

# Modifying the Structure of a Table (LAB Lecture)



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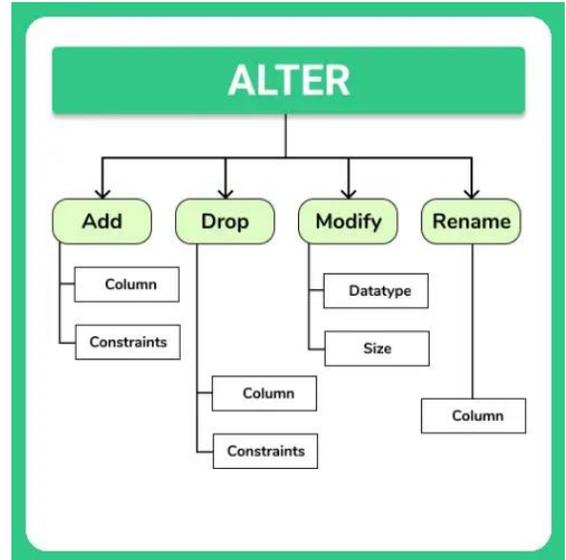
- Modifying the Structure of Table
- Alter Table
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  - Modifying the Data Type of a Column
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# ALTER TABLE

- After creating a table, you can change the table's structure by using **ALTER TABLE** command.

**ALTER TABLE** table\_name  
[any modification];



## Adding a New Column to the Table

- Syntax:

**ALTER TABLE** table\_name  
**ADD** column\_name data\_type;

- Example:

**ALTER TABLE** Student  
**ADD** phone\_number varchar(10);

Table name  
New column  
Data Type

After executing this statement, a new column is added to the **student** table, named **phone\_number**.

	stuld	lastName	firstName	major	credits	phone_number
1	S1001	Smith	Tom	History	90	NULL
2	S1002	Chin	Ann	Mathematics	36	NULL

# Modifying Data Type of a Column

- Syntax:

```
ALTER TABLE table_name  
MODIFY column_name data_type;
```

- Example:

```
ALTER TABLE Student  
MODIFY credits decima(3,1);
```

column

Data Type

Table name

After executing this statement, the datatype of **credits** column in **student** table is changed to **decimal(3,1)**. Its old datatype was **int**.

	stuld	lastName	firstName	major	credits
1	S1001	Smith	Tom	History	90.0
2	S1002	Chin	Ann	Mathematics	36.0

# Drop an Existing Column from a Table

- Syntax:

```
ALTER TABLE table_name  
DROP column_name;
```

- Example:

```
ALTER TABLE Student  
DROP credits;
```

column

Table name

After executing this statement, the **credits** column is removed from **student** table.

	stuld	lastName	firstName	major	credits
1	S1001	Smith	Tom	History	90
2	S1002	Chin	Ann	Mathematics	36

 → 

	stuld	lastName	firstName	major
1	S1001	Smith	Tom	History
2	S1002	Chin	Ann	Mathematics

# Renaming a Column

- Syntax:

```
ALTER TABLE table_name  
RENAME COLUMN old_name TO new_name;
```

- Example:

```
ALTER TABLE Student  
RENAME COLUMN major TO deptName;
```

After executing this statement, the name of **major** column in **student** table is changed to **deptName**.

	stuld	lastName	firstName	major	credits
1	S1001	Smith	Tom	History	90
2	S1002	Chin	Ann	Mathematics	36
3	S1004	Smith	Jack	English	75
4	S1005	Lee	Perry	History	3



	stuld	lastName	firstName	deptName	credits
1	S1001	Smith	Tom	History	90
2	S1002	Chin	Ann	Mathematics	36
3	S1004	Smith	Jack	English	75
4	S1005	Lee	Perry	History	3

# Renaming a Table

- Syntax:

```
ALTER TABLE table_name  
RENAME TO new_table_name;
```

- Example:

```
ALTER TABLE Faculty  
RENAME TO Teacher;
```

After executing this statement, the name of **Faculty** table is changed to **Teacher**.

# Let's Try it!

- Create a database named **university** and **activate** it.
- Create the following tables in the **university** database.
  - student** ( SID , Sname, age)
  - teacher** ( TID , Tname, salary)
  - advisor** ( StudentId, TeacherId, projectTitle)
- Make **SID** and **TID** auto\_increment starting from 1.
- Make sure **Sname** and **Tname** values can not be Null.

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# Create Database and Tables

- Make **SID** and **TID** auto\_increment starting from 1.
- Make sure **Sname** and **Tname** values can not be Null.

student	<u>SID</u>	Sname	age
	1	John	20
	2	Peter	21

Teacher	<u>TID</u>	Tname	salary
	1	Lara	30000
	2	James	24000

Advisor	<u>StudentID</u>	<u>TeacherID</u>	projectTitle
	1	1	IoT
	2	1	Cloud Services

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# Create Database and Tables

```
create database university;

use university;

create table student
(SID int auto_increment,
Sname varchar(60) not null,
age int,
primary key(SID));
```

```
create table teacher
(TID int auto_increment,
Tname varchar(60) not null,
salary int,
primary key(TID));

create table advisor
(studentID int,
teacherID int,
projectTitle varchar(100),
primary key (studentID, teacherID),
foreign key (studentID) references student(SID),
foreign key (teacherID) references teacher(TID));
```

## Let's Try Alter Table Command

- Add a new column to **Teacher** table, showing the rank of teacher.

(The possible values for the rank of teacher are “Lecturer”, “Assistant Professor” and “Professor”.)

- Change the data type of **salary** column from int to decimal(7,1).
- Drop **age** column from **student** table.
- Rename **salary** column in **teacher** table to **income**.
- Rename **Advisor** table to **Supervisor** table.

# Let's Try Alter Table Command

```
alter table teacher  
add teacher_rank varchar(50);
```

Adding a new column named **teacher\_rank** to the **teacher** table.

```
alter table teacher  
modify salary decimal(7,1);
```

Changing the datatype of **salary** column in the **teacher** table to **decimal(7,1)**.

```
alter table student  
drop age;
```

Removing **age** column from **student** table.

```
alter table teacher  
rename column salary to income;
```

Renaming **salary** column in **teacher** table to **income**.

```
alter table advisor  
rename to supervisor;
```

Renaming **advisor** table to **supervisor**.

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