**SQL Interview Preparation**

Question 1: How to find nth highest salary?

CREATE TABLE Employee(

ID int primary key identity,

FirstName nvarchar(50),

LastName nvarchar(50),

Gender nvarchar(50),

Salary int

)

Insert into Employee values ('Ben', 'Hoskins', 'Male', 70000)

Insert into Employee values ('Mark', 'Hastings', 'Male', 60000)

Insert into Employee values ('Steve', 'Pound', 'Male', 45000)

Insert into Employee values ('Ben', 'Hoskins', 'Male', 70000)

Insert into Employee values ('Philip', 'Hastings', 'Male', 45000)

Insert into Employee values ('Mary', 'Lambeth', 'Female', 30000)

Insert into Employee values ('Valarie', 'Vikings', 'Female', 35000)

Insert into Employee values ('John', 'Stanmore', 'Male', 80000)

SELECT \* FROM Employee ORDER BY Salary desc

--Let's assume, we want to find 5th highest salary

--Using Subquery

SELECT top 1 Salary from (Select DISTINCT top 5 Salary from Employee order by Salary desc) Result order by Salary;

--Using CTE table

With NResult

as

(

Select Salary,DENSE\_RANK() Over(Order by Salary Desc) as DenseRank

from Employee

)

Select Salary from NResult where DenseRank=5

--Question 2

--Here is the problem definition:

--1. Employees table contains the following columns

-- a) EmployeeId,

-- b) EmployeeName

-- c) ManagerId

--2. If an EmployeeId is passed, the query should list down the entire organization hierarchy i.e who is the manager of the EmployeeId passed and who is managers manager and so on till full hierarchy is listed.

--For example,

--Scenario 1: If we pass David's EmployeeId to the query, then it should display the organization hierarchy starting from David.

--Scenario 2: If we pass Lara's EmployeeId to the query, then it should display the organization hierarchy starting from Lara.

Create table Employees

(

EmployeeID int primary key identity,

EmployeeName nvarchar(50),

ManagerID int foreign key references Employees(EmployeeID)

)

Insert into Employees values ('John', NULL)

Insert into Employees values ('Mark', NULL)

Insert into Employees values ('Steve', NULL)

Insert into Employees values ('Tom', NULL)

Insert into Employees values ('Lara', NULL)

Insert into Employees values ('Simon', NULL)

Insert into Employees values ('David', NULL)

Insert into Employees values ('Ben', NULL)

Insert into Employees values ('Stacy', NULL)

Insert into Employees values ('Sam', NULL)

GO

Update Employees Set ManagerID = 8 Where EmployeeName IN ('Mark', 'Steve', 'Lara')

Update Employees Set ManagerID = 2 Where EmployeeName IN ('Stacy', 'Simon')

Update Employees Set ManagerID = 3 Where EmployeeName IN ('Tom')

Update Employees Set ManagerID = 5 Where EmployeeName IN ('John', 'Sam')

Update Employees Set ManagerID = 4 Where EmployeeName IN ('David')

GO

DECLARE @ID int;

SET @ID=7;

WITH EmpCTE

AS

(

Select \* from Employees Where EmployeeID=@ID

UNION ALL

Select Employees.EmployeeID,Employees.EmployeeName,Employees.ManagerID

From Employees

JOIN EmpCTE

ON Employees.EmployeeID=EmpCTE.ManagerID

)

Select E1.EmployeeName as EmployeeName,isnull(E2.EmployeeName,'No boss') as ManagerName

From EmpCTE E1

LEFT JOIN EmpCTE E2

ON E1.ManagerID=E2.EmployeeID

--Question 3: SQL query to find employees hired in last 5 months

Create table Employees

(

ID int primary key identity,

FirstName nvarchar(50),

LastName nvarchar(50),

Gender nvarchar(50),

Salary int,

HireDate DateTime

)

GO

Insert into Employees values('Mark','Hastings','Male',60000,'5/10/2022')

Insert into Employees values('Steve','Pound','Male',45000,'4/20/2022')

Insert into Employees values('Ben','Hoskins','Male',70000,'4/5/2022')

Insert into Employees values('Philip','Hastings','Male',45000,'3/11/2022')

Insert into Employees values('Mary','Lambeth','Female',30000,'3/10/2022')

Insert into Employees values('Valarie','Vikings','Female',35000,'2/9/2022')

Insert into Employees values('John','Stanmore','Male',80000,'2/22/2022')

Insert into Employees values('Able','Edward','Male',5000,'1/22/2022')

Insert into Employees values('Emma','Nan','Female',5000,'1/14/2022')

Insert into Employees values('Jd','Nosin','Male',6000,'1/10/2022')

Insert into Employees values('Todd','Heir','Male',7000,'2/14/2022')

Insert into Employees values('San','Hughes','Male',7000,'3/15/2022')

Insert into Employees values('Nico','Night','Male',6500,'4/19/2022')

Insert into Employees values('Martin','Jany','Male',5500,'5/23/2022')

Insert into Employees values('Mathew','Mann','Male',4500,'6/23/2022')

Insert into Employees values('Baker','Barn','Male',3500,'7/23/2022')

Insert into Employees values('Mosin','Barn','Male',8500,'8/21/2022')

Insert into Employees values('Rachel','Aril','Female',6500,'9/14/2022')

Insert into Employees values('Pameela','Son','Female',4500,'10/14/2022')

Insert into Employees values('Thomas','Cook','Male',3500,'11/14/2022')

Insert into Employees values('Malik','Md','Male',6500,'12/14/2022')

Insert into Employees values('Josh','Anderson','Male',4900,'5/1/2022')

Insert into Employees values('Geek','Ging','Male',2600,'4/1/2022')

Insert into Employees values('Sony','Sony','Male',2900,'4/30/2022')

Insert into Employees values('Aziz','Sk','Male',3800,'3/1/2022')

Insert into Employees values('Amit','Naru','Male',3100,'3/31/2022')

Select \* from Employees

Select \* from Employees

WHERE DATEDIFF(MONTH,HireDate,GETDATE()) BETWEEN 1 AND 5

--Question 4: Deleting duplicate rows

Create table Employees

(

ID int,

FirstName nvarchar(50),

LastName nvarchar(50),

Gender nvarchar(50),

Salary int

)

GO

Insert into Employees values (1, 'Mark', 'Hastings', 'Male', 60000)

Insert into Employees values (1, 'Mark', 'Hastings', 'Male', 60000)

Insert into Employees values (1, 'Mark', 'Hastings', 'Male', 60000)

Insert into Employees values (2, 'Mary', 'Lambeth', 'Female', 30000)

Insert into Employees values (2, 'Mary', 'Lambeth', 'Female', 30000)

Insert into Employees values (3, 'Ben', 'Hoskins', 'Male', 70000)

Insert into Employees values (3, 'Ben', 'Hoskins', 'Male', 70000)

Insert into Employees values (3, 'Ben', 'Hoskins', 'Male', 70000)

WITH EMPCTE

AS

(

SELECT \*,ROW\_NUMBER()OVER(PARTITION BY ID ORDER BY ID)AS ROWNUMBER

FROM Employees

)

DELETE FROM EMPCTE WHERE ROWNUMBER<>1

SELECT \* FROM EMPLOYEES

--Question 5: Transform rows into columns in sql server

Create Table Countries

(

Country nvarchar(50),

City nvarchar(50)

)

GO

Insert into Countries values ('USA','New York')

Insert into Countries values ('USA','Houston')

Insert into Countries values ('USA','Dallas')

Insert into Countries values ('India','Hyderabad')

Insert into Countries values ('India','Bangalore')

Insert into Countries values ('India','New Delhi')

Insert into Countries values ('UK','London')

Insert into Countries values ('UK','Birmingham')

Insert into Countries values ('UK','Manchester')

Select \* from Countries

Select Country,City1,City2,City3

from

(

Select \*,'City'+CAST(ROW\_NUMBER()over(Partition by Country order by Country) AS varchar(10)) AS Cities from Countries

)TEMP

PIVOT

(

MAX(City)

for Cities in (City1,City2,City3)

)PIV