**Problem 1 Rank Scores**

#Solution 1

select score, dense\_rank() over(order by score desc ) as 'rank' from Scores

order by 'rank'

#Solution 2

# select s1.score, count(distinct s2.score) as 'rank'

# from Scores s1 inner join

# Scores s2 on s1.score <= s2.score

# group by s1.id, s1.score order by score desc

# Solution 3

# select s1.score , (select count(distinct(s2.score)) from Scores s2 where s1.score<= s2.score) as 'rank' from Scores s1 order by s1.score desc

**Problem 2 Exchange Seats**

#Solution 1

# select

# (case

# when id % 2 <> 0 and id < (select max(id) from Seat) then

# id + 1

# when id % 2 = 0 then

# id -1

# else id

# end) as id , student

# from Seat

# order by id

# Solution 2

# select (

# case

# when mod(id,2) = 1 and id != Total then id+1

# when mod(id,2) =0 then id-1

# else id

# end

# ) as id

# , student from Seat,

# (select count(\*) as Total from Seat) as t

# order by id

# Solution 3

select s1.id, coalesce (s2.student,s1.student) as student from Seat s1 left join Seat s2 on (s1.id+1)^1-1 = s2.id

**Problem 3 Tree Node**

#Solution 1

select id, case

when p\_id is null then 'Root'

when id in (select p\_id from Tree) then 'Inner'

else 'Leaf'

end as type

from Tree

#Solution 2

# select id, (

# case

# when p\_id is null then 'Root'

# when id not in (select p\_id from Tree where p\_id is not null ) then 'Leaf'

# else 'Inner' #when id in (select p\_id from Tree) then 'Inner' else 'Leaf'

# end

# ) as type from Tree

**Problem 4 Department Top 3 Salaries**

#Solution 1

# with cte as (select e.name as Employee , dense\_rank() over (partition by e.departmentId order by salary desc) as rnk, e.departmentId as dept, e.salary as Salary from Employee e )

# select d.name as Department, c.Employee, c.Salary from

# cte c

# inner join Department d on c.dept = d.id

# where c.rnk<=3

Solution 2

select d.name as Department, e.name as Employee, e.salary as Salary

from Department d join Employee e

on d.id = e.departmentId

where 3> ( select count( distinct e2.salary) as r from Employee e2

where e.salary < e2.salary and e.departmentId = e2.departmentId)