RELATIONAL DATABASES

DATA TYPES

MYSQL DATA TYPES

- MYSQL SUPPORTS A NUMBER OF SQL DATA TYPES IN SEVERAL CATEGORIES:
  - Numeric, date and time, string, spatial and json data types
- DATA TYPE DESCRIPTIONS USE THE FOLLOWING CONVENTIONS:
  - *M* indicates the max display width for integers, for floats it is the total number of digits stored (precision).
  - *D* applies to floats indicating the number of digits after the decimal (scale) (<=30).
  - *Fsp* applies to time, datetime and timestamp and represents fractional seconds precision, that is the number of digits after the decimal point (between 0 and 6)
  - *[]* indicate optional parts to type definitions

MYSQL DATA TYPES

- NUMERIC TYPE

- MAXIMUM WIDTH IS 255.
    - **Bit** [(m)]   from 1 to 64
    - **Tinyint** [(m)] **[unsigned] [zerofill]**
    - **Bool, Boolean** true or false
    - **Smallint** [(M)] **[unsigned] [zerofill]**
    - **mediumint** [(M)] **[unsigned] [zerofill]**
    - **int** [(M)] **[unsigned] [zerofill]**
    - **Bigint** [(M)] **[unsigned] [zerofill]**
    - **Decimal** [(m[,D])] **[unsigned] [zerofill]** 0 to 64
    - **Float** [(M[,D])] **[unsigned] [zerofill]** single precision

MYSQL DATA TYPES

- DATE AND TIME TYPES

- MAXIMUM FRACTIONAL SECONDS IS MICROSECONDS (6 DIGIT PRECISION)

  - **date** up to 9999-12-31, displayed as 'yyyy-mm-dd' allows assignment by strings or numbers

  - **Datetime [(fsp)]** displayed as 'yyy-mm-dd hh:mm:ss[.fraction]' default precision is 0

  - **Timestamp [(fsp)]** stored as the number of seconds since the epoch (1st jan 1970)

  - **Time [(fsp)]** displayed as 'hh:mm:ss[.fraction]'

  - **Year [(4)]** YYYY format

MYSQL DATA TYPES

- STRING TYPES
  - **Char** [(m)] [**character set charset_name**] [**COLLATE collation_name**] fixed length, right side padded with spaces to specified length, default is 1.
  - **VARCHAR (M)** [**CHARACTER SET charset_name**] [**COLLATE collation_name**] variable length string, M is max length, 0 to 65,535.
  - **BINARY** [(M)] similar to CHAR but stores binary byte strings.
  - **VARBINARY (M)** similar to VARCHAR but stores binary byte strings.
  - **TINYBLOB**
  - **BLOB** [(M)]
  - **ENUM ('value1', 'value2', …)** [**CHARACTER SET charset_name**] [**COLLATE collation_name**] string object that can have only one value chosen from the list of values