

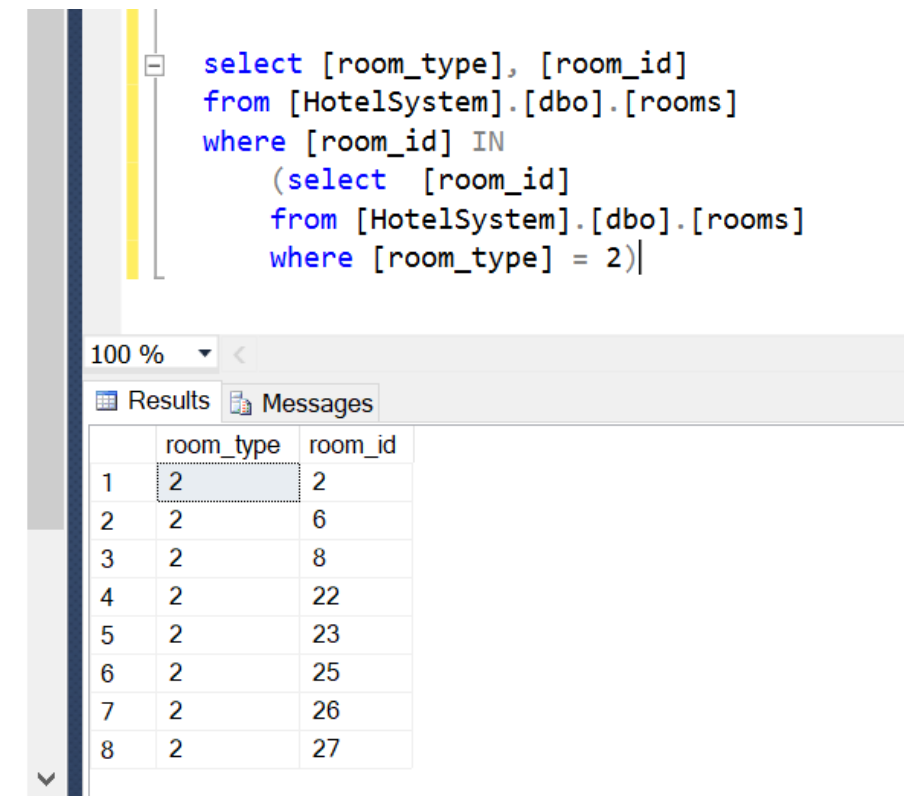
Assignment 10: SQL Subqueries

Subquery Fundamentals:

A subquery is also called an inner query or inner select, while the statement containing a subquery is also called an outer query or outer select. A subquery is a query that is nested inside a SELECT, INSERT, UPDATE, or DELETE statement, or inside another subquery. A subquery can be nested inside the WHERE or HAVING clause of an outer SELECT, INSERT, UPDATE, or DELETE statement, or inside another subquery. Up to 32 levels of nesting is possible, although the limit varies based on available memory and the complexity of other expressions in the query.

If a table appears only in a subquery and not in the outer query, then columns from that table cannot be included in the output (the select list of the outer query).

- **returning Room Number corresponding to their room type (Self adjoining) using SUB-QUERY**



The screenshot displays a SQL query window with a subquery. The query selects room_type and room_id from the HotelSystem.dbo.rooms table, filtering for room_id values found in a subquery that selects room_id from the same table where room_type is 2. Below the query window, the 'Results' tab shows the output of the query, which is a table with 8 rows. The first row is highlighted, showing room_type 2 and room_id 2.

```
select [room_type], [room_id]
from [HotelSystem].[dbo].[rooms]
where [room_id] IN
      (select [room_id]
       from [HotelSystem].[dbo].[rooms]
       where [room_type] = 2)
```

| | room_type | room_id |
|---|-----------|---------|
| 1 | 2 | 2 |
| 2 | 2 | 6 |
| 3 | 2 | 8 |
| 4 | 2 | 22 |
| 5 | 2 | 23 |
| 6 | 2 | 25 |
| 7 | 2 | 26 |
| 8 | 2 | 27 |

- Same query using INNER JOIN

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```

select [room_type], [room_id]
from [HotelSystem].[dbo].[rooms]
where [room_id] IN
    (select [room_id]
     from [HotelSystem].[dbo].[rooms]
     where [room_type] = 2)
--
select e1.[room_type], e1.[room_id]
from [HotelSystem].[dbo].[rooms]AS e1
INNER JOIN [HotelSystem].[dbo].[rooms]AS e2
ON e1.[room_id]=e2.[room_id]
AND e2.room_type = 2

```

100 %

Results Messages

| | room_type | room_id |
|---|-----------|---------|
| 1 | 2 | 2 |
| 2 | 2 | 6 |
| 3 | 2 | 8 |
| 4 | 2 | 22 |
| 5 | 2 | 23 |
| 6 | 2 | 25 |
| 7 | 2 | 26 |
| 8 | 2 | 27 |

- Sub-query with aliases and using condition

```

select e1.[roomNumber], e1.[reserve_id]
from [HotelSystem].[dbo].[reservation] AS e1
where e1.[reserve_id] IN
    (Select e2.[reserve_id]
     from [HotelSystem].[dbo].[reservation]AS e2
     where e2.[roomNumber] =7)

```

100 %

Results Messages

| | roomNumber | reserve_id |
|---|------------|------------|
| 1 | 7 | 36 |

- Returning name of customer who stay in Pakistan's branch

```
select fname, country
from [HotelSystem].[dbo].[Client]
where id IN
(select id
from [HotelSystem].[dbo].[Client]
where country= 'Pakistan');
```

70 %

Results Messages

| | fname | country |
|----|----------|----------|
| 1 | Yumna | Pakistan |
| 2 | Iqra | pakistan |
| 3 | Abdul | Pakistan |
| 4 | Abdul | Pakistan |
| 5 | Muhammad | pakistan |
| 6 | Umme | Pakistan |
| 7 | Bahaddur | Pakistan |
| 8 | Amir | Pakistan |
| 9 | Abid | Pakistan |
| 10 | Bilal | Pakistan |
| 11 | Saad | Pakistan |
| 12 | Muhammad | Pakistan |
| 13 | Muhammad | Pakistan |
| 14 | Muhammad | Pakistan |
| 15 | Muhammad | Pakistan |
| 16 | Muhammad | Pakistan |
| 17 | Muhammad | Pakistan |

- Using Multiple-tables (client and reservation) return name from client table from USA branch and from reservation table using condition.

```

select lname
from [HotelSystem].[dbo].[Client]
where country = 'USA'
AND id IN
    (select id
     from [HotelSystem].[dbo].[reservation]
     where roomNumber >= 5)

```

100 %

Results Messages

| | lname |
|---|---------|
| 1 | faisal |
| 2 | Mateen |
| 3 | tauqeer |
| 4 | vazir |

- Using INNER JOIN with Aliases

```

--
select distinct fname AS [Customer Name]
from [HotelSystem].[dbo].[Client] AS c
INNER JOIN [HotelSystem].[dbo].[reservation] AS r
ON c.id = r.id
where country = 'Pakistan'
AND roomNumber >= 1;

```

100 %

Results Messages

| | Customer Name |
|---|---------------|
| 1 | Abdul |
| 2 | Abid |
| 3 | Iqra |
| 4 | Muhammad |
| 5 | Nehal |
| 6 | Wajiha |
| 7 | Yumna |

- Using nested sub-query of select and from

```
--  
select fname AS Name, country  
from [HotelSystem].[dbo].[Client]  
where id NOT IN  
    (select id  
     from [HotelSystem].[dbo].[reservation]  
     where country = 'Pakistan'  
     OR country = 'Turkey'  
     OR country = 'India')
```

100 %

Results Messages

| | Name | country |
|---|---------|----------|
| 1 | Yumna | Pakistan |
| 2 | wajiha | karachi |
| 3 | hamza | Turkey |
| 4 | warisha | canada |
| 5 | Sidra | usa |
| 6 | Sana | usa |
| 7 | Mahnoor | Germany |

✓ Query executed successfully.

- using room category table for returning average price + using 3 nested SELECT query

```
select label, price,  
       (select AVG(price)|  
        from [HotelSystem].[dbo].[room_cat])AS Average,  
       price-(select AVG (price)  
              from [HotelSystem].[dbo].[room_cat])  
           AS Difference  
from [HotelSystem].[dbo].[room_cat]
```

100 %

Results Messages

| | label | price | Average | Difference |
|---|--------------------|-------|---------|------------|
| 1 | single | 1000 | 5111 | -4111 |
| 2 | Double | 2000 | 5111 | -3111 |
| 3 | family | 3000 | 5111 | -2111 |
| 4 | suite | 5000 | 5111 | -111 |
| 5 | Double double room | 6000 | 5111 | 889 |
| 6 | twin room | 4000 | 5111 | -1111 |
| 7 | Duplex | 7000 | 5111 | 1889 |
| 8 | Hospitality room | 10000 | 5111 | 4889 |
| 9 | cabana | 8000 | 5111 | 2889 |

✓ Query executed successfully.