**Sample SQL queries using the 2 tables in Access:**

**By Jimmy Nguyen**

| **Emp** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Empno** | **Ename** | **Job** | **Mgr** | **Hiredate** | **Sal** | **Comm** | **Deptno** |
| 7369 | SMITH | CLERK | 7902 | 12/17/1980 | $800.00 | $0.00 | 20 |
| 7499 | ALLEN | SALESMAN | 7698 | 2/20/1981 | $1,600.00 | $300.00 | 30 |
| 7521 | WARD | SALESMAN | 7698 | 2/22/1981 | $1,250.00 | $500.00 | 30 |
| 7566 | JONES | MANAGER | 7839 | 4/2/1981 | $3,100.00 | $0.00 | 20 |
| 7654 | MARTIN | SALESMAN | 7698 | 9/28/1981 | $1,250.00 | $1,400.00 | 30 |
| 7698 | BLAKE | MANAGER | 7839 | 5/1/1981 | $2,850.00 | $0.00 | 30 |
| 7782 | CLARK | MANAGER | 7839 | 6/9/1981 | $2,450.00 | $0.00 | 10 |
| 7788 | SCOTT | ANALYST | 7566 | 9/12/1982 | $3,000.00 | $0.00 | 20 |
| 7839 | KING | PRESIDENT |  | 11/17/1981 | $5,000.00 | $0.00 | 10 |
| 7844 | TURNER | SALESMAN | 7698 | 8/9/1981 | $1,500.00 | $0.00 | 30 |
| 7876 | ADAM | CLERK | 7788 | 12/1/1983 | $1,100.00 | $0.00 | 20 |
| 7900 | JAMES | CLERK | 7698 | 3/12/1981 | $950.00 | $0.00 | 30 |
| 7902 | FORD | ANALYST | 7566 | 3/12/1981 | $3,000.00 | $0.00 | 20 |
| 7934 | MILLER | CLERK | 7782 | 1/23/1982 | $1,300.00 | $0.00 | 10 |

**and**

| **Dept** | | |
| --- | --- | --- |
| **Deptno** | **Dname** | **Loc** |
| 10 | ACCOUNTING | NEW YORK |
| 20 | RESEARCH | DALLAS |
| 30 | SALES | CHICAGO |
| 40 | OPERATIONS | BOSTON |

**DISPLAYING DATA FROM ONE TABLE:**

1. Create a query to display the name, job, hire date and employee number for each employee, with employee number showing first.

SELECT Empno, Ename, Job, Hiredate

FROM Emp;

| **Query1** | | | |
| --- | --- | --- | --- |
| **Empno** | **Ename** | **Job** | **Hiredate** |
| 7369 | SMITH | CLERK | 12/17/1980 |
| 7499 | ALLEN | SALESMAN | 2/20/1981 |
| 7521 | WARD | SALESMAN | 2/22/1981 |
| 7566 | JONES | MANAGER | 4/2/1981 |
| 7654 | MARTIN | SALESMAN | 9/28/1981 |
| 7698 | BLAKE | MANAGER | 5/1/1981 |
| 7782 | CLARK | MANAGER | 6/9/1981 |
| 7788 | SCOTT | ANALYST | 12/9/1982 |
| 7839 | KING | PRESIDENT | 11/17/1981 |
| 7844 | TURNER | SALESMAN | 9/8/1981 |
| 7876 | ADAMS | CLERK | 1/12/1983 |
| 7900 | JAMES | CLERK | 12/3/1981 |
| 7902 | FORD | ANALYST | 12/3/1981 |
| 7934 | MILLER | CLERK | 1/23/1982 |

1. Create a query to display unique jobs from the EMP table.

SELECT Distinct Job

FROM Emp;

| **Query1** |
| --- |
| **Job** |
| ANALYST |
| CLERK |
| MANAGER |
| PRESIDENT |
| SALESMAN |

1. Change the query in #1 to label the column heading Emp #, Employee, Job and Hire Date. Use **AS [Emp #]** to create an alias for a new heading.

SELECT Empno AS [Emp #], Ename AS Employee, Job, Hiredate AS [Hire Date]

FROM Emp;

| **Query1** | | | |
| --- | --- | --- | --- |
| **Emp #** | **Employee** | **Job** | **Hire Date** |
| 7369 | SMITH | CLERK | 12/17/1980 |
| 7499 | ALLEN | SALESMAN | 2/20/1981 |
| 7521 | WARD | SALESMAN | 2/22/1981 |
| 7566 | JONES | MANAGER | 4/2/1981 |
| 7654 | MARTIN | SALESMAN | 9/28/1981 |
| 7698 | BLAKE | MANAGER | 5/1/1981 |
| 7782 | CLARK | MANAGER | 6/9/1981 |
| 7788 | SCOTT | ANALYST | 12/9/1982 |
| 7839 | KING | PRESIDENT | 11/17/1981 |
| 7844 | TURNER | SALESMAN | 9/8/1981 |
| 7876 | ADAMS | CLERK | 1/12/1983 |
| 7900 | JAMES | CLERK | 12/3/1981 |
| 7902 | FORD | ANALYST | 12/3/1981 |
| 7934 | MILLER | CLERK | 1/23/1982 |

1. Display the name concatenated with the job, separated by a comma and a space. Use the & concatenation operator. Label the column Employee and Title.

SELECT Ename & ", " & Job AS [Employee and Title]

FROM Emp;

| **Query1** |
| --- |
| **Employee and Title** |
| SMITH, CLERK |
| ALLEN, SALESMAN |
| WARD, SALESMAN |
| JONES, MANAGER |
| MARTIN, SALESMAN |
| BLAKE, MANAGER |
| CLARK, MANAGER |
| SCOTT, ANALYST |
| KING, PRESIDENT |
| TURNER, SALESMAN |
| ADAMS, CLERK |
| JAMES, CLERK |
| FORD, ANALYST |
| MILLER, CLERK |

1. Create a query to display the name and salary of employees earning more than $2850.

SELECT Ename, Sal

FROM Emp

WHERE Sal >2850;

| **Query1** | |
| --- | --- |
| **Ename** | **Sal** |
| JONES | $3,100.00 |
| SCOTT | $3,000.00 |
| KING | $5,000.00 |
| FORD | $3,000.00 |

1. Create a query to display the employee name and salary for employee number 7566.

SELECT Ename, Sal

FROM Emp

WHERE EmpNo="7566";

| **Query1** | |
| --- | --- |
| **Ename** | **Sal** |
| JONES | $3,100.00 |

1. Display the name and salary for all employees whose salary is not in the range of 1500 to 2850.

SELECT Ename, Sal

FROM Emp

WHERE Sal Not Between 1500 And 2850;

| **Query1** | |
| --- | --- |
| **Ename** | **Sal** |
| SMITH | $800.00 |
| WARD | $1,250.00 |
| JONES | $3,100.00 |
| MARTIN | $1,250.00 |
| SCOTT | $3,000.00 |
| KING | $5,000.00 |
| ADAMS | $1,100.00 |
| JAMES | $950.00 |
| FORD | $3,000.00 |
| MILLER | $1,300.00 |

1. Modify #7 to list name and salary of employees who earn more than $1500 and are in department 10 or 30. Label the columns Employee and Monthly Salary.

SELECT Ename, Sal

FROM Emp

WHERE Sal > 1500 And DeptNo = "10" Or Sal > 1500 And DeptNo ="30";

| **Query1** | |
| --- | --- |
| **Ename** | **Sal** |
| ALLEN | $1,600.00 |
| BLAKE | $2,850.00 |
| CLARK | $2,450.00 |
| KING | $5,000.00 |

1. Modify #8 to list name, salary and commission for all employees whose commission amount is greater than their salary increased by 10%.

SELECT EName, Sal, Comm

FROM EMP

WHERE Comm >Sal + (Sal \* 0.10);

| **Query1** | | |
| --- | --- | --- |
| **EName** | **Sal** | **Comm** |
| MARTIN | $1,250.00 | $1,400.00 |

1. Display the employee name, job and start date of employees hired between February 20, 1981 and May 1, 1981. Order the query in ascending order of start date. Access will accept almost any date format enclosed in #.

SELECT EName, Job, HireDate

FROM EMP

WHERE HireDate Between #2/20/1981# And #5/1/1981#

| **Query1** | | |
| --- | --- | --- |
| **EName** | **Job** | **HireDate** |
| ALLEN | SALESMAN | 2/20/1981 |
| WARD | SALESMAN | 2/22/1981 |
| JONES | MANAGER | 4/2/1981 |
| BLAKE | MANAGER | 5/1/1981 |
| JAMES | CLERK | 3/12/1981 |
| FORD | ANALYST | 3/12/1981 |

1. Display the name and hire date of every employee hired in 1982. Use LIKE.

SELECT EName, HireDate

FROM EMP

WHERE HireDate Like '\*1982';

| **Query1** | |
| --- | --- |
| **EName** | **HireDate** |
| SCOTT | 12/9/1982 |
| MILLER | 1/23/1982 |

1. Display the name and title of all employees who do not have a manager. Use the IsNull(var) function.

SELECT Ename, Job, Mgr

FROM EMP

WHERE (Mgr) Is Null;

| **Query1** | | |
| --- | --- | --- |
| **Ename** | **Job** | **Mgr** |
| KING | PRESIDENT |  |

1. Display the names of all employees where the third letter of their name is A. Use LIKE and the ?.

SELECT EName

FROM EMP

WHERE EName Like '??A\*';

| **Query1** |
| --- |
| **EName** |
| BLAKE |
| CLARK |
| ADAMS |

**DISPLAYING DATA FROM MULTIPLE TABLES**

1. Write a query to display the name, department number and department name for all employees.

SELECT EMP.EName, Emp.DeptNo, DEPT.Dname

FROM EMP, DEPT

WHERE EMP.DeptNo = DEPT.DeptNo;

| **Query1** | | |
| --- | --- | --- |
| **EName** | **DeptNo** | **Dname** |
| CLARK | 10 | ACCOUNTING |
| KING | 10 | ACCOUNTING |
| MILLER | 10 | ACCOUNTING |
| SMITH | 20 | RESEARCH |
| JONES | 20 | RESEARCH |
| SCOTT | 20 | RESEARCH |
| ADAM | 20 | RESEARCH |
| FORD | 20 | RESEARCH |
| ALLEN | 30 | SALES |
| WARD | 30 | SALES |
| MARTIN | 30 | SALES |
| BLAKE | 30 | SALES |
| TURNER | 30 | SALES |
| JAMES | 30 | SALES |

1. Create a unique listing of all jobs and locations that are in department 30.

SELECT DISTINCT EMP.Job, DEPT.Loc

FROM EMP, DEPT

WHERE EMP.DeptNo = DEPT.DeptNo And DEPT.DeptNo = "30";

| **Query1** | |
| --- | --- |
| **Job** | **Loc** |
| CLERK | CHICAGO |
| MANAGER | CHICAGO |
| SALESMAN | CHICAGO |

1. Display the employee name, department name, and location of all employees who earn a commission.

SELECT EMP.Ename, DEPT.Dname, DEPT.Loc

FROM EMP, DEPT

WHERE EMP.DeptNo = DEPT.DeptNo And Emp.Comm >0;

| **Query1** | | |
| --- | --- | --- |
| **Ename** | **Dname** | **Loc** |
| ALLEN | SALES | CHICAGO |
| WARD | SALES | CHICAGO |
| MARTIN | SALES | CHICAGO |

1. Display the employee name, employee number along with their manager’s name and number. Label the columns Employee, Emp#, Manager, Mgr#.

SELECT Worker.Ename As Employee, Worker.EmpNo As [Emp#], Manager.Ename as Manager, Manager.EmpNo as [Mgr#]

FROM Emp As Worker, Emp AS Manager

WHERE Worker.Mgr = Manager.EmpNo;

| **Emp Query** | | | |
| --- | --- | --- | --- |
| **Employee** | **Emp#** | **Manager** | **Mgr#** |
| SMITH | 7369 | FORD | 7902 |
| ALLEN | 7499 | BLAKE | 7698 |
| WARD | 7521 | BLAKE | 7698 |
| JONES | 7566 | KING | 7839 |
| MARTIN | 7654 | BLAKE | 7698 |
| BLAKE | 7698 | KING | 7839 |
| CLARK | 7782 | KING | 7839 |
| SCOTT | 7788 | JONES | 7566 |
| TURNER | 7844 | BLAKE | 7698 |
| ADAM | 7876 | SCOTT | 7788 |
| JAMES | 7900 | BLAKE | 7698 |
| FORD | 7902 | JONES | 7566 |
| MILLER | 7934 | CLARK | 7782 |

1. Modify #17 to include King, who has no manager. Use LEFT or RIGHT JOIN as appropriate and ON instead of WHERE.

SELECT Worker.Ename As Employee, Worker.EmpNo As [Emp#], Manager.Ename as Manager, Manager.EmpNo as [Mgr#]

FROM Emp As Worker LEFT JOIN Emp AS Manager

ON Worker.Mgr = Manager.EmpNo ;

| **Emp Query** | | | |
| --- | --- | --- | --- |
| **Employee** | **Emp#** | **Manager** | **Mgr#** |
| SMITH | 7369 | FORD | 7902 |
| ALLEN | 7499 | BLAKE | 7698 |
| WARD | 7521 | BLAKE | 7698 |
| JONES | 7566 | KING | 7839 |
| MARTIN | 7654 | BLAKE | 7698 |
| BLAKE | 7698 | KING | 7839 |
| CLARK | 7782 | KING | 7839 |
| SCOTT | 7788 | JONES | 7566 |
| KING | 7839 |  |  |
| TURNER | 7844 | BLAKE | 7698 |
| ADAM | 7876 | SCOTT | 7788 |
| JAMES | 7900 | BLAKE | 7698 |
| FORD | 7902 | JONES | 7566 |
| MILLER | 7934 | CLARK | 7782 |

1. A real challenge using string functions like FORMAT, STRING, etc.): Display the employees names and the amount of the salaries indicated with asterisks (each asterisk = 100 dollars).

Employees and Their Salaries

KING \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

FORD \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SELECT EMP.Ename, String(Sal/100, "\*")

FROM EMP ;

| **Query1** | |
| --- | --- |
| **Ename** | **Expr1001** |
| SMITH | \*\*\*\*\*\*\*\* |
| ALLEN | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| WARD | \*\*\*\*\*\*\*\*\*\*\*\* |
| JONES | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| MARTIN | \*\*\*\*\*\*\*\*\*\*\*\* |
| BLAKE | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| CLARK | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| SCOTT | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| KING | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| TURNER | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| ADAM | \*\*\*\*\*\*\*\*\*\*\* |
| JAMES | \*\*\*\*\*\*\*\*\*\* |
| FORD | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| MILLER | \*\*\*\*\*\*\*\*\*\*\*\*\* |

**AGGREGATING DATA AND GROUP FUNCTIONS**

1. Display the highest, lowest, sum and average of all employees.

SELECT Max(Sal) as Highest, Min(Sal) As Lowest, Sum(Sal) As [Sum], Avg(Sal) As Average

FROM EMP;

| **Query1** | | | |
| --- | --- | --- | --- |
| **Highest** | **Lowest** | **Sum** | **Average** |
| $5,000.00 | $800.00 | $29,150.00 | $2,082.14 |

1. Modify #20 to produce one line for each job type.

SELECT Job, Max(Sal) as Highest, Min(Sal) As Lowest, Sum(Sal) As [Sum], Avg(Sal) As Average

FROM EMP

Group by Job;

| **Emp Query** | | | | |
| --- | --- | --- | --- | --- |
| **Job** | **Highest** | **Lowest** | **Sum** | **Average** |
| ANALYST | $3,000.00 | $3,000.00 | $6,000.00 | $3,000.00 |
| CLERK | $1,300.00 | $800.00 | $4,150.00 | $1,037.50 |
| MANAGER | $3,100.00 | $2,450.00 | $8,400.00 | $2,800.00 |
| PRESIDENT | $5,000.00 | $5,000.00 | $5,000.00 | $5,000.00 |
| SALESMAN | $1,600.00 | $1,250.00 | $5,600.00 | $1,400.00 |

1. Display the number of people with the same job.

Select Job As [Job Title], Count(EName) AS [Number of Employees]

FROM EMP

Group by Job;

| **Emp Query** | |
| --- | --- |
| **Job Title** | **Number of Employees** |
| ANALYST | 2 |
| CLERK | 4 |
| MANAGER | 3 |
| PRESIDENT | 1 |
| SALESMAN | 4 |

1. Another challenge: Display the manager number and the salary of the lowest paid employee for that manager. Exclude anyone where the manager number is not known. Exclude any groups where the minimum salary is less than $1000. Sort the output in descending order by salary.

SELECT Manager.Mgr AS [Manager #], min (Worker.Sal) as [Salary of the Lowest Paid Employee]

FROM EMP AS Manager LEFT JOIN EMP AS Worker ON Manager.Mgr = Worker.Mgr

WHERE NOT IsNull(Worker.Mgr) AND (Worker.Sal > 1000)

GROUP BY Manager.Mgr

ORDER BY Min(Worker.Sal) DESC;

| **Query1** | |
| --- | --- |
| **Manager #** | **Salary of the Lowest Paid Employee** |
| 7566 | $3,000.00 |
| 7839 | $2,450.00 |
| 7782 | $1,300.00 |
| 7698 | $1,250.00 |
| 7788 | $1,100.00 |

1. Write a query to display the employee name and hire date for all employees in the same department as BLAKE. Exclude BLAKE. Use subquery.

Select Ename, HireDate

FROM EMP

WHERE DeptNo = (SELECT DeptNo

FROM EMP

WHERE EName = "BLAKE")

AND EName not like "BLAKE";

| **Emp Query** | |
| --- | --- |
| **Ename** | **HireDate** |
| ALLEN | 2/20/1981 |
| WARD | 2/22/1981 |
| MARTIN | 9/28/1981 |
| TURNER | 8/9/1981 |
| JAMES | 3/12/1981 |

1. Write a query to display the employee number and name of all employees who earn more than the average salary. Sort is descending order on salary.

SELECT EmpNo, Ename

FROM EMP

WHERE Sal>(Select Avg(Sal) FROM EMP )

ORDER BY Sal DESC;

| **Emp Query** | |
| --- | --- |
| **EmpNo** | **Ename** |
| 7839 | KING |
| 7566 | JONES |
| 7902 | FORD |
| 7788 | SCOTT |
| 7698 | BLAKE |
| 7782 | CLARK |

1. Display the employee name, department number and job title for all employees whose department location is Dallas.

SELECT EMP.Ename, DEPT.Deptno, EMP.Job

FROM EMP, DEPT

WHERE (((DEPT.Loc)="DALLAS") AND ((EMP.Deptno)=[DEPT].[Deptno]));

| **Emp Query** | | |
| --- | --- | --- |
| **Ename** | **Deptno** | **Job** |
| SMITH | 20 | CLERK |
| JONES | 20 | MANAGER |
| SCOTT | 20 | ANALYST |
| ADAM | 20 | CLERK |
| FORD | 20 | ANALYST |