SQL Constraints

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Constraint	Description
NOT NULL	values cannot be null
UNIQUE	values cannot match any older value
PRIMARY KEY	used to uniquely identify a row
FOREIGN KEY	references a row in another table
CHECK	validates condition for new value
DEFAULT	set default value if not passed
CREATE INDEX	used to speedup the read process

Not Null constraint

```
CREATE TABLE Colleges (
  college_id INT NOT NULL,
  college_code VARCHAR(20) NOT NULL,
  college_name VARCHAR(50)
);
```

Unique Constraint

- The unique constraint in a column means that the column must have unique value.

```
CREATE TABLE Colleges (
  college_id INT NOT NULL UNIQUE,
  college_code VARCHAR(20) UNIQUE,
  college_name VARCHAR(50)
);
```

PRIMARY KEY Constraint

- The primary key constraint is simply a combination of not null and unique constraints. It means that the column value is used to uniquely identify the row.

```
CREATE TABLE Colleges (
  college_id INT PRIMARY KEY,
  college_code VARCHAR(20) NOT NULL,
  college_name VARCHAR(50)
);
```

FOREIGN KEY Constraint

- The foreign key (references in some databases) constraint in a column is used to reference a record that exists in another table.

```
CREATE TABLE Orders (
  order_id INT PRIMARY KEY,
  customer_id int REFERENCES Customers(id)
);
```

CHECK Constraint

- The check constraint checks the condition before allowing values in a table.

```
CREATE TABLE Orders (
  order_id INT PRIMARY KEY,
  amount int CHECK (amount >= 100)
);
```

DEFAULT Constraint

- The Default constraint is used to set the default value if we try to store.

```
CREATE TABLE College (
  college_id INT PRIMARY KEY,
  college_code VARCHAR(20),
  college_country VARCHAR(20) DEFAULT 'US'
);
```

CREATE INDEX Constraint

- If a column has create index constraint it's faster to retrieve data if we use that column for data retrieval.

```
-- create table
CREATE TABLE Colleges (
  college_id INT PRIMARY KEY,
  college_code VARCHAR(20) NOT NULL,
  college_name VARCHAR(50)
);

-- create index
CREATE INDEX college_index
ON Colleges(college_code);
```

Remove Not null constraints

Alter Table CUSTOMERS ALTER COLUMN age INT;

Add not null in existing table –

Alter table CUSTOMERS alter column age INT not null;