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SQL Constraints:

- **NOT NULL** - Ensures that a column cannot have a NULL value(columns will NOT accept NULL values when the 'Person' table is created)

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

- **UNIQUE** - Ensures that all values in a column are different

The following SQL creates a UNIQUE constraint on the "ID" column when the "Persons" table is created

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

- **PRIMARY KEY** - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table

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The following SQL creates a PRIMARY KEY on the "ID" column when the "Persons" table is created

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

- **FOREIGN KEY** - Uniquely identifies a row/record in another table

The following SQL creates a FOREIGN KEY on the "PersonID" column when the "Orders" table is created:

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

- **CHECK** - Ensures that all values in a column satisfies a specific condition

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```
CREATE TABLE Persons (  
    ID int NOT NULL,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255),  
    Age int,  
    CHECK (Age>=18)  
);
```

- **DEFAULT** - Sets a default value for a column when no value is specified

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

```
CREATE TABLE Orders (  
    ID int NOT NULL,  
    OrderNumber int NOT NULL,  
    OrderDate date DEFAULT GETDATE()  
);
```

- **INDEX** - Used to create and retrieve data from the database very quickly

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Indexes are used to retrieve data from the database more quickly than otherwise. The users cannot see the indexes, they are just used to speed up searches/queries.

```
CREATE INDEX index_name  
ON table_name (column1, column2, ...);
```

```
CREATE INDEX idx_lastname  
ON Persons (LastName);
```