

## Nested Queries

It is possible to nest sub-queries in queries. This can be done in the WHERE, HAVING, and FROM clauses. Let's look at one in the WHERE clause:

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```
mysql> SELECT * FROM Students;
+-----+-----+-----+
| SID | SName          | NumCredits |
+-----+-----+-----+
|  1  | Elmer Fudd     |         48 |
|  2  | Roger Ramjet   |         20 |
|  3  | Alice Wonderland |         72 |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT * from Students S
-> WHERE S.SID NOT IN
-> (SELECT SID FROM Students WHERE SName LIKE 'Roger%');
+-----+-----+-----+
| SID | SName          | NumCredits |
+-----+-----+-----+
|  1  | Elmer Fudd     |         48 |
|  3  | Alice Wonderland |         72 |
+-----+-----+-----+
2 rows in set (0.02 sec)

mysql>
```

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In this example, we have used the subquery in the where clause to create a second relation that is used for set difference. You can also put one in the FROM clause.

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```
mysql> SELECT * FROM
-> (SELECT SName, E.ClassID, Grade
-> FROM Students S, Enrolled E
-> WHERE S.SID = E.SID) as ST;
+-----+-----+-----+
| SName          | ClassID | Grade |
+-----+-----+-----+
| Elmer Fudd     | CS314   | NULL  |
| Elmer Fudd     | CS575   | NULL  |
| Roger Ramjet   | CS575   | NULL  |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

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And finally, you can put one in the HAVING clause.

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```
mysql> SELECT Count(*)
-> FROM Students S, Enrolled E
-> WHERE (S.SID = E.SID)
-> GROUP BY ClassID
-> HAVING ClassID in
-> (SELECT DISTINCT E1.ClassID FROM Enrolled E1
-> WHERE E1.ClassID LIKE 'CS5%');
```

```
+-----+
| Count(*) |
+-----+
|          2 |
+-----+
1 row in set (0.00 sec)
```

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