

SQL Queries and SELECT Statement Summary

1. Basic SELECT Statement

- SELECT <attribute list> FROM <table list> WHERE <condition>;
- Use * to select all columns.
- Use column aliases for clarity.
- SQL tables allow duplicate rows (multi-set).
- Use DISTINCT to eliminate duplicates.

2. Arithmetic Operations

Example:

```
SELECT last_name, salary, 12*(salary+100) FROM emps;
```

- Can use +, -, *, / with parentheses.

3. Using Column Aliases

Example:

```
SELECT last_name AS "Name", salary*12 AS "Annual Salary" FROM emps;
```

4. Simple SQL Queries

- SELECT: retrieves rows (selection).
- PROJECT: retrieves specific columns.
- JOIN: combines rows from multiple tables.

Example:

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```
SELECT BDATE, ADDRESS FROM EMPLOYEE WHERE FNAME='John' AND LNAME='Smith';
```

5. Joins with Two or More Tables

Example with two tables:

```
SELECT FNAME, LNAME, ADDRESS FROM EMPLOYEE, DEPARTMENT  
WHERE DNAME='Research' AND DNUMBER=DNO;
```

Example with three tables:

```
SELECT PNUMBER, DNUM, LNAME, BDATE, ADDRESS  
FROM PROJECT, DEPARTMENT, EMPLOYEE  
WHERE DNUM=DNUMBER AND MGRSSN=SSN AND PLOCATION='Stafford';
```

6. Aliasing Tables

Example:

```
SELECT E.FNAME, E.LNAME, S.FNAME, S.LNAME  
FROM EMPLOYEE E, EMPLOYEE S  
WHERE E.SUPERSSN = S.SSN;
```

- Aliases (E, S) are used for clarity or when referencing the same table multiple times.

7. Empty WHERE-Clause and * Usage

- No WHERE clause = all rows are selected.

- Example: SELECT SSN FROM EMPLOYEE;

- * selects all attributes: SELECT * FROM EMPLOYEE WHERE DNO=5;

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8. Using DISTINCT

- Removes duplicate rows.

Example:

```
SELECT DISTINCT SALARY FROM EMPLOYEE;
```

9. Practice Activities

1. Display last name, weekly salary, and department number with alias "Weekly Salary".
2. Find employees supervised by 'Franklin Wong'.
3. Find female employees with a dependent of the same first name.
4. For each department, get manager's last name, start date, and dependent names.
5. For each employee, get name, department, project, and hours worked.