Alter

1. Lets suppose u need to change the datatype of the column ..now we cant delete the entire table and change the column datatype..so now to change the datatype of the column we use ALTER command
2. To change the datatype of the column “alter table **table_name** alter column **Col_name** datatype `alter table amazon_orders alter column order_date datetime` and datatype must be compatible as data in the column..but if any data is not their in the table col ..it doesn't matter..and varchar data type will be compatible with anything
3. It comes under the DDL..because we are changing the definition of data
4. Also if we want to add more columns to our table ..we can use Alter command “alter table **table_name** add **column datatype**

```
alter table amazon_orders add username varchar(20)
```

5. It will always adds the column at the last of table and we cannot add multiple col in a single alter command
6. Coming to NULL it is very useful in SQL..if we don't have data we can set that to NULL

	order_id	order_date	product_name	total_price	payment_method	username
1	1	2022-10-01 00:00:00.000	Baby Milk	30.50	UPI	NULL
2	2	2022-10-02 00:00:00.000	Baby Powder	130.00	Credit Card	NULL
3	3	2022-10-01 00:00:00.000	Baby cream	30.50	UPI	NULL
4	4	2022-10-02 00:00:00.000	Baby soap	130.00	Credit Card	NULL
5	5	2022-10-01 12:05:12.000	Shoes	132.50	UPI	NULL
6	6	2022-10-01 12:05:12.000	NULL	132.50	UPI	Ankit

7.
8. The number of cols in the insertion statement and number of cols in table must be same..a point to remember
9. And if we no longer want one column and we’d like to remove the col..to remove a col from table we use “alter table **table_name** drop column **col_name**”.
10. The main use of alter is to change the datatype of the column, to add more column to the table and to delete the column in the table

Constraints

11. Now let us learn constraints..here in our sample amazon_order table we have a payment method section..now in here even if we entered our name it stores that as a payment method..so avoid that we use constraints and allow only the payment names..it is one of the example of how we use constraints

```
create table a_orders
(
order_id integer NOT NULL,
order_date date,
product_name varchar(100),
total_price decimal(6,2),
payment_method varchar(20)
);
```

12. here we have created a table and for order_id table we gave a constraint of NOT NULL, as it is very important data for us
13. Now if we give null as a data we get error

14. Now for payment method column…we want to accept payments from only 3 companies like gpay,phonpe and paytm..and if a user is trying to pay thru another source ..it gives error …to implement this we will use check constraints

```
create table a_orders
(
order_id integer NOT NULL,
order_date date,
product_name varchar(100),
total_price decimal(6,2),
payment_method varchar(20) check (payment_method in ('UPI','CREDIT CARD'))
);
```

15.
16. And if we insert other than upi and credit card we get error

```
insert into a_orders values(1,'2022-10-01','Shoes',132.5,'INTERNET BANKING');
```

```
a_orders__paymen__2A4B4B5E". The conflict occurred in database "namastesql", table "dbo.a_orders", column 'payment_method'.
```

17. Task initially ankit didnt used check constraint for payment method..and he deleted the entire table and created again with check constraint…you have to use alter command and try it

```
ALTER TABLE [dbo].[a_orders]  WITH CHECK ADD CHECK  (([payment_method]='CREDIT CARD' OR [payment_method]='UPI'
GO
```

18.
19. We can also use check constraint for integer datatype columns

```
discount integer check (discount<=20)
```

20. Then there's unique key constraint..if a col has unique key constraint ..then every value of that column must be unique.

```
order_id integer NOT NULL UNIQUE , -- not null constarint
```

21. Here order id is unique constraint and every value must be unique

22. Next we have default constraint ..here if we don't pass any value to the column..it will take default constraint's value

```
category varchar(20) default 'Mens Wear'
```

23. It helps us only when if we insert our data like this

```
insert into a_orders(order_date,order_id,product_name,total_price,payment_method,discount)
values('2022-10-01',5,'Shirts',132.5,'UPI',20);
```

and if we do not pass values here..it insert NULL in that column's data\

24. Next come primary constraint ..It is similar to unique constraint ..in unique constraint we can give NULL values ..but in primary constraint..there has to be a value which is unique as well
25. So primary key is unique + not NULL constraint
26. Its always best practice to give primary key at the end..so we can add more columns at once as a primary key

```
create table a_orders
(
order_id integer , -- not null constarint , unique constraint
order_date date,
product_name varchar(100),
total_price decimal(6,2) ,
payment_method varchar(20) check (payment_method in ('UPI','CREDIT CARD')) default 'UPI', --check constraint
discount integer check (discount<=20), --check constraint,
category varchar(20) default 'Mens Wear' --default constarint
primary key (order_id,product_name)
);
```

27. Here in amazon a single order id can have multiple products..now for the same order id..we can multiple product names

```
insert into a_orders(order_id,order_date,product_name,total_price,payment_method)
values(1,'2022-10-01','Shirts',132.5,default);
insert into a_orders(order_id,order_date,product_name,total_price,payment_method)
values(1,'2022-10-01','jeans',132.5,default);
--primary key is ..unique + not null constaint
```

28. How to give primary constraint using alter command

In SQL, you cannot directly add a primary key constraint using the ALTER TABLE command. The primary key constraint uniquely identifies each row in a table and enforces that the values in the primary key column(s) are unique and not null. Instead of using ALTER TABLE, you usually specify the primary key constraint at the time of table creation.

However, if you want to add a primary key constraint to an existing table, you generally need to follow these steps:

1. **Create a New Table:**
   You create a new table with the desired primary key constraint and copy the data from the existing table to the new table.
2. **Drop the Existing Table:**
   After copying the data to the new table, you drop the existing table.
3. **Rename the New Table:**
   Finally, you rename the new table to the original table name.

Delete command

29. Here if we want to delete the entire data we use “delete from **table_name**”.
30. Now if we want to delete the specific row we use “delete from **table_name** where **column name and condition**”
```
delete from a_orders where order_id=2 ;
```
31. Another example :
```
delete from a_orders where product_name='jeans' ;
```
32. And in drop table..we delete the entire table and data ..so we don't have an option of where

Update command

```
update a_orders
set discount=10;

update a_orders
set discount=10
where order_id=2
```

33.
34. Refer : https://www.w3schools.com/sql/sql_update.asp