Basic SQL Questions

1) Given two tables: departments (id, name), workers (id, name, department\_id)

Create a query to find all departments where nobody works

* 1. Find two alternative ways to write this query
  2. Which option will be better from the performance point of view and why

Answer:

a)

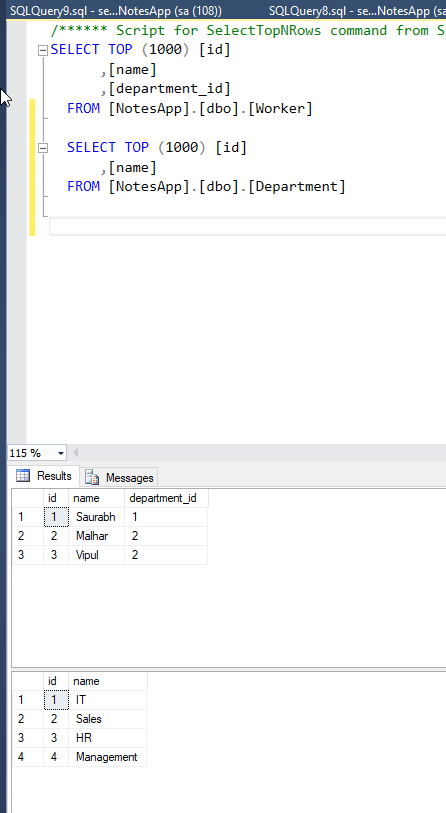
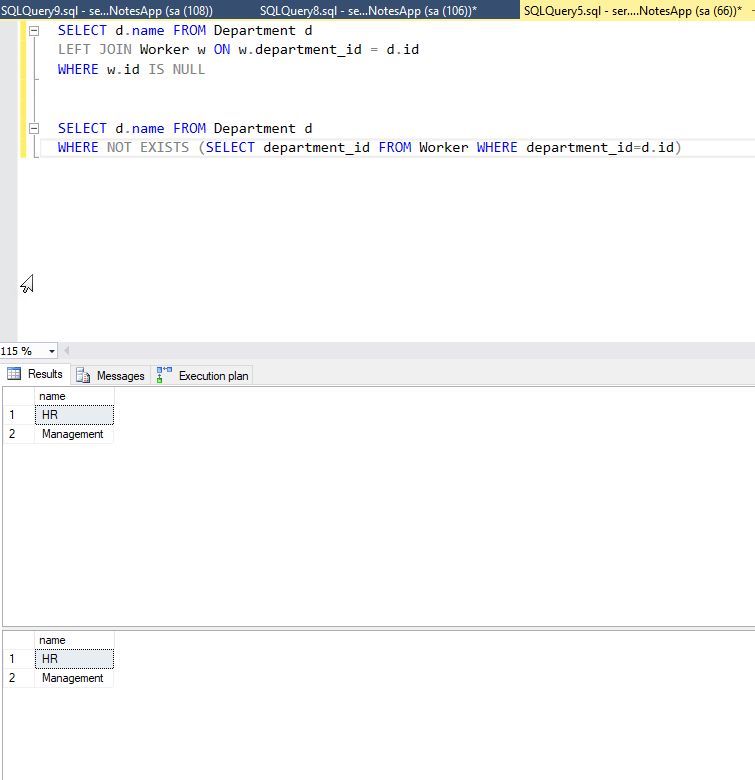
i) SELECT d.name FROM Department d

LEFT JOIN Worker w ON w.department\_id = d.id

WHERE w.id IS NULL

ii) SELECT d.name FROM Department d

WHERE NOT EXISTS (SELECT department\_id FROM Worker WHERE department\_id=d.id)

b) Option 2 will be better for the performance point of view.

Reason: A Left Join will give one row per worker. You'd need DISTINCT. Which compromises the plan compared with NOT EXISTS.

2) Given a following query propose the correct index structure to improve the query performance:

Select top 5 \*  
from t  
where f0=0  
order by f1

Answer:

SELECT \*

FROM

(

SELECT

rn = ROW\_NUMBER() OVER(ORDER BY f1) ,\*

FROM t

WHERE f0=0

) x

WHERE rn < 6

3) Given a table

Create table dbo.detections (

virus\_name varchar(64) not null

, detection\_date datetime not null

, detections\_cnt int not null

)

Create a query to return a last day when the count of detections was maximal and the maximal count of detections (output format virus\_name, min\_date, max\_detections\_count)

Answer:

SELECT [virus\_name]

,MAX(detection\_date) AS min\_date

,MAX(detections\_cnt) AS max\_detections\_count

FROM [NotesApp].[dbo].[detections]

GROUP BY virus\_name

