DB: PIZZERIE pro MySQL

Konceptuální návrh

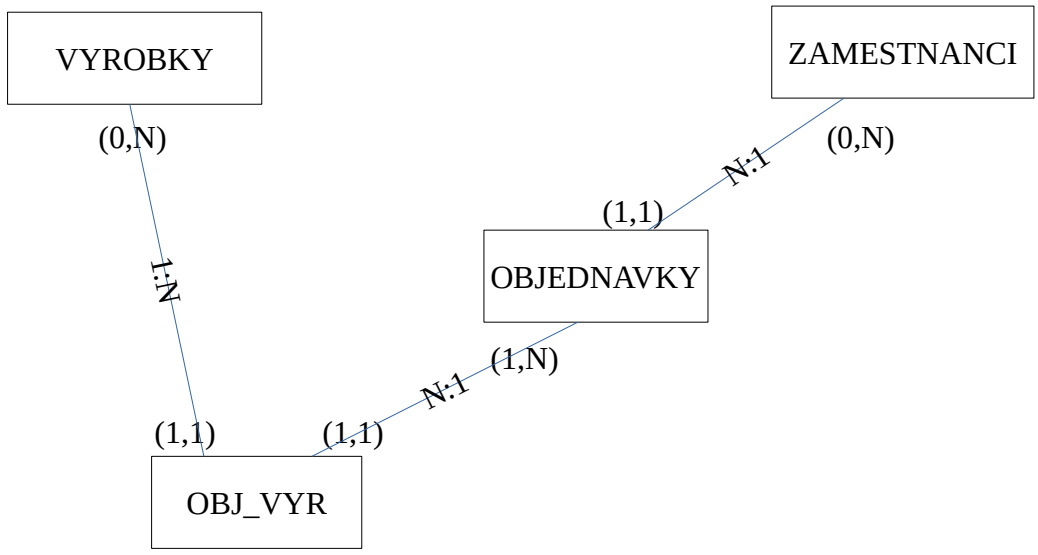
DB: PIZZERIE
E: VYROBKY (ID_VYR, NAZEV, CENA, POPIS)
E: ZAMESTNANCI (ID_ZAM, JMENO, PRIJMENI, ZAM_OD)
E: OBJEDNAVKY (ID_OBJ, DATUM_CAS, ZAMESTNANEC(FK))

R: obsahuje (OBJEDNAVKY, VYROBKY) M:N
1 → N
N ← 1

E: OBJ_VYR (OBJEDNAVKA(FK), VYROBEK(FK), POCET_KUSU)

R: ma (ZAMESTNANCI, OBJEDNAVKY) 1:N
1 → N
1 ← 1

IO: CENA > 0
DATUM_CAS ≤ DNESNI DATUM
|TELEFON| = 9 cifer
POCET_KUSU ≥ 1
CENA > 0



Logický návrh

E: VYROBKY (ID_VYR, NAZEV, CENA, POPIS) 3NF
E: ZAMESTNANCI (ID_ZAM, JMENO, PRIJMENI, ZAM_OD) 3NF
E: OBJEDNAVKY (ID_OBJ, DATUM_CAS, ZAMESTNANEC(FK)) 3NF

E: OBJ_VYR (OBJEDNAVKA(FK), VYROBEK(FK), POCET_KUSU) 1NF

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Fyzický návrh – popis dat

```
CREATE DATABASE Pizzerie;
SHOW DATABASES;
USE Pizzerie;
SELECT DATABASE();


CREATE TABLE Vyrobky
(
id_vyr smallint(3) UNSIGNED ZEROFILL NOT NULL,
nazev char(30) UNIQUE NOT NULL,
cena decimal(5,2),
popis varchar(40),
PRIMARY KEY(id_vyr)
);

DELIMITER $
CREATE TRIGGER ch BEFORE INSERT ON vyrobky
FOR EACH ROW
BEGIN
     DECLARE zprava varchar(20);
     IF (NEW.cena=0) THEN SET zprava = CONCAT ('Cenu nulu nevkládej!');
                          SIGNAL sqlstate '45000' SET message_text = zprava;
     END IF;
END $
DELIMITER ;

SHOW CREATE TABLE Vyrobky;
DESCRIBE Vyrobky;
SHOW INDEXES IN Vyrobky \G

/* CHECK v MySQL nefunguje */
SHOW CREATE TRIGGER ch\G
SHOW TRIGGERS\G
DROP TRIGGER ch;



CREATE TABLE Zamestnanci
(
id_zam tinyint UNSIGNED NOT NULL auto_increment,
jmeno varchar(20) not null,
prijmeni varchar(30) not null,
zam_od date,
PRIMARY KEY(id_zam)
);

SHOW CREATE TABLE Zamestnanci;
DESCRIBE Zamestnanci;
SHOW INDEXES IN Zamestnanci \G
```

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```
CREATE TABLE Objednavky
(
id_obj int(5) UNSIGNED ZEROFILL NOT NULL auto_increment,
datum_cas datetime UNIQUE NOT NULL,
zamestnanec tinyint UNSIGNED,
FOREIGN KEY(zamestnanec) REFERENCES Zamestnanci(id_zam),
PRIMARY KEY(id_obj)
 );

SHOW CREATE TABLE Objednavky;
DESCRIBE Objednavky;
SHOW INDEXES IN Objednavky \G



CREATE TABLE Obj_Vyr
(
objednavka int(5) UNSIGNED ZEROFILL NOT NULL,
vyrobek smallint(3) UNSIGNED ZEROFILL NOT NULL,
pocet_kusu tinyint UNSIGNED DEFAULT 1,
CONSTRAINT obj_fk FOREIGN KEY (objednavka) REFERENCES Objednavky(id_obj),
CONSTRAINT vyr_fk FOREIGN KEY (vyrobek) REFERENCES Vyrobky(id_vyr)
);

SHOW CREATE TABLE Obj_Vyr;
DESCRIBE Obj_Vyr;
SHOW INDEXES IN Obj_Vyr \G
SHOW TABLES;
```

Opakování, pokud bych chtěl úpravy:

```
alter table zamestnanci modify jmeno varchar(20);
alter table zamestnanci add prijmeni varchar(30) not null after jmeno;
alter table zamestnanci auto_increment=5;
alter table zamestnanci drop column jmeno;
alter table objednavky change datum datum_cas datetime UNIQUE NOT NULL;
```

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VZOROVÁ DATA

```
INSERT INTO  Vyrobky VALUES (001, 'Carpaccio', 155, NULL);     /* smallint(3) ZEROFILL */
INSERT INTO  Vyrobky VALUES (002, 'Fausto', 115, NULL);
INSERT INTO  Vyrobky VALUES (003, 'Funghi', 105, NULL);
INSERT INTO  Vyrobky VALUES (004, 'Hawai', 127, NULL);
INSERT INTO  Vyrobky VALUES (005, 'Quatro formaggi', 157, NULL);
INSERT INTO  Vyrobky VALUES (006, 'Rustica', 159, NULL);
INSERT INTO  Vyrobky VALUES (007, 'Trapolla', 145, NULL);
INSERT INTO  Vyrobky VALUES (101, 'Insalata Belucci', 125, NULL);
INSERT INTO  Vyrobky VALUES (102, 'Insalata Caesar', 128, ' malá');
INSERT INTO  Vyrobky VALUES (103, 'Insalata Greca', 109, NULL);


INSERT INTO Zamestnanci VALUES (NULL, 'Jan', 'Novák', '2005-02-01');
INSERT INTO Zamestnanci VALUES (NULL, 'Emil', 'Král', '2005-03-15');
INSERT INTO Zamestnanci VALUES (NULL, 'Václav', 'Nový', '2005-05-25');


INSERT INTO Objednavky VALUES (NULL, '2005-08-12 08-13-20', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Jan'));
INSERT INTO Objednavky VALUES (NULL, '2005-08-12 08-14-25', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Emil'));
INSERT INTO Objednavky VALUES (NULL, '2005-08-12 08-25-16', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Jan'));
INSERT INTO Objednavky VALUES (NULL, '2005-08-13 08-40-11', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Jan'));
INSERT INTO Objednavky VALUES (NULL, '2005-08-13 09-01-01', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Václav'));
INSERT INTO Objednavky VALUES (NULL, '2005-08-13 09-02-15', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Václav'));
INSERT INTO Objednavky VALUES (NULL, '2005-08-14 09-10-13', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Jan'));
INSERT INTO Objednavky VALUES (NULL, '2005-08-14 09-52-00', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Emil'));
```

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```
INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-12 08-13-20'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Funghi'),
2
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-12 08-13-20'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Carpaccio'),
1
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-12 08-14-25'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Carpaccio'),
1
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-12 08-25-16'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Insalata Belucci'),
4
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-13 08-40-11'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Fausto'),
2
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-13 09-01-01'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Carpaccio'),
1
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-13 09-02-15'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Insalata Caesar'),
3
);
```

```
INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-14 09-10-13'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Rustica'),
1
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-14 09-10-13'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Trapolla'),
4
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-14 09-52-00'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Hawai'),
1
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-14 09-52-00'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Quatro formaggi'),
1
);

INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-14 09-52-00'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Insalata Belucci'),
2
);
```

DOTAZY

```
DELIMITER $
CREATE PROCEDURE prvni()
BEGIN
SELECT
o.id_obj,
date(o.datum_cas),
concat(z.prijmeni, ' ', z.jmeno) as zamestnanec,
count(ov.vyrobek) as druhy,
sum(ov.pocet_kusu) as pocet,
sum(ov.pocet_kusu*v.cena) as cena
FROM (zamestnanci as z JOIN objednavky as o ON z.id_zam=o.zamestnanec)
        JOIN
        (obj_vyr as ov JOIN vyrobky as v ON ov.vyrobek=v.id_vyr)
        ON o.id_obj=ov.objednavka
GROUP BY o.id_obj
ORDER BY cena DESC
LIMIT 2,3;
END $
DELIMITER ;

CALL prvni;
SHOW CREATE PROCEDURE prvni\G
SHOW PROCEDURE STATUS WHERE DB = 'pizzerie'\G
DROP PROCEDURE první;

/* jinak to samé: */

DELIMITER $
CREATE PROCEDURE druhy()
BEGIN
SELECT
o.id_obj,
date(o.datum_cas),
concat(z.prijmeni, ' ', z.jmeno) as zamestnanec,
count(ov.vyrobek) as druhy,
sum(ov.pocet_kusu) as pocet,
sum(ov.pocet_kusu*v.cena) as cena
FROM ((objednavky as o
        JOIN zamestnanci as z ON (o.zamestnanec = z.id_zam))
        JOIN obj_vyr as ov ON (o.id_obj = ov.objednavka))
        JOIN vyrobky as v ON (ov.vyrobek = v.id_vyr)
GROUP BY o.id_obj
ORDER BY cena DESC
LIMIT 2,3;
END $
DELIMITER ;

CALL druhy;
```

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```
CREATE VIEW prehled AS
SELECT
o.id_obj,
date(o.datum_cas),
concat(z.prijmeni, ' ', z.jmeno) as zamestnanec,
sum(ov.pocet_kusu*v.cena) as cena
FROM (zamestnanci as z JOIN objednavky as o ON z.id_zam=o.zamestnanec)
        JOIN
        (obj_vyr as ov JOIN vyrobky as v ON ov.vyrobek=v.id_vyr)
        ON o.id_obj=ov.objednavka
GROUP BY o.id_obj;

SELECT * FROM prehled;
SHOW CREATE VIEW prehled\G
SHOW FULL TABLES IN pizzerie;
DROP VIEW prehled;



DELIMITER $
CREATE PROCEDURE treti()
BEGIN
SELECT
v.nazev,
sum(ov.pocet_kusu) as pocet
FROM vyrobky as v JOIN obj_vyr as ov ON v.id_vyr=ov.vyrobek
WHERE v.nazev NOT LIKE 'Insalata%'
GROUP BY v.nazev
HAVING pocet>3
ORDER BY pocet DESC;
END $
DELIMITER ;

CALL treti;



SELECT z1.jmeno as jmena FROM zamestnanci AS z1
UNION ALL
SELECT z2.prijmeni FROM zamestnanci AS z2
ORDER BY jmena;

/* v jednom sloupečku budou jména a pak příjmení */



SELECT * FROM vyrobky
WHERE cena>(SELECT ROUND(AVG(cena),2) FROM vyrobky);
```

```
SELECT * FROM vyrobky
WHERE cena > ANY(SELECT cena FROM vyrobky WHERE nazev LIKE 'Insalata%');

> ANY       any je minimum
< ANY       any je maximum


SELECT * FROM vyrobky
WHERE cena > ALL(SELECT cena FROM vyrobky WHERE nazev LIKE 'Insalata%');

> ALL   větší než maximální


SELECT nazev FROM vyrobky ORDER BY rand() LIMIT 1;

/* seřadí náhodně a pak vypíše první */


CREATE VIEW dostupnost AS
SELECT
    nazev,
    CASE
    WHEN cena >= 140 THEN 'drahé'
    WHEN cena >= 120 AND cena <140 THEN 'ujde'
    ELSE 'levné'
    END as oceneni
FROM vyrobky;

SELECT * FROM dostupnost WHERE oceneni='levné';


START TRANSACTION;
INSERT INTO Objednavky VALUES (NULL, '2005-08-15 16-16-16', (SELECT id_zam FROM
Zamestnanci WHERE jmeno='Jan'));
INSERT INTO Obj_Vyr VALUES
(
(SELECT id_obj FROM Objednavky WHERE datum_cas='2005-08-15 16-16-16'),
(SELECT id_vyr FROM Vyrobky WHERE nazev='Funghi'), 2
);

ROLLBACK; nebo COMMIT;
```

Materiál vznikl z mých zápisků na školách (především z UJEPu), které jsem doplnil mými komentáři.

Nejvýraznějším zdrojem je:
https://ki.ujep.cz/enastenka/S%c3%bdkorov%c3%a1%20Kv%c4%9btu%c5%a1e%20Mgr/PDSY%20(P602)
Mgr. Květuše Sýkorová

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