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INFORMATION TECHNOLOGY FOR CLASS 12

(Study materials)

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CHAPTER-1-DATABASE MANAGEMENT SYSTEM

I told you about all the queries of database in previous class, but some queries are as follows now I talk about it.

1. In SQL, duplicate tuples can appear more than once in a table and in the result of a query. However if the requirement is to list distinct values of an attribute then this can be done by using the keyword – 'DISTINCT'. For example, following query will list all the Department numbers corresponding to departments having male teachers.

```
SELECT Dept_No  
FROM Teacher;  
WHERE GENDER ='M';
```

The result of the above query is:

Dept_No
2
3
1
8
2

- ✓ In the above result, 2 is appearing twice which is not required as the query is to find only the department numbers. Hence we can use DISTINCT keyword in the SELECT clause so that there is no repetition in the result.

```
SELECT DISTINCT Dept_No  
FROM Teacher;  
WHERE GENDER ='M';
```

The result of the above query is:

Dept_No
1
2
3
8

2. it is required to match part of the string. This is called as string pattern matching. We can use 'LIKE' keyword along with two more reserved characters - % (percent) and _ (underscore) for specifying different number of characters. % replaces zero or more number of random characters and _ replaces a single character.

- **Query:** To retrieve names of all the teachers starting from letter 'S'.

```
SELECT First_Name
```

```
FROM Teacher
WHERE First_Name LIKE "S%";
```

Result:

First_Name
Shanaya
Surbhi
Saurabh
Sumita

- **Query:** To retrieve names of all name and starting with 'S'.

```
SELECT First_Name
FROM Teacher
WHERE First_Name LIKE "S_____";
```

the teachers having 6 characters in the first

Result:

First_Name
Surbhi
Sumita

- **Query:** To retrieve names of all the teachers having at least 6 characters in the first name.

```
SELECT First_Name
FROM Teacher
WHERE First_Name LIKE "_____%";
```

Result:

First_Name
Shanaya
Surbhi
Tarannum
Puneet
Saurabh
Sumita
Vinita

3. Suppose it required to sort the result of a query based on some attributes. This can be achieved by using the clause – ORDER BY followed by the attributes which needs to be sorted. (By default the order is ascending) For ascending order the keyword ASC and for descending order the keyword DESC is used. By default the order is ascending.

- **Query:** To list the names of teachers in alphabetical order.

```
SELECT First_Name, Last_Name
FROM Teacher
ORDER BY First_Name, Last_Name;
```

Result:

First_Name	Last_Name
Alice	Walton
Divya	Chaudhary
Megha	Khanna
Namit	Gupta
Neha	Singh
Puneet	NULL
Saurabh	Pant
Shanaya	Batra
Sumita	Arora
Sumita	Arora
Surbhi	Bansal
Tarannum	Malik
Tarun	Mehta
Vansh	NULL
Vinita	Ghosh

- **Query:** To list names of all the Departments in the descending order of their names.

```
SELECT Dept_Name
FROM Department
ORDER BY Dept_Name DESC;
```

Result:

Dept_Name
Physics
Mathematics
Hindi
English
Economics
Computerscience
Commerce
Chemistry
Biology

- **Query:** To retrieve the names and department numbers of all the teachers ordered by the department number and within each department ordered by the names of the teachers in descending order

```
SELECT First_Name, Last_Name, Dept_No
FROM Teacher
ORDER BY Dept_No ASC, First_Name DESC, Last_Name DESC;
```

First_Name	Last_Name	Dept_No
Shanaya	Walton	1
Namit	Chaudhary	1
Tarun	Khanna	2
Vansh	Gupta	2
Alice	Singh	3
Puneet	NULL	3
Surbhi	Pant	4
Megha	Batra	4
Tarannum	Arora	5
Divya	Arora	6
Neha	Bansal	7
Saurabh	Malik	8
Sumita	Mehta	9
Vinita	Ghosh	9

4. To test whether a value is unavailable or unknown or not applicable in a column (i.e, NULL values), SQL allows us to test this condition using keywords IS NULL and IS NOT NULL
- **Query:** To retrieve all the details of those employees whose last name is not specified

```
SELECT *
FROM TEACHER
WHERE last_Name IS NULL;
```

RESULT:

Teacher_ID	First_Name	Last_Name	Gender	Salary	Date_of_Birth	Dept_No
107	Puneet	NULL	M	52500.00	1976-09-25	3
104	Vansh	NULL	M	53500.00	1982-05-04	2

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