RDBMS

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- An RDBMS is a type of database management system which stores data in a row-based table structure.
- The data's stored across tables are related using keys.
- RDBMS is also responsible to maintain the security, accuracy, integrity and consistency of the data.
- The most basic RDBMS operations are to create, read, update and delete data. collectively known as CRUD

Examples: Oracle, MySQL, Informix, DB2.

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Data Modelling - Steps

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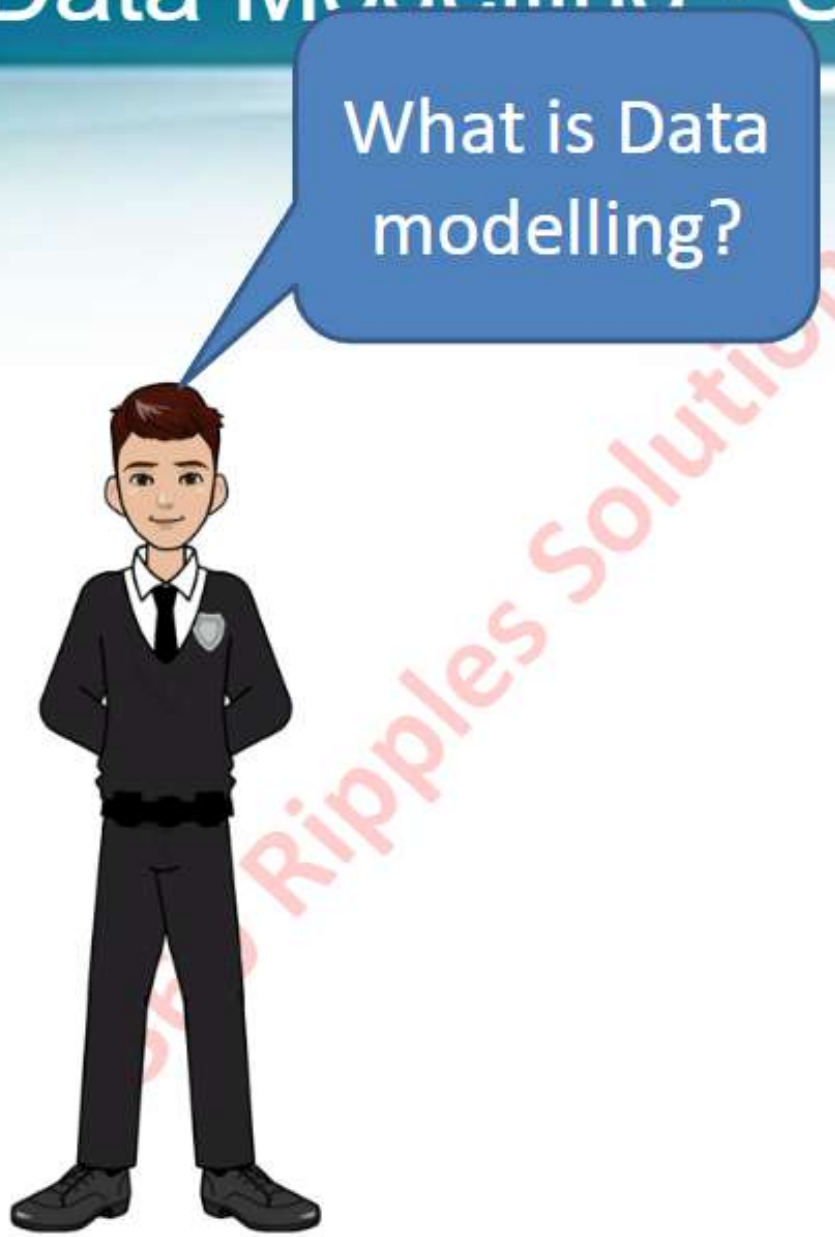

Data Modelling - Steps

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Data modelling is a engineering practise where the business requirements are converted to data model for storing data.

Data Modelling - Steps

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Step 1: Given a Business requirement identify the nouns and adjectives.

Step 2: The nouns are the entities and the adjectives are the states.

Step 3: The entities become the tables and states become the columns of the tables.

States of the objects

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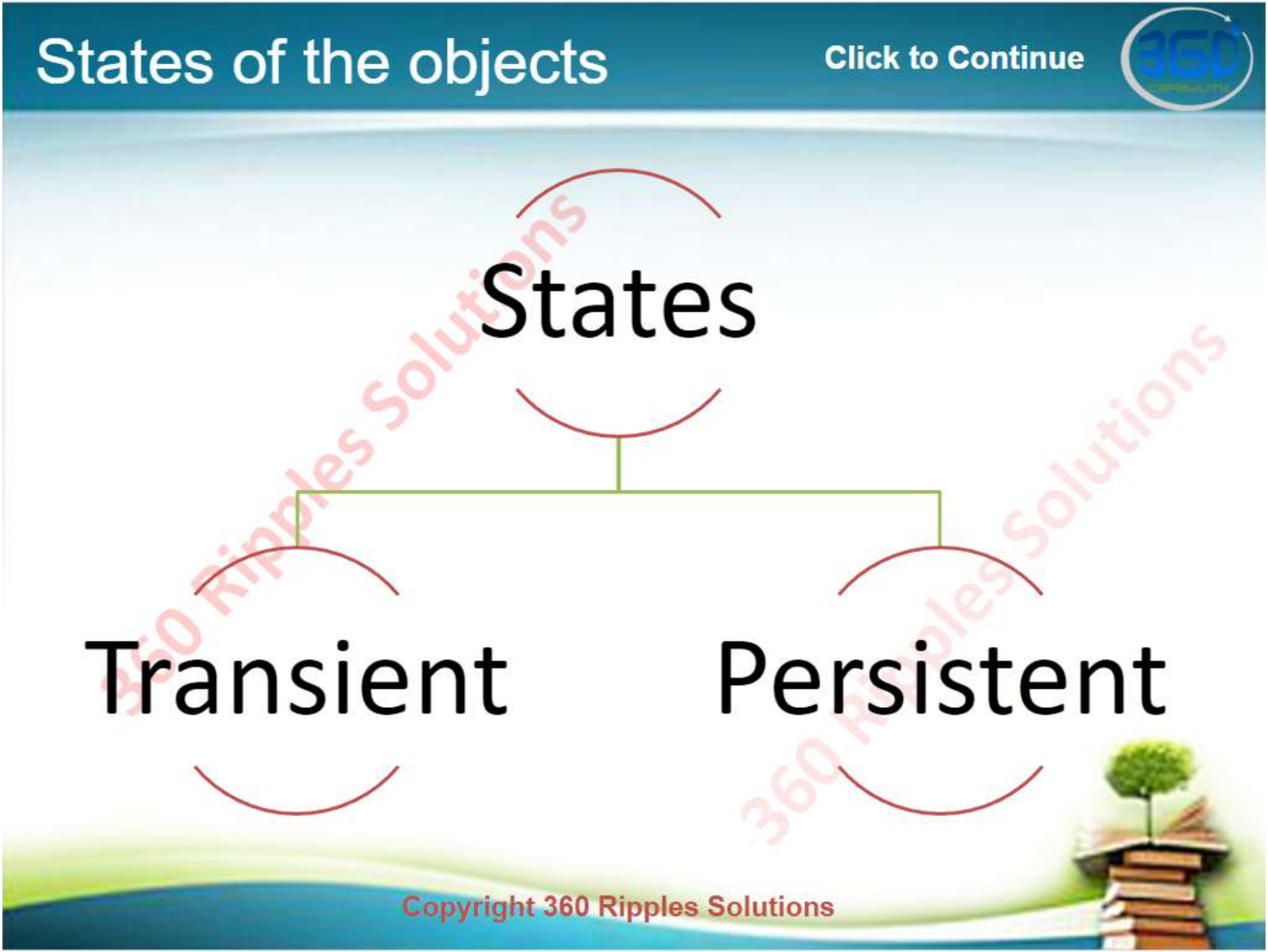

How to persistent states?

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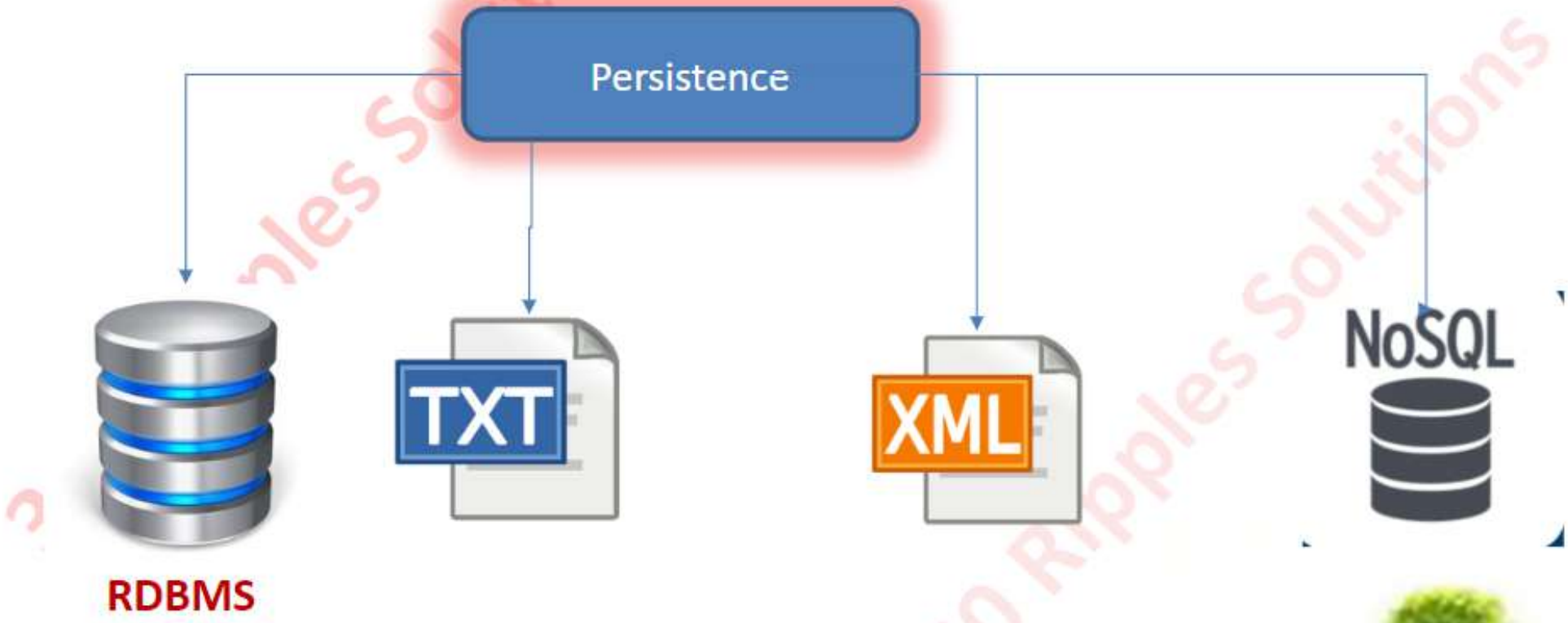
We use the following mechanism to persist the states



Lets take a business requirement

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Lets take a business requirement

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Bus ticket reservation system is a portal which allows the registered users to block and book the bus ticket between two destinations. A person can reserve any number of tickets. And each ticket can have one or more passengers travelling. In case of kids below 3 years old travelling the ticket should not list the kids name and allot a seat but still the kid should be part of the passenger list for record per seat.

Entity & States

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Entities (Nouns)	States (Adjectives)
Bus Ticket	Travel Date Booking Date Price From To Bus Number
User	User Id Name Password DOB Street/City/state/country
Ticket Passenger	Name Age Seat number Ticket id Child Indicator

Entity & States

Click to Continue

	States (Adjectives)
	Travel Date Booking Date Price From To Bus Number
User	User Id Name Password DOB Street/City/state/country
Ticket Passenger	Name Age Seat number Ticket id Child Indicator

Tables

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Tables

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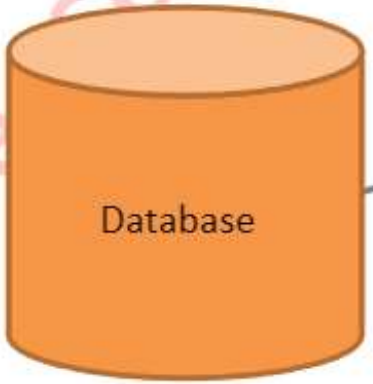
Here the ticket details are stored in ticket table. With the ticket states defined as table columns.



Ticket details stored in tables.

ticket_id	From	To	Date
324	Chennai	Goa	12/12/2018
356	Mum	Goa	12/1/2018

Different Data Types

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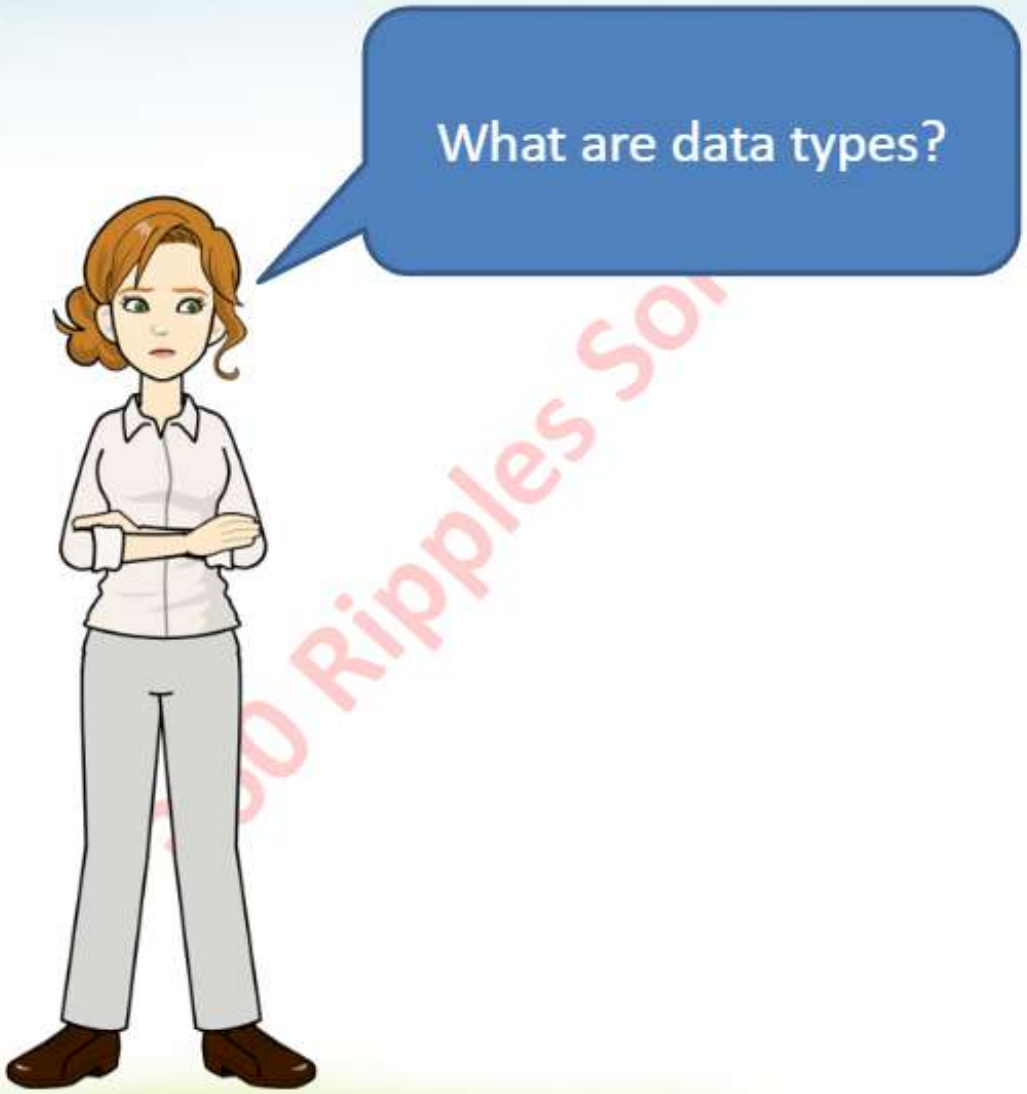

Different Data Types

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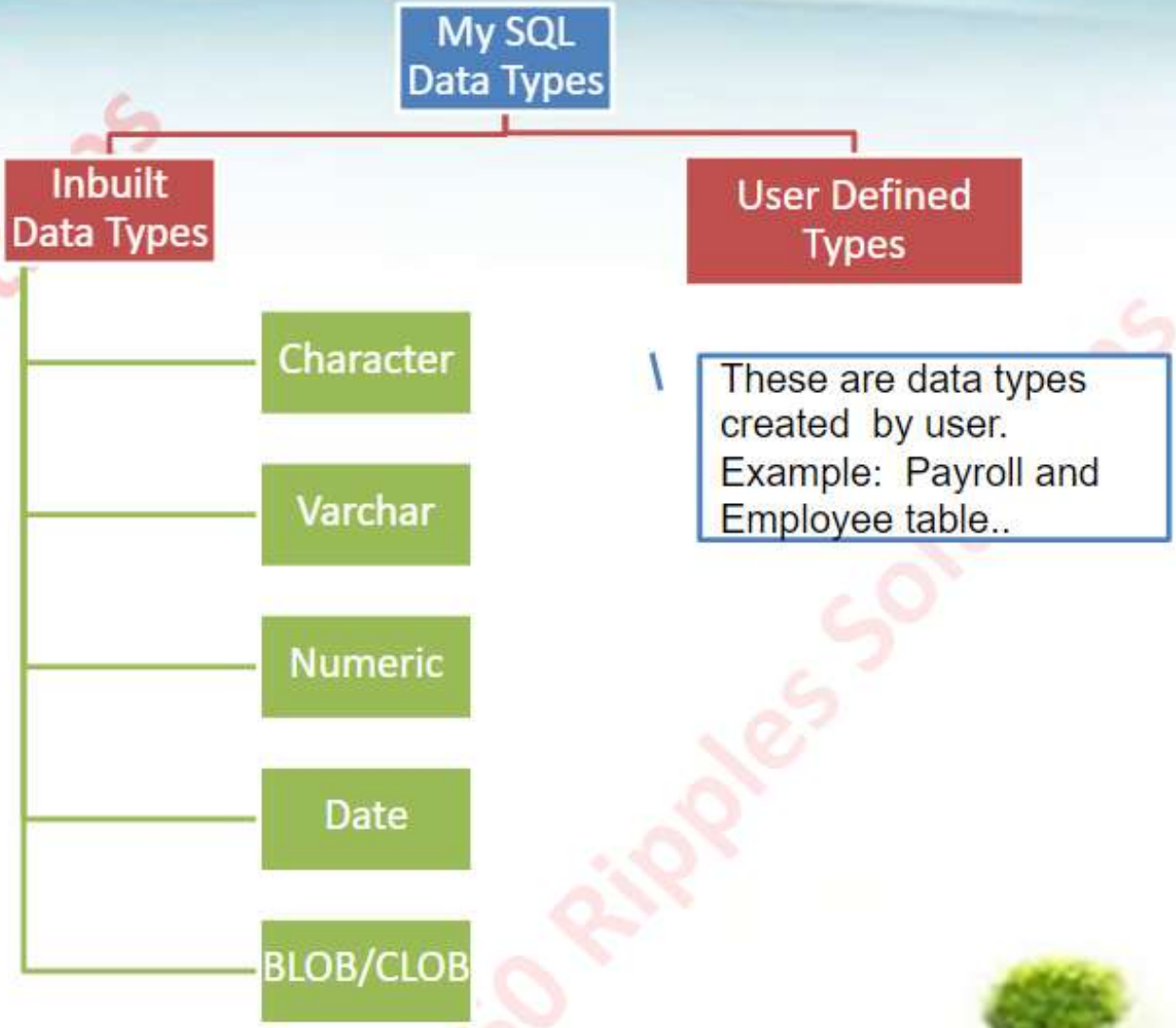
This refers to the type of data associated to the columns of the table.

Different Data Types

Click to Continue

Different Data Types

Click to Continue



Types of SQL Statements

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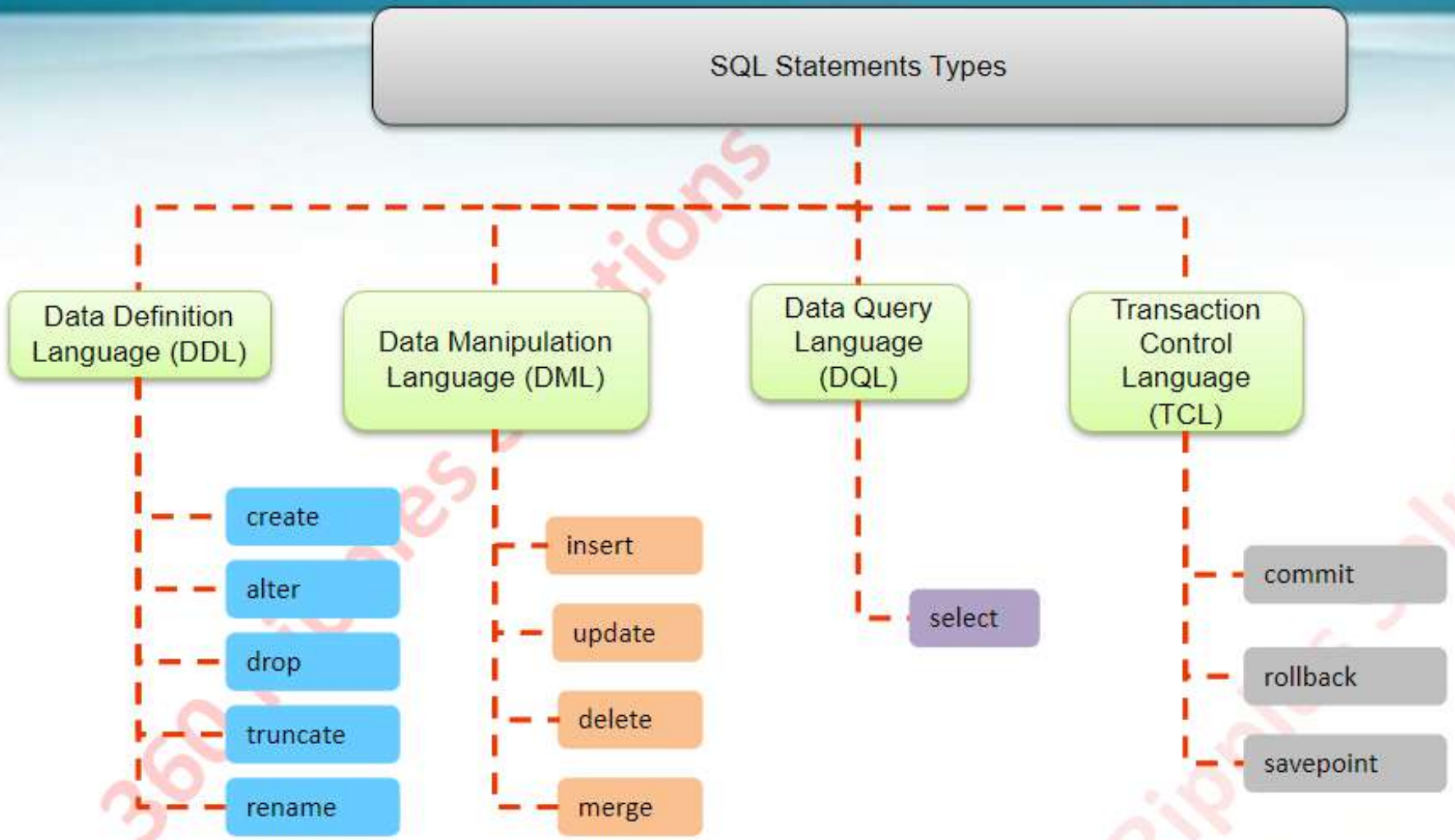

Creating our first table

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Creating our first table

Click to Continue

Creating our first table

Click to Continue

Syntax:

```
CREATE TABLE [SCHEMA.] <table Name>
(
        column_name1 data_type(size) [DEFAULT expr]
        column_name2 data_type(size),
        ....
);
```

Data type represents the type of data associated to the column.

Size refers to the length of data stored in the column.

Creating our first table

Click to Continue

Syntax:

```
EMA.] <table Name>

ame1 data_type(size) [DEFAULT expr]
ame2 data_type(size),
....
);
```

Let us look at a illustration of how a table created to store the bus ticket details.

Data type represents the type of data associated to the column.

Size refers to the length of data stored in the column.

Creating our first table

Click to Continue

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        ....
);
```

Data type represents the type of data associated to the column.

Size refers to the length of data stored in the column.

Illustration:

```
CREATE TABLE IF NOT EXISTS Bus_ticket ( ticket_Id INT NOT NULL,
From_Location VARCHAR(45) NULL, To_location VARCHAR(45) NULL, Price
DECIMAL(2) NULL, Booking_Date DATE NULL,  PRIMARY KEY (ticket_Id))
```

Creating our first table

Click to Continue

Syntax:

```
CREATE TABLE [SCHEMA.] <table Name>
(
        column_name1 data_type(size) [DEFAULT expr]
        column_name2 data_type(size),
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```

We will learn about Primary Key , Null constraints and Default keyword in the coming slides.

Altering tables

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Altering tables is to change the structure of the table created.

Altering tables

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Altering tables

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- Adding/removing columns
- Changing data types
- Rename a column
- Setting Default values of a column

Altering Tables

- **Adding a column:**

  Syntax:

  ALTER TABLE bus_ticket ADD COLUMN Travel_date DATE NULL ;

- **Renaming a column:**

  Syntax:

  ALTER TABLE bus_ticket CHANGE COLUMN Travel_date Travel_Dt DATE NULL;

- **Deleting a column:**

  Syntax:

  ALTER TABLE bus_ticket drop COLUMN Travel_Dt;

Please try this queries in MySQL workbench.

Altering tables

- **Change data type of a column:**

Syntax:

```
ALTER TABLE bus_ticket CHANGE COLUMN From_Location
From_Location VARCHAR(22);
```

- **Renaming a table:**

Syntax:

```
RENAME TABLE bus_ticket to BUS_TKT;
```

- **Dropping a table:**

Syntax:

```
DROP TABLE bus_ticket;
```

Please try this queries in MySQL workbench.