5,000 in each department? [Hint] Consider an inner query for "Which departments have more than 5 full-time staff".

	dept_name character varying (100)	Number of staff whose pay > $5000 bigint
1	School of Computing	4