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Information Technology

T5616SN

DATABASE

Subqueries

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1 Subqueries

A subquery is a complete SELECT statement embedded within another SELECT statement. The results of this *inner* SELECT statement (or *subselect*) are used in the outer statement to help determine the contents of the final results. A subselect can be used in the WHERE and HAVING clauses of an outer SELECT statement, where it is called a *subquery* or *nested query*. There are three types of subquery:

- A *scalar subquery* returns a single column and a single row, that is, a single value (Listing 1).
- A *row subquery* returns multiple columns, but only a single row.
- A *table subquery* returns multiple columns and multiple rows. A table subquery can be used as an operand for the IN predicate.

```
SELECT staffNo, fName, lName, position
FROM Staff
WHERE branchNo =(SELECT branchNo
            FROM Branch
            WHERE street = '163 Main St' );
```

Listing 1: A scalar subquery

We can think of the subquery as producing a temporary table with results that can be accessed and used by the outer statement. The subquery itself is always enclosed in parentheses.

2 Practical part

1. Show the branch where Ann works as well as the Street and City of that Branch.

```
SELECT City, Street
FROM Branch
WHERE BranchId = (SELECT BranchId
                  FROM Staff
                  WHERE FirstName='Ann');
```

2. Show any Staff who works in the branch at '32 Manse Road' and only those whose position is 'Assistant' in that same branch.

```
SELECT FirstName,FamilyName
FROM Staff
WHERE BranchId = (SELECT Id
                     FROM Branch
                     WHERE Street = '32 Manse Road')
        AND Position = 'Assistant';
```

3. Show the owner of the property for rent at address 'Slippery Lane 16'.

```
SELECT FirstName,FamilyName
FROM PrivateOwner
WHERE Id = (SELECT PrivateOwnerId
            FROM PropertyForRent
            WHERE Street = 'Slippery Lane 16');
```

4. List the names of all clients who have viewed a property at 15th of June.

```
SELECT FirstName,FamilyName
FROM Client
WHERE Id IN (SELECT ClientId
            FROM Viewing
            WHERE ViewDate = '2018-06-15');
```

5. List the names of all clients who have viewed a property at 15th of June or at 16th of June.

```
SELECT FirstName,FamilyName
FROM Client
WHERE Id IN (SELECT ClientId
            FROM Viewing
            WHERE ViewDate = '2018-06-15' OR ViewDate = '2018-06-16');
```

6. List the name of all clients who has viewed a property at 15th of June and who did not give any comments.

```
SELECT FirstName,FamilyName
FROM Client
WHERE Id IN (SELECT ClientId
            FROM Viewing
            WHERE ViewDate='2018-06-15' AND CommentsGiven IS NULL)
```

7. Show the name of a staff member who manages property for rent at '8 Naval Drive'.

```
SELECT FirstName,FamilyName
FROM Staff
WHERE Id = (SELECT PrivateOwnerId
            FROM PropertyForRent
            WHERE Street = '8 Naval Drive');
```

8. Find the names of all clients who have viewed Flats.

```
SELECT FirstName,FamilyName
FROM Client
WHERE Id IN (SELECT ClientId
            FROM Viewing
            WHERE PropertyForRentId IN (SELECT Id
                                        FROM PropertyForRent
                                        WHERE TypeOfProperty = 'Flat'));
```