SQL Data Types-

We store data in SQL in the form of tables. Tables are the simplest objects(structures) for data storage that exist in a database.

Below we have given an example of table -

Defining a table using SQL Commands -

```
CREATE TABLE CUSTOMERS(
   ID   INT              NOT NULL,
   Ninaja_Name VARCHAR (20)     NOT NULL,
   Ninja_Age  INT               NOT NULL,
   Ninja_Address  CHAR (25) ,
   Ninja_Goal CHAR(25),
   PRIMARY KEY (ID)
);
```

This command will result into creation of a table -

ID	Ninja_Name	Ninja_Age	Ninja_Address	Ninja_Goal

From a SQL command for each column attribute we have defined a specific data type. In case of ID it is INT i.e Integer and similarly in case of Ninja_Name it is VARCHAR i.e a variable length string.

While choosing a data type for a column attribute we have to think of

1. Value we want to represent - like if it is a name(Character data type will be most suitable, VARCHAR) or Age(Numerical data type will be more relevant, INT)
2. Space or Memory that value will occupy - like if we are taking customer feedback we need to store value in a variable character data type, VARCHAR.

Below we have given three main types of data types -

String Data Types -

Datatype	Description
CHAR(size)	A FIXED length string (can contain letters, numbers, and special

	characters). The *size* parameter specifies the column length in characters - can be from 0 to 255. Default is 1
VARCHAR(size)	A VARIABLE length string (can contain letters, numbers, and special characters). The *size* parameter specifies the maximum column length in characters - can be from 0 to 65535
BINARY(size)	Equal to CHAR(), but stores binary byte strings. The *size* parameter specifies the column length in bytes. Default is 1
VARBINARY(size)	Equal to VARCHAR(), but stores binary byte strings. The *size* parameter specifies the maximum column length in bytes.

Numeric Data Types:

Datatype	Description
BIT(*size*)	A bit-value type. The number of bits per value is specified in *size*. The *size* parameter can hold a value from 1 to 64. The default value for *size* is 1.
TINYINT(*size*)	A very small integer. Signed range is from -128 to 127. Unsigned range is from 0 to 255. The *size* parameter specifies the maximum display width (which is 255)
INT(*size*)/ INTEGER(*size*)	Signed range is from -2147483648 to 2147483647. Unsigned range is from 0 to 4294967295. The *size* parameter specifies the maximum display width (which is 255)
FLOAT(*p*)	A floating point number. MySQL uses the *p* value to determine whether to use FLOAT or DOUBLE for the resulting data type. If *p* is from 0 to 24, the data type becomes FLOAT(). If *p* is from 25 to 53, the data type becomes DOUBLE()
DECIMAL(*size*, *d*)	The number of digits after the decimal point is specified in the *d* parameter. The maximum number for *size* is 65. The maximum number for *d* is 30. The default value for *size* is 10. The default value for *d* is 0.

Date and Time Data Types:

Datatype	Description
DATE	Format: YYYY-MM-DD. The supported range is from '1000-01-01' to '9999-12-31'
DATETIME	This is a date and time combination in the format: YYYY-MM-DD hh:mm:ss. The supported range starts from '1000-01-01 00:00:00' and end at '9999-12-31 23:59:59'.
TIME	This is a time Format: hh:mm:ss. The supported range is starts from '-838:59:59' and ends at '838:59:59'
TIMESTAMP	TIMESTAMP values are stored as the number of seconds. Format: YYYY-MM-DD hh:mm:ss. The supported range is from '1970-01-01 00:00:01' UTC to '2038-01-09 03:14:07' UTC.