## Constraints

## 1)MySQL NOT NULL Constraint

By default, a column can hold NULL values.

The NOT NULL constraint enforces a column to NOT accept NULL values.

## NOT NULL on CREATE TABLE

CREATE TABLE Persons (  
 ID int NOT NULL,  
LastName varchar(255) NOT NULL,  
FirstName varchar(255) NOT NULL,  
Age int  
);

## NOT NULL on ALTER TABLE

ALTER TABLE Persons  
MODIFY Age int NOT NULL;

## 2)MySQL UNIQUE Constraint

The UNIQUE constraint ensures that all values in a column are different.

Both the UNIQUE and PRIMARY KEY constraints provide a guarantee for uniqueness for a column or set of columns.

A PRIMARY KEY constraint automatically has a UNIQUE constraint.

CREATE TABLE Persons (  
ID int NO TNULL,  
LastName varchar(255) NOTNULL,  
FirstName varchar(255),  
Age int,  
UNIQUE (ID)  
);

## UNIQUE Constraint on ALTER TABLE

ALTERTABLE Persons  
ADDUNIQUE (ID);

## 3) MySQL PRIMARY KEY Constraint

The PRIMARY KEY constraint uniquely identifies each record in a table.

Primary keys must contain UNIQUE values, and cannot contain NULL values.

CREATETABLE Persons (  
ID int ,  
LastName varchar(255) NOTNULL,  
FirstName varchar(255),  
 Age int,  
PRIMARY KEY (ID)  
);

## PRIMARY KEY on ALTER TABLE

ALTER TABLE Persons  
ADD PRIMARY KEY (ID);

## 4) MySQL FOREIGN KEY Constraint

The FOREIGN KEY constraint is used to prevent actions that would destroy links between tables.

A FOREIGN KEY is a field (or collection of fields) in one table, that refers to the [PRIMARY KEY](https://www.w3schools.com/mysql/mysql_primarykey.asp) in another table.

### Persons Table

|  |  |  |  |
| --- | --- | --- | --- |
| PersonID | LastName | FirstName | Age |
| 1 | Hansen | Ola | 30 |
| 2 | Svendson | Tove | 23 |
| 3 | Pettersen | Kari | 20 |

### Orders Table

|  |  |  |
| --- | --- | --- |
| OrderID | OrderNumber | PersonID |
| 1 | 77895 | 3 |
| 2 | 44678 | 3 |
| 3 | 22456 | 2 |
| 4 | 24562 | 1 |

CREATE TABLE Persons (  
ID int NOT NULL,  
LastName varchar(255) NOT NULL,  
FirstName varchar(255),  
Age int,  
PRIMARY KEY (ID)  
);

CREATE TABLE Orders (  
OrderID int NOT NULL,  
OrderNumber int NOT NULL,  
PersonID int,  
PRIMARY KEY (OrderID),  
FOREIGN KEY (PersonID) REFERENCES Persons(PersonID)  
);

## 5)MySQL CHECK Constraint

The CHECK constraint is used to limit the value range that can be placed in a column.

If you define a CHECK constraint on a column it will allow only certain values for this column.

CREATE TABLE Persons (  
ID int NO TNULL,  
LastName varchar(255) NOT NULL,  
FirstName varchar(255),  
Age int ,

CHECK (Age>=18)  
);

## 6) MySQL DEFAULT Constraint

The DEFAULT constraint is used to set a default value for a column.

The default value will be added to all new records, if no other value is specified.

CREATE TABLE Persons (  
ID int NOT NULL,  
LastName varchar(255) NOT NULL,  
FirstName varchar(255),  
Age int,  
City varchar(255) DEFAULT 'Not known'  
);

## 7) MySQL AUTO\_INCREMENT Keyword

MySQL uses the AUTO\_INCREMENT keyword to perform an auto-increment feature.

By default, the starting value for AUTO\_INCREMENT is 1, and it will increment by 1 for each new record.

CREATE TABLE Persons (  
Personid int NOT NULL AUTO\_INCREMENT,  
LastName varchar(255) NOT NULL,  
FirstName varchar(255),  
Age int,  
PRIMARY KEY (Personid)  
);