v1.16012021

executive version Server-Version: 10.1.38-MariaDB

path

```
ALTER TABLE exercise_1.trainingstaff ADD Raumnummer INTEGER;
```

Database Table

Strings

```
SELECT * FROM products;                                          /* show all entries from products */
SELECT DISTINCT Games FROM products;                             /* show all unique entries from products */
SELECT * FROM products WHERE Price > 40;                         /* show all entries from products, if Price bigger than 40 € */
SELECT * FROM products WHERE Price > 40 AND Price < 100;         /* show all entries from products, if Price bigger than 40 € and
                                                                    Preis smaller than 100 € */

CREATE TABLE events AS SELECT Subject, Roomnumber FROM trainingstaff;   /* create events take all data of column Subject and
                                                                           Roomnumber from table trainingstaff*/
SELECT * FROM exercise_5.nobelist WHERE nobelist_name LIKE 'Louis%';    /* Select all with Surname Louis */
SELECT * FROM exercise_5.nobelist WHERE nobelist_name LIKE '%s%';       /* Select all which contain small s in their names */
```

Change attributes

```
ALTER TABLE exercise_1.trainingstaff ADD Roomnumber INTEGER;   /* set INTEGER Value to DOUBLE with 6 digits before comma and 2 digits after
                                                                  comma */
ALTER TABLE exercise_1.trainingstaff MODIFY Age DOUBLE(6,2);   /* set INTEGER Value to Float with 5 digits before comma and 2 digits after
                                                                  comma */
ALTER TABLE exercise_1.trainingstaff MODIFY Age FLOAT(5,2);    /* set Foreign Key to Column Studio from Table studio of Studio */

ALTER TABLE exercise_2.products ADD CONSTRAINT Studio FOREIGN KEY (Studio) REFERENCES studio(Studio);

ALTER TABLE exercise_4.trainingstaff ADD FOREIGN KEY (salesmen_ID) REFERENCES exercise_4.staff(staff_ID);

                                                               /*
                                                                 The FOREIGN KEY constraint is used
                                                                  - to prevent actions that would destroy links between tables.
                                                                  - prevents invalid data from being inserted into the foreign key column,
                                                                    because it has to be one of the values contained in the table it points to.
                                                               */
```

Codd's 12 rules

Rule 0: The foundation rule
Rule 1: The information rule
Rule 2: The guaranteed access rule
Rule 3: Systematic treatment of null values
Rule 4: Dynamic online catalog based on the relational model
Rule 5: The comprehensive data sublanguage rule
Rule 6: The view updating rule
Rule 7: Possible for high-level insert, update, and delete
Rule 8: Physical data independence
Rule 9: Logical data independence
Rule 10: Integrity independence
Rule 11: Distribution independence
Rule 12: The nonsubversion rule

Check changes

```
SELECT products.Games, products.Price, studio.Studio, studio.Headcount FROM products LEFT JOIN studio ON products.Studio = studio.Studio   /* checks Foreign Key */
```

DELETE / DROP

```
DELETE FROM events WHERE Roomnumber ='120';                    /* delete all rows which contain
                                                                  Roomnumber with value 120 */
ALTER TABLE events DROP COLUMN Roomnumber ;                    /* delete COLUMN Roomnumber*/
DROP DATABASE excersie2;                                       /* delete whole database */
ALTER TABLE exercise_2.products DROP FOREIGN KEY studio;       /* removes Foreign Key */
```

INSERT

```
INSERT INTO exercise_1.trainingstaff VALUES('Baller','Programming',29);
INSERT INTO exercise_1.trainingstaff VALUES('Zanker','Programming',22);
```

CREATE

```
CREATE DATABASE exercise_1;                  /* creates related database  */
SET NAMES utf8 ;                             /* use for the names charset utf8 */
SET CHARACTER_SET_CLIENT = utf8mb4 ;         /* use for communication with the client utf8, utf8mb4 = MySQL UTF-8 */
CREATE TABLE trainingstaff (                 /* builds a table, named trainingdtaff */
  Name VARCHAR(20) PRIMARY KEY,              /* Name, Subject, Age =  variable names */
  Subject VARCHAR(50) NOT NULL,              /* VARCHAR, INT = data typ, VARCHAR(20) String with 20 digits */
  Age INT(2) CHECK(Age>18)                   /* PRIMARY KEY allows access to row */
);
```

Data types

```
BIT                                          /* short numbers like 0 or 1 in range of 1 to 64 */
INT or INTEGER                               /* numbers in range of  -2.147.483.648 to 2.147.483.647 */
FLOAT                                        /* floating point number 32 bit, 7 digits e.g. 4.2 */
DOUBLE                                       /* normal size floating point number 64 bit, 15-16 digits*/
DECIMAL                                      /* exact fixed-point number 128 bit, 28-29 significant digits */

CHAR(10) or CHARACTER(10)                    /* strings  with fixed length, in this case 10 digits */
VARCHAR(20) or CHARACTER VARYING (20)        /* strings  with variable length, in this case 20 digits */
FLOAT(2)                                     /* 54321.1 */
FLOAT(3,2)                                   /* 1.12 */
DOUBLE(5,2)                                  /* 312.12 */
DECIMAL(4,2)                                 /* 21 */
DECIMAL(4,2)                                 /* 21.12 */

constraint                                   /* used to specify rules for the data in a table */
NOT NULL                                     /* must be defined */
```

General Information

```
CREATE TABLE trainingstaff (                 /* single enumerations are separated by a comma , */
  Name VARCHAR(20) PRIMARY KEY,              /* commands are separated by a semicolon ; */
  Subject VARCHAR(50),
  Age INT(2)
);
```