**Lab -2**

**MySQL Data Types**

**Integer Types**

**TINYINT :-** A very small integer. Signed range is from -128 to 127. Unsigned range is from 0 to 255. An example usage of TINYINT is a person's family members.

**SMALLINT :-** A small integer. Signed range is from -32768 to 32767. Unsigned range is from 0 to 65535. The SMALLINT value is stored as a signed binary integer.

**MEDIUMINT:-** A medium integer. Signed range is from -8388608 to 8388607. Unsigned range is from 0 to 16777215.

**INT:-** A medium integer. Signed range is from -2147483648 to 2147483647. Unsigned range is from 0 to 4294967295.

**BIGINT:-** BIGINT data type to store large integral values.

**Fixed-Point-Type**

**DECIMAL:-** An exact fixed-point number. The total number of digits is specified in *size*. 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.

**NUMERIC:-** The numeric data type in SQL is one of the most widely used data types to store numeric values. Numbers in SQL can be either exact (NUMERIC, DECIMAL, INTEGER, BIGINT, and SMALL INT) or approximate (DOUBLE PRECISION, FLOAT, and REAL). The exact numeric type, precision, and scale are preserved.

**Floating-Point Types**

**FLOAT:-** A floating point number. The total number of digits is specified in *size*. The number of digits after the decimal point is specified in the *d* parameter.

**DOUBLE:-** DOUBLE is a double precision floating point number. MySQL uses eight bytes to store a DOUBLE value.

**Bit – Value Type**

**BIT**: 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. `

**Date and Time Data Type**

**DATE:-** A date. Format: YYYY-MM-DD. The supported range is from '1000-01-01' to '9999-12-31'MySQL displays DATE values in'YYYY-MM-DD' format.

**TIME**:- A time. Format: hh:mm:ss. The supported range is from '-838:59:59' to '838:59:59'.

**DATETIME**:- A date and time combination. Format: YYYY-MM-DD hh:mm:ss. The supported range is from '1000-01-01 00:00:00' to '9999-12-31 23:59:59'. Adding DEFAULT and ON UPDATE in the column definition to get automatic initialization and updating to the current date and time.

**TIMESTAMP**:- A timestamp. TIMESTAMP values are stored as the number of seconds since the Unix epoch ('1970-01-01 00:00:00' UTC). 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. Automatic initialization and updating to the current date and time can be specified using DEFAULT CURRENT\_TIMESTAMP and ON UPDATE CURRENT\_TIMESTAMP in the column definition.

**YEAR**:- Returns the year for date, in the range 1000 to 9999, or 0 for the "zero" date. Returns NULL if date is NULL.

**String Data Type**

**CHAR:** 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:**  A VARIABLE length string (can contain letters, numbers, and special characters). The *size* parameter specifies the maximum string length in characters - can be from 0 to 65535

**SET:**- The SET data type in MySQL is similar to the ENUM data type, but it allows you to create a custom list of multiple allowed values for a column.

**BLOB:-** The BLOB data type is used to store large binary objects. It stands for "Binary Large Object" and can store variable-length binary data.

**ENUM:-** ENUM data type in MySQL allows you to create a custom list of allowed values for a column. It restricts the column to only hold one of the values you specify in the list. It's like creating a multiple-choice question with predefined answer options, and the column can only store one of those answers.