FINAL EXAM

Course: MIS 443 - Business Data Management

Lecturer: Mr. Doan

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Link Github: https://github.com/pgthaotran/MIS-443---Q2-2025-2026-.git

Quarter 2, 2025-2026

Question 1 (10 marks): Create a database named "yourfullname" (e.g: nguyenvana") using PGAdmin, then create a schema name "cd" that has three tables: members, bookings and facilities using SQL statements. Ensure each table includes appropriate primary and foreign keys, and data types.
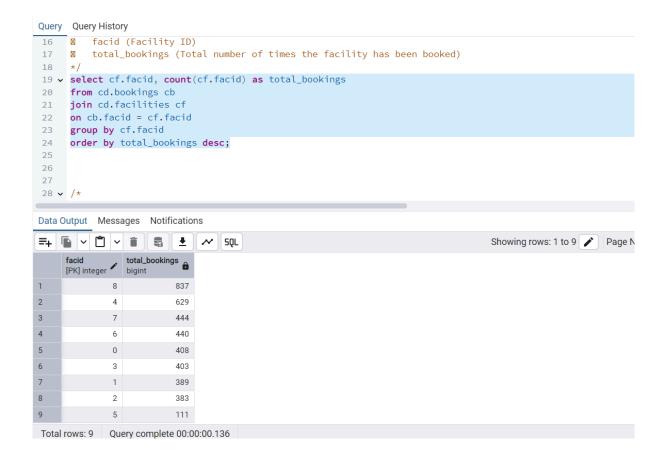
Question 2 (10 marks): Write an SQL query to count the total number of bookings for each facility, ordered by the highest number of bookings first.

Expected Output Columns:

facid (Facility ID)

total_bookings (Total number of times the facility has been booked)

Query   Query History

```
16   ⊠    facid (Facility ID)
17   ⊠    total_bookings (Total number of times the facility has been booked)
18   */
19 ∨ select cf.facid, count(cf.facid) as total_bookings
20   from cd.bookings cb
21   join cd.facilities cf
22   on cb.facid = cf.facid
23   group by cf.facid
24   order by total_bookings desc;
25
26
27
28 ∨ /*
```

Data Output   Messages   Notifications

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	facid [PK] integer ✎	total_bookings 🔒 bigint
1	8	837
2	4	629
3	7	444
4	6	440
5	0	408
6	3	403
7	1	389
8	2	383
9	5	111

Total rows: 9   Query complete 00:00:00.136

Question 3 (20 marks): Write an SQL query to display all bookings with the member ID and facility name, ordered by the booking start time.

Expected Output Columns:

bookid (Booking ID)

memid (Member ID)

facility_name (Facility Name)

starttime (Booking Start Time)

slots (Number of Slots)

Question 4 (20 marks): Write an SQL query to display each member and their total number of bookings, ensuring that members who have never made a booking are also included.

Expected Output Columns:

memid (Member ID)

member_name (Member Name)

total_bookings (Total number of bookings)

Notes: Using a Common Table Expression (CTE) will get 100% (normal 90%)

Query   Query History

```
57    Notes: Using a Common Table Expression (CTE) will get 100% (normal 90%)
58    */
59
60  ∨ with MemberBookingCount as (
61    select cm.memid, concat(cm.firstname, ' ', cm.surname) member_name, count(distinct cb.bookid) total_bookings
62    from cd.members cm
63    left join cd.bookings cb on cm.memid = cb.memid
64    group by cm.memid, concat(cm.firstname, ' ', cm.surname)
65    )
66    select memid, member_name, total_bookings
67    from MemberBookingCount
68    order by total_bookings desc;
69
```

Data Output   Messages   Notifications

Showing rows: 1 to 31 ✏ Page No: 1

	memid [PK] integer	member_name text	total_bookings bigint
1	0	GUEST GUEST	883
2	3	Tim Rownam	408
3	1	Darren Smith	261
4	2	Tracy Smith	210
5	8	Tim Boothe	188
6	6	Burton Tracy	176
7	16	Timothy Baker	166
8	5	Gerald Butters	164
9	4	Janice Joplette	159

Total rows: 31   Query complete 00:00:00.133

Question 5 (20 marks):   Write an SQL query to display all bookings made by guests (non-members), along with the facility name, ordered by the number of slots used in descending order.
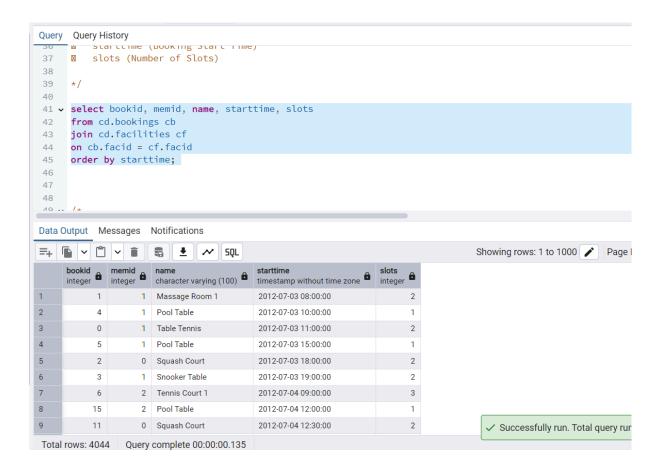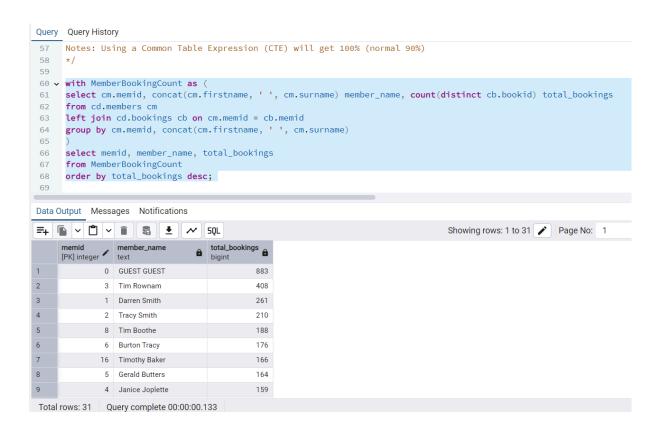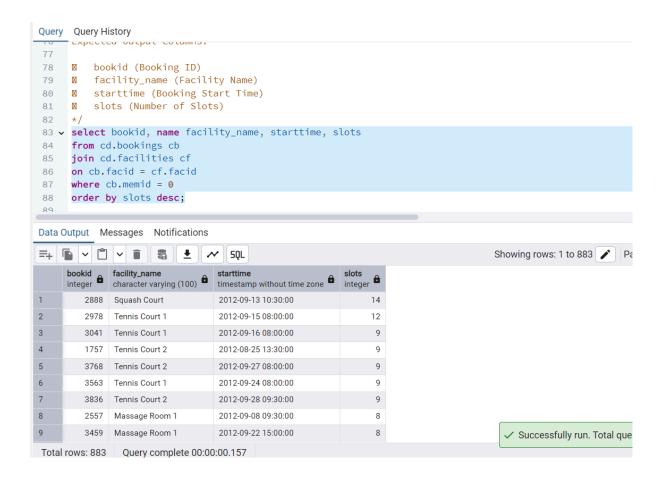
Expected Output Columns:

bookid (Booking ID)

facility_name (Facility Name)

starttime (Booking Start Time)

slots (Number of Slots)

```
77
78    ⌧    bookid (Booking ID)
79    ⌧    facility_name (Facility Name)
80    ⌧    starttime (Booking Start Time)
81    ⌧    slots (Number of Slots)
82    */
83 ∨  select bookid, name facility_name, starttime, slots
84    from cd.bookings cb
85    join cd.facilities cf
86    on cb.facid = cf.facid
87    where cb.memid = 0
88    order by slots desc;
89
```

Data Output   Messages   Notifications

Showing rows: 1 to 883

bookid integer	facility_name character varying (100)	starttime timestamp without time zone	slots integer
1	2888	Squash Court	2012-09-13 10:30:00	14
2	2978	Tennis Court 1	2012-09-15 08:00:00	12
3	3041	Tennis Court 1	2012-09-16 08:00:00	9
4	1757	Tennis Court 2	2012-08-25 13:30:00	9
5	3768	Tennis Court 2	2012-09-27 08:00:00	9
6	3563	Tennis Court 1	2012-09-24 08:00:00	9
7	3836	Tennis Court 2	2012-09-28 09:30:00	9
8	2557	Massage Room 1	2012-09-08 09:30:00	8
9	3459	Massage Room 1	2012-09-22 15:00:00	8

✓ Successfully run. Total que

Total rows: 883   Query complete 00:00:00.157

Question 6 (20 marks): Write an SQL query to rank members based on their largest single booking (most slots in one booking), displaying their rank alongside their largest booking. If multiple members have the same largest booking, they should have the same rank (use Window fuction)

Expected Output Columns:

memid (Member ID)

member_name (Member Name)

max_slots (Largest Single Booking by Slots)

rank (Rank Based on Max Slots)

```
 98   ▧    member_name (Member Name)
 99   ▧    max_slots (Largest Single Booking by Slots)
100   ▧    rank (Rank Based on Max Slots)
101  */
102 ∨ select cm.memid, concat (cm.firstname, ' ', cm.surname) member_name, max(cb.slots) max_slots,
103  dense_rank() over (order by max(cb.slots) desc) rank
104  from cd.members cm
105  join cd.bookings cb on cm.memid = cb.memid
106  group by cm.memid, member_name
107  order by rank;
108
109
110
```

Data Output   Messages   Notifications

Showing rows: 1 to 30

	memid [PK] integer	member_name text	max_slots integer	rank bigint
1	0	GUEST GUEST	14	1
2	1	Darren Smith	9	2
3	7	Nancy Dare	9	2
4	8	Tim Boothe	9	2
5	10	Charles Owen	6	3
6	24	Ramnaresh Sarwin	6	3
7	29	Henry Worthington-Smyth	6	3
8	16	Timothy Baker	6	3
9	11	David Jones	6	3

✓ Successfully run. Total qu

Total rows: 30   Query complete 00:00:00.154