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181. Employees Earning More Than Their Managers

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The `Employee` table holds all employees including their managers. Every employee has an Id, and there is also a column for the manager Id.

```
+----+-------+--------+-----------+
| Id | Name  | Salary | ManagerId |
+----+-------+--------+-----------+
| 1  | Joe   | 70000  | 3         |
| 2  | Henry | 80000  | 4         |
| 3  | Sam   | 60000  | NULL      |
| 4  | Max   | 90000  | NULL      |
+----+-------+--------+-----------+
```

Given the `Employee` table, write a SQL query that finds out employees who earn more than their managers. For the above table, Joe is the only employee who earns more than his manager.

```
+----------+
| Employee |
+----------+
| Joe      |
+----------+
```

Solution

Approach I: Using `WHERE` clause [Accepted]

Algorithm

As this table has the employee's manager information, we probably need to select information from it twice.

```
SELECT *
FROM Employee AS a, Employee AS b
;
```

> Note: The keyword 'AS' is optional.

Id	Name	Salary	ManagerId	Id	Name	Salary	ManagerId
1	Joe	70000	3	1	Joe	70000	3
2	Henry	80000	4	1	Joe	70000	3
3	Sam	60000		1	Joe	70000	3
4	Max	90000		1	Joe	70000	3
1	Joe	70000	3	2	Henry	80000	4
2	Henry	80000	4	2	Henry	80000	4
3	Sam	60000		2	Henry	80000	4
4	Max	90000		2	Henry	80000	4
1	Joe	70000	3	3	Sam	60000	
2	Henry	80000	4	3	Sam	60000	
3	Sam	60000		3	Sam	60000	
4	Max	90000		3	Sam	60000	
1	Joe	70000	3	4	Max	90000	
2	Henry	80000	4	4	Max	90000	
3	Sam	60000		4	Max	90000	
4	Max	90000		4	Max	90000	

> The first 3 columns are from a and the last 3 ones are from b.

Select from two tables will get the Cartesian product of these two tables. In this case, the output will be 4*4 = 16 records. However, what we interest is the employee's salary higher than his/her manager. So we should add two conditions in a `WHERE` clause like below.

```
SELECT
    a.*
FROM
    Employee AS a,
    Employee AS b
WHERE
    a.ManagerId = b.Id
        AND a.Salary > b.Salary
;
```

Id	Name	Salary	ManagerId	Id	Name	Salary	ManagerId
1	Joe	70000	3	3	Sam	60000	

As we only need to output the employee's name, so we modify the above code a little to get a solution.

MySQL

```
SELECT
    a.Name AS 'Employee'
FROM
    Employee AS a,
    Employee AS b
WHERE
    a.ManagerId = b.Id
        AND a.Salary > b.Salary
;
```

Approach I: Using `JOIN` clause [Accepted]

Algorithm

Actually, `JOIN` is a more common and efficient way to link tables together, and we can use `ON` to specify some conditions.

```
SELECT
      a.NAME AS Employee
FROM Employee AS a JOIN Employee AS b
     ON a.ManagerId = b.Id
     AND a.Salary > b.Salary
;
```

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Ostraiyan ★39 March 14, 2019 4:23 AM Report

```
select E.name as Employee from Employee E
join Employee as M
on E.ManagerId = M.Id
where E.Salary > M.Salary
```

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ren_seragaki ★13 August 23, 2018 10:53 PM

```
SELECT Name As 'Employee'
FROM Employee AS E1
left join
(
SELECT Id, Salary AS M_Salary
```

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nazhenye ★8 June 13, 2018 9:21 AM

```
# Write your MySQL query statement below
SELECT e1.Name as Employee
FROM Employee as e1, Employee as e2
WHERE e1.ManagerId = e2.Id
```

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bushrashahid123 ★36 April 10, 2018 1:41 PM

Select e.name as Employee From Employee e Where e.Salary >(Select e2.Salary from Employee e2 where e2.Id=e.ManagerId)

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HonryLai ★3 May 11, 2019 10:37 PM Report

```
SELECT a.Name as Employee
FROM Employee a,Employee d
WHERE a.ManagerId=d.Id
AND a.salary > d.salary
```

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zongning ★1 May 28, 2019 7:46 AM

```
select a.name as Employee from employee a left join employee b on a.managerid=b.id where a.salary>b.salary
```

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romeroro621 ★0 July 26, 2019 9:59 PM

SQL server solution

```
Select a.Name as Employee
from Employee as a, Employee as b
where a.ManagerId = b.Id and a.Salary > b.Salary
```

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romeroro621 ★0 July 26, 2019 9:57 PM Report

Mysql solution.. without error msg"test.employee doesn't exist"

```
Select a.Name as Employee
from (select * from Employee) a, (select * from Employee) b
where a.ManagerId = b.Id and a.Salary > b.Salary
```

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ahmedhf ★3 May 20, 2019 3:11 PM Report

```
select emp1.Name Employee from Employee emp1 where Salary > ( select Salary from Employee emp2 where emp2.ID=emp1.ManagerId)
```

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user1640 ★4 March 11, 2019 4:08 AM

```
Select Tb.Name as employee
from Employee as Ta
Join employee as Tb
on Ta.Id=Tb.ManagerID
where Tb.salary>Ta.salary
```

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