Session 17 - MySQL setup & Intro to DDL, DML commands

28 September 2024 11:18

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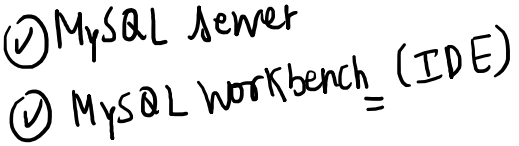
Class will start at 09:05

Agenda:

1. Problem Statement
2. MySQL Workbench Setup
3. Types of SQL commands ✓
4. Constraints ✓
5. Data Types ✓
6. DDL commands
   a. CREATE
   b. ALTER
   c. TRUNCATE
   d. DROP
7. DML commands
   a. INSERT
   b. UPDATE
   c. DELETE
8. TRUNCATE vs. DROP vs. DELETE

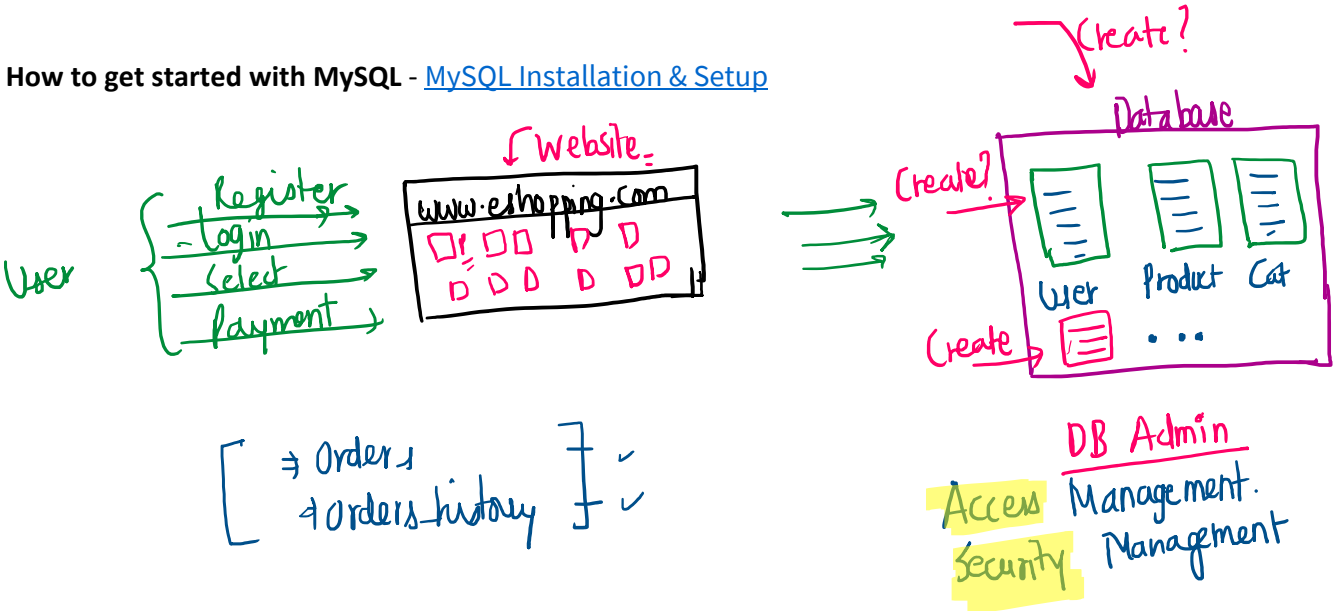


Bookworm Paradise

Bookworm Paradise, established in 2022 by Aleksander Vlad, is a leading online bookstore offering over 1 million titles, from classics to bestsellers, across various genres, including fiction, non-fiction, children's books, etc.
As Bookworm Paradise expands globally, it continues to innovate and enhance its digital platform, aiming to be the go-to destination for book lovers worldwide.

Challenges: As a data administrator for Bookworm Paradise, you need to design and implement a customer database to effectively manage customer information and track their activity.
This database will be crucial for personalizing customer experiences and analysing purchasing trends to optimize marketing strategies.

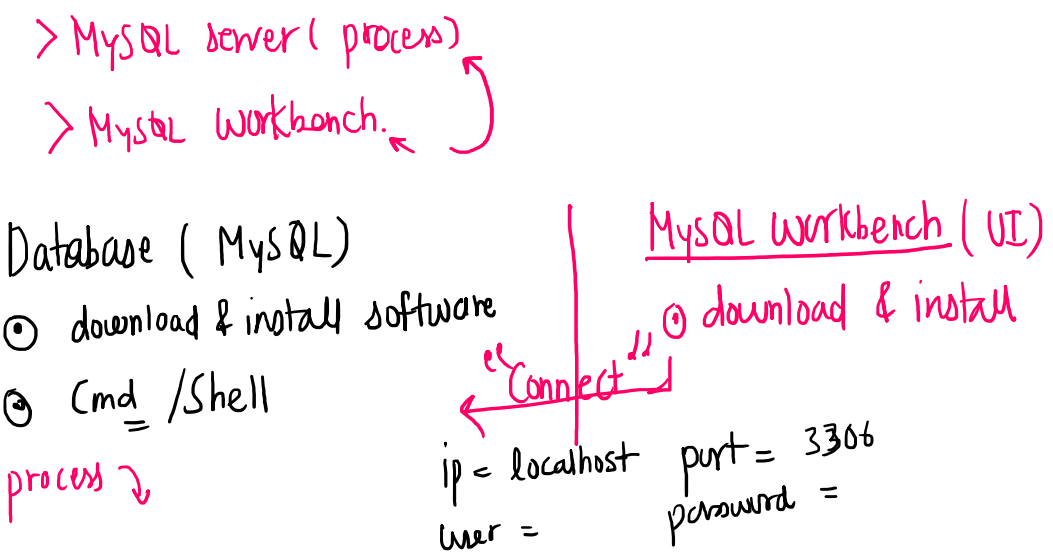
How to get started with MySQL - MySQL Installation & Setup



SQL Commands

- DDL - Data Definition Language — CREATE, ALTER, DROP, TRUNCATE ✓
- DML - Data Manipulation Language — insert, update, delete, ...

- **DDL** - Data Definition Language
- **DML** - Data Manipulation Language
- **TCL** - Transaction Control Language
- **DQL** - Data Query Language - most important
- **DCL** - Data Control Language



CREATE command

CREATE [Database | Table | View | Procedure] <Name>;

```
create database bookworm_paradise;

USE bookworm_paradise;

CREATE TABLE customers (
    ID INT AUTO_INCREMENT PRIMARY KEY,
    first_name VARCHAR(20) NOT NULL,
    last_name VARCHAR(20),
    age INT CHECK(age>=18),
    gender ENUM("M", "F"),
    phone_no CHAR(10) NOT NULL UNIQUE,
    email_id VARCHAR(30),
    dob DATE,
    address VARCHAR(100)
);

select * from customers;
```

Constraints

Constraints

1. Ensure that a value for a column is unique = UNIQUE
2. Ensure that a column can't be Null = NOT NULL
3. Ensure => (Not Null + Unique) = Primary Key.
4. foreign key =>
5. CHECK => Value in a Column satisfies a condition.
6. Default => a default value when there is no value provided. "NA"

QUIZ:

You are creating a table to store user login information. Each user should have a different username. ← "Unique"
Additionally, you want to ensure that the password column cannot contain NULL values.
Which combination of SQL constraints should you use for these columns?

A
UNIQUE for username, NOT NULL for password

B
FOREIGN KEY for username, CHECK for password

C
UNIQUE for username, PRIMARY KEY for password

D
CHECK for username, NOT NULL for password

QUIZ:

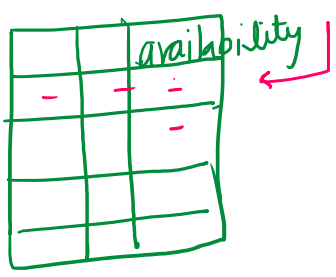
You are designing a table to store product data for an e-commerce website. For the "availability" column, you want to set a value of "In Stock" if no value is specified during insertion.
Which SQL constraint should you use?

A
UNIQUE

B
NOT NULL

C
PRIMARY KEY

D
DEFAULT



Data Types

https://www.w3schools.com/sql/sql_datatypes.asp

1. String = Char(3), [IND, INDIA, IN] = fixed Length.
   = Varchar(5), [INDIA, IND, IN, AMERICA] = Variable Length
   = Enum ("Male", "Female")
   ("Yes", "No")
   ("COMPLETED", "OPEN", "PENDING", "FAILED")

2. Numeric = INT (2, 10, -2, -10, 100)
   = float (size, d) (100.23)
   = Bool (True/false) 1 0

3. Date / Time = Date ("2024-09-30")
   %Y %m %d
   = Time (22:15:00)
   HH MM SS
   = Datetime (2024-09-30 22:15:00)
   = Timestamp ('2024-09-30 22:15:00' UTC)

QUIZ:

You are designing a database for a product catalogue.
You want to store the product's weight, which can include decimal values.
Which SQL data type should you use for the "weight" column?

float ?

A
Int ✗

+ weight

B
Char(5) ✗

C
Float(8, 2)

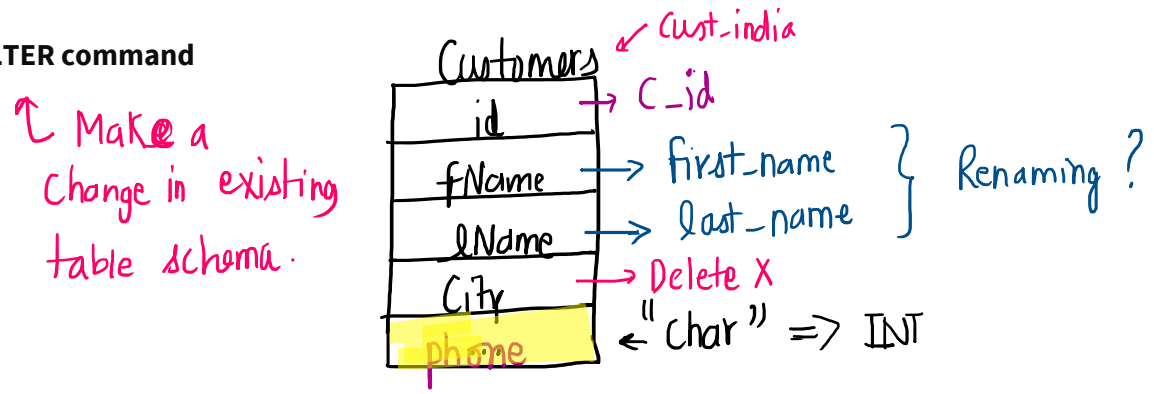
D
Varchar(10) ✗

Break Till : 22:27

ALTER command cust_india

Break Till : 22:27

ALTER command



- Add a new column named 'is_active' to the "customers" table.
  ALTER TABLE customers
  ADD is_active varchar(10);

- Change the data type of the 'is_active' column to INT.
  ALTER TABLE customers
  MODIFY is_active INT;

- Add constraint to the 'is_active' column.
  -- 1/0
  ALTER TABLE customers
  ADD constraint con CHECK(is_active IN (1,0));

- Rename the 'ID' column to 'cust_id'.
  ALTER TABLE customers
  rename column ID to cust_id;

- Delete the 'address' column from the "customers" table.
  ALTER TABLE customers
  drop column address;

- Rename the "customers" table to "cust_info".
  ALTER TABLE customers
  rename to cust_info;

QUIZ:

You have a table named "employees" with a column called "salary." Due to a change in business rules, you need to change the data type of the "salary" column from INT to DECIMAL(10, 2).
Which SQL command should you use?

A
ALTER TABLE employees MODIFY COLUMN salary DECIMAL(10, 2);

B
ALTER TABLE employees CHANGE COLUMN salary DECIMAL(10, 2);

C
ALTER TABLE employees ADD salary DECIMAL(10, 2);

D
ALTER TABLE employees ALTER COLUMN salary DECIMAL(10, 2);

ALTER TABLE employees ADD salary DECIMAL(10, 2);

D
ALTER TABLE employees ALTER COLUMN salary DECIMAL(10, 2);

QUIZ:
You have a table named "students" with a column called "student_id" and you want to change it to "id". Which SQL command should you use to perform this operation?

A
ALTER TABLE students MODIFY COLUMN student_id TO id;

B
ALTER TABLE students ALTER COLUMN student_id TO id;

C
ALTER TABLE students CHANGE COLUMN student_id TO id;

D
ALTER TABLE students RENAME COLUMN student_id TO id;

INSERT command

```
-- INSERT INTO customers(col1,col2,...) VALUES(val1,val2,...);

INSERT INTO cust_info
VALUES(1001,"John","Doe",30,"M","1929929290","admin@admin.com","2000-01-01",1);

INSERT INTO cust_info
VALUES(1002,"John","Doe",20,"M","1929929291","admin@admin.com","2000-01-01",1);

INSERT INTO cust_info(cust_id,first_name,last_name,age,gender,phone_no,email_id,dob,is_active)
VALUES(1003,"John","Doe",20,"M","1929929299","admin@admin.com","2000-01-01",1);

INSERT INTO cust_info(cust_id,first_name,last_name,age,gender,phone_no,email_id,dob)
VALUES(1004,"John","Doe",20,"M","9718707585","admin@admin.com","2000-01-01");

INSERT INTO cust_info(first_name,last_name,age,gender,phone_no,email_id,dob)
VALUES("Prakash","Chauhan",20,"M","9718707581","admin@admin.com","2000-01-01");

select * from cust_info;
```

UPDATE command

```
UPDATE cust_info
 set age = 60,
        email_id = "john_doe@gmail.com"
 where cust_id = 1001;
```

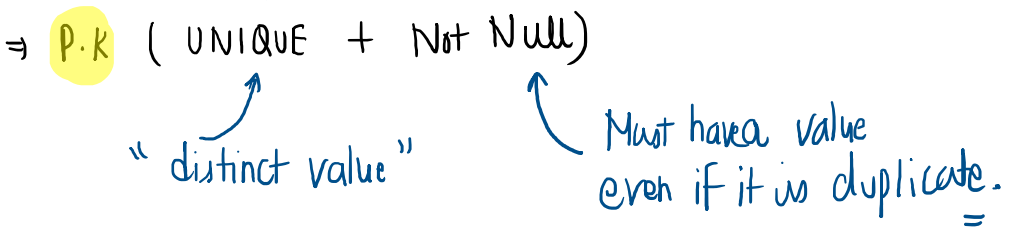
TRUNCATE vs DROP vs DELETE

```
DELETE from cust_info
        where cust_id = 1002;

select * from cust_info;

TRUNCATE table cust_info;

DROP table cust_info;
```

DROP table cust_info;

TRUNCATE	DROP	DELETE
It is a **DDL** command	It is a **DDL** command	It is a **DML** command
Used to delete all the records from a table leaving only the columns.	Used to drop a table or even a database.	Used to delete one or more specific records from a table.
TRUNCATE TABLE table_name;	**DROP** TABLE table_name;	**DELETE** FROM table_name WHERE condition;

Vikas Saini
what is the underlying difference between NOT NULL UNIQUE versus PRIMARY KEY in terms of how the DBMS treat those two differently?



Anjali
Distinct vs Unique .