Types of Indexes

1) Simple Index:
when we create index on single column then it is simple index.

 Example:
Create Index idx_salary ON Employee(salary);

2) Composite Index:
When we create index on multiple columns then is composite Index.

 Example :
Create Index idx_empno_empname ON Employee(emp_no,first_name);

3) Unique Index:
When we apply primary key or Unique key constraint on column
 then internally unique index get created.
 But if we want to create unique index manually then we can create as below

 Syntax:
Create Unique Index index_name ON Table_name(column_name);

Example
Create Unique Index idx_mobile ON Employee(mobile_no);

4) Reverse Index:
If we want search data frequently for highest value then
reverse index will help you.

Example:
Create Index idx_date ON Employee(hire_date) Reverse;

5) Function Based Index:
In the index defination if you are using
function then it is called function based index.

Example:
Create Index idx_sal ON Employee(sal,salary*.10) , Upper(First_name);

6) Bitmap Index:
Bits means 0 or 1
If column has two values then we Bitmap index.
Syntax
Create Bitmap index index_name ON Table_name(column_name);

Example :
Create Bitmap Index idx_gender ON Employee(Gender);

Alter Command
1) It is DDL command
2) Under Alter command there are 6 options
   i) Add option
   ii) Drop Option
   iii) Modify Option
   iv) Rename Option
   v) Enable or Disable option
   vi) set Option

1) Alter command- Add Option
   i) with the help of add option we can add new column
   ii) with the help of add option we can add Primary key, Unique Key,
       foreign key , check constraint but we cannot add not null and default
       constraint by using add option

   i) How to add column in the table?
   Syntax:
   Alter table table_name ADD(column1_name data_type constraint,
                   column2_name data_type constraint);
Example 1
   Alter table Employee ADD(mobile_no number)   => without constraint

Example 2
   Alter table Employee ADD(mobile_no number not null)   => with constraint

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ii) How to add Primary key constraint on column?

   Create table Customer(cust_id number,cust_name varchar(250));

   Syntax
   Alter table Table_name ADD Constraint constraint_name Primary Key(column_name);

           OR

   Alter table Table_name ADD Primary Key(column_name)

   Example
   Alter table Customer ADD Constraint pk_cust_id Primary Key(cust_id);
               OR
   Alter table Customer ADD Primary Key(cust_id);

iii) How to apply Foreign key constraint on Column?

Syntax:

Alter table table_name ADD Constraint constraint_name Foreign key(column_name)
references table_name(column_name);   => with Constraint key word

OR

Alter table table_name ADD Foreign key(column_name)
references table_name(column_name); => Without constraint keyword

Create table Orders(order_id Primary key, cust_id number)

Example:

Alter table Orders ADD Constraint fk Foreign key(cust_id) references
Customer(cust_id);

iv) How to Apply Unique key constraint?

Syntax:

Alter table table_name ADD constraint constraint_name Unique(column_name);

OR

Alter table table_name ADD Unique(column_name);

Example

Alter table Customer Add Constraint unique_cust_name Unique(cust_name);

v) How to Apply Check Constraint on column?

Syntax

Alter table table_name ADD Constraint constraint_name Check(column_name condition);

OR

Alter table table_name ADD Check(column_name condition);

Example

Alter table Orders ADD Constraint ck_order_id check(Order_id >100);