Data Definition Language(DDL)

In this session, you will learn:

- Introduction to SQL
- How to manage a database
- Data types
- DDL Commands
- Constraints

Introduction to SQL

- Structured Query Language(SQL)
- Used for storing and managing data in RDBMS
- Standard language for accessing and manipulating database

SQL Commands

Defines data languages to manipulate data of RDBMS

- DDL – Data Definition Language
- DML – Data Manipulation Language
- TCL – Transaction Control Language
- DCL – Data Control Language
- DQL – Data Query Language

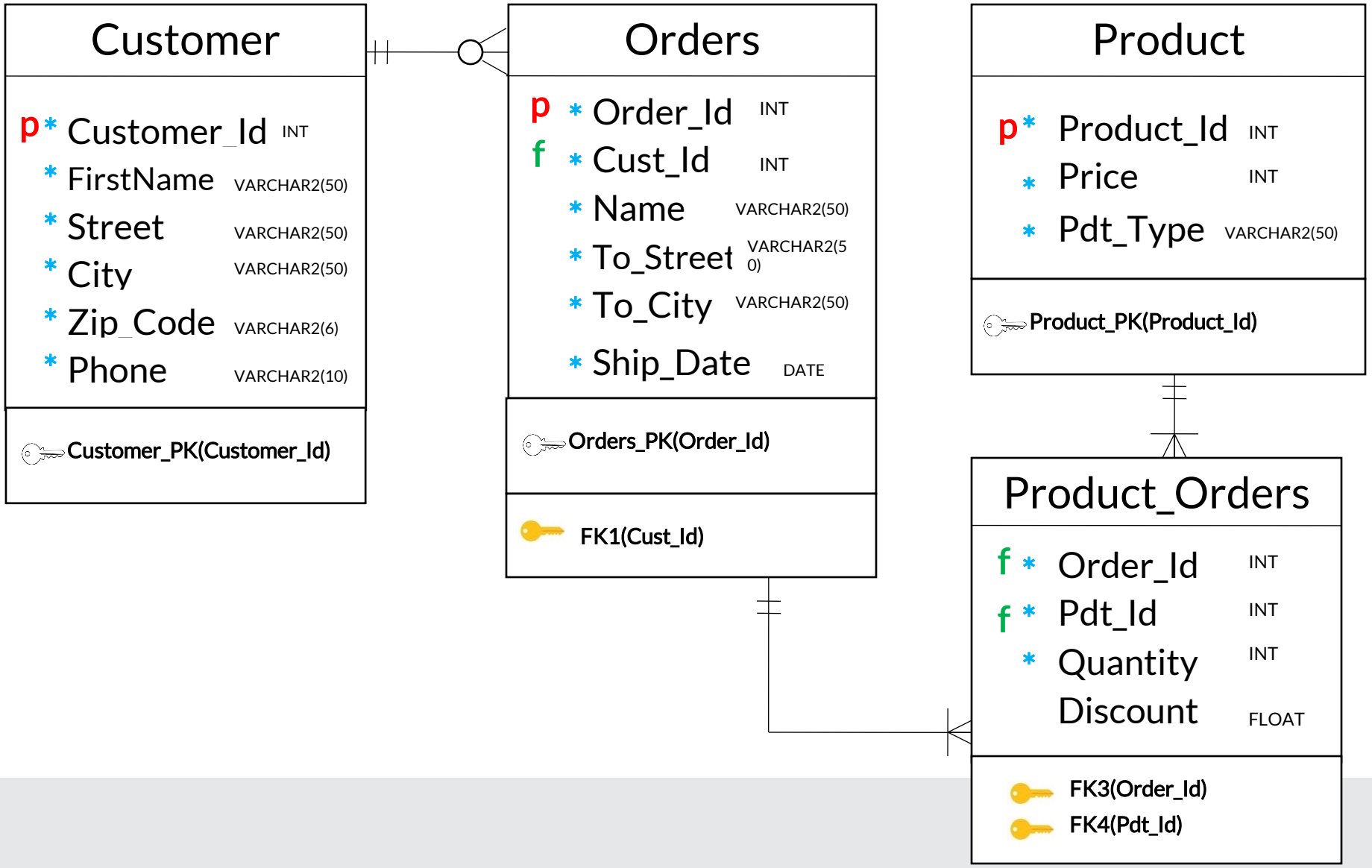
SQL Data types

- defines what type of data a column can contain.

Data type	Example
CHARACTER [(n)] or CHAR [(n)]	CHAR (10) -> 'welcome' -> Valid CHAR -> welcome -> Invalid
VARCHAR2(n)	VARCHAR2 (10) -> 'welcome' -> Valid VARCHAR2 (5) -> welcome -> Invalid
INTEGER	-32768 -> Valid -12232455353 -> Invalid
NUMBER(P,S)	NUMBER(10,3) -> 1234567 -> Valid NUMBER(10,3) -> 1234567.123 -> Valid NUMBER(10,3) -> 12345678.12 -> Invalid
FLOAT	-3.4 -> Valid -12232455353.99 -> Invalid
DATE	'12-01-2018' -> Valid '28-13-2018'-> Invalid
TIMESTAMP	TIMESTAMP(6) -> Valid TIMESTAMP(10)-> Invalid

DDL Commands

Command	Description
Create	to create new table or database
alter	for alteration
truncate	delete data from table
drop	to drop a table
rename	to rename a table


Customer
p * Customer_Id INT
* FirstName VARCHAR2(50)
* Street VARCHAR2(50)
* City VARCHAR2(50)
* Zip_Code VARCHAR2(6)
* Phone VARCHAR2(10)
Customer_PK(Customer_Id)
Orders
p * Order_Id INT
f * Cust_Id INT
* Name VARCHAR2(50)
* To_Street VARCHAR2(50)
* To_City VARCHAR2(50)
* Ship_Date DATE
Orders_PK(Order_Id)
FK1(Cust_Id)
Product
p * Product_Id INT
* Price INT
* Pdt_Type VARCHAR2(50)
Product_PK(Product_Id)
Product_Orders
f * Order_Id INT
f * Pdt_Id INT
* Quantity INT
Discount FLOAT
FK3(Order_Id)
FK4(Pdt_Id)

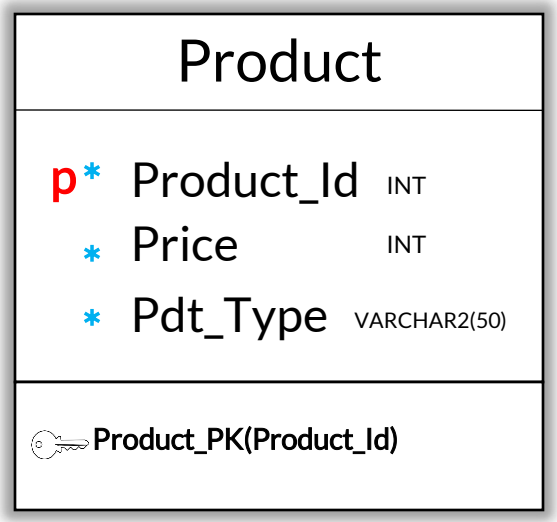
DDL Command - Create

Syntax

```
create table table_name(
    column_name1 datatype1,
    column_name2 datatype2,
    column_name3 datatype3
);
```

Example

```
create table Product (
    Product_Id  int ,
    Price int,
    Pdt_Type varchar2(50));
```



SQL Constraints

- used to specify rules for the data in a table
- commonly used in SQL are:
  - ✓ NOT NULL
  - ✓ UNIQUE
  - ✓ PRIMARY KEY
  - ✓ FOREIGN KEY
  - ✓ CHECK
  - ✓ DEFAULT

SQL NOT NULL, UNIQUE and PRIMARY KEY Constraint

- NOT NULL constraint ensures that a column cannot have a NULL value
- UNIQUE constraint ensures that all values in a column are different
- PRIMARY KEY constraint is a combination of NOT NULL & UNIQUE

Table With Primary Key and Not Null Constraint

```
CREATE TABLE Customer(
        Customer_Id int NOT NULL ,
        FirstName varchar2(50) NOT NULL,
        Street varchar2(50) NOT NULL,
        City varchar2(50) NOT NULL,
        Zip_Code varchar2(5) NOT NULL,
        Phone varchar2(10) NOT NULL,
        PRIMARY KEY (Customer_Id)
        );
```

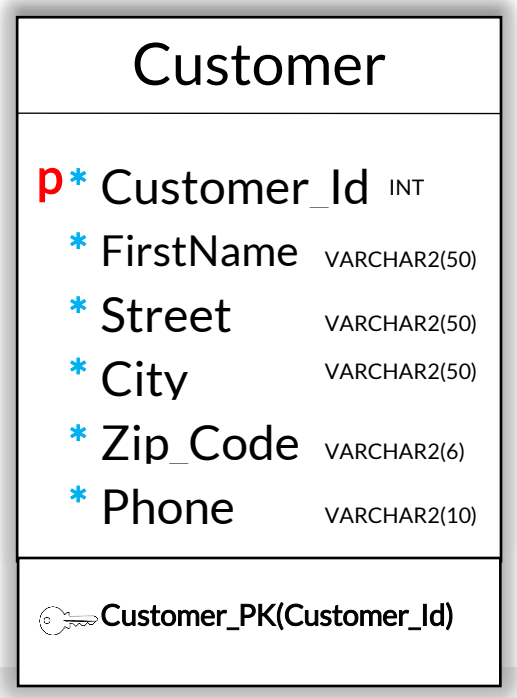
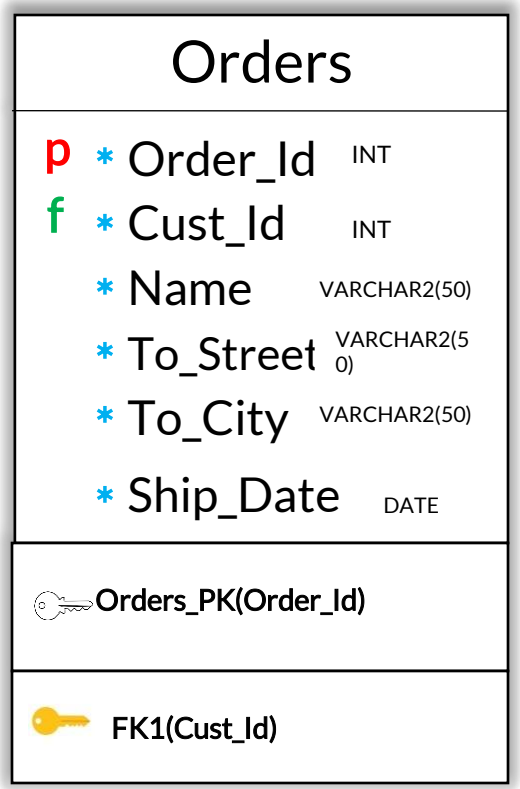


Table Creation with Foreign key constraint




```
CREATE TABLE Orders(
        Order_Id int NOT NULL ,
        Cust_Id int NOT NULL,
        Name varchar2(50) NOT NULL,
        To_Street varchar2(50) NOT NULL,
        To_City varchar2(50) NOT NULL,
        Ship_date date NOT NULL,
        PRIMARY KEY (Order_Id),
        FOREIGN KEY(Cust_Id) REFERENCES Customer(Customer_Id)
);
```

DDL Command -Alter

To Add Column to existing Table	To Modify an existing column	To Rename a column	To drop a column
Syntax alter table table_name add(column_name datatype);	Syntax alter table table_name modify(column_name datatype);	Syntax alter table table_name rename column old_column_name to new_column_name;	Syntax alter table table_name drop column column_name;
Example alter table Customer add (LastName char);	Example alter table Customer modify LastName varchar2(50);	Example alter table Customer rename column LastName to LName	Example alter table Customer drop column LName;

SQL Check constraint

- This constraint ensures that all values in a column satisfies a specific condition

Syntax

```
ALTER TABLE table_name ADD CONSTRAINT
check_constraint_name CHECK (column_name
condition);
```

Example

```
ALTER TABLE Product ADD CONSTRAINT
check_price CHECK (Price > 0);
```

DDL Command -Drop

- This query completely removes a table from database.
- It destroy the table structure.

Syntax

```
drop table table_name
```

Example

```
drop table Product
```

THANKS