Київський національний технічний університет

Факультет інформатики і обчислювальної техніки

Звіт до лабораторної роботи №5
Тема: Аналітичні запити
Варіант : Меню ресторану

Виконав: Коваленко Дмитро, ІС-21

1.04.2014

Мета:

Розвиток навику складання аналітичних запитів на основі текстових формулювань потреб користувачів.

Завдання:

Меню кафе

1. До яких виробників треба звернутися для забезпечення меню вівторка (список за алфавітом).

2. Яку кількість продукту "Назва" треба приготувати на тиждень.

3. Чи треба закуповувати продукт "Назва".

4. Визначити, чи повторюються підбур протягом тижня.

5. Показати виробника, що має поставити найбільшу кількість продуктів для забезпечення меню на тиждень

Виконання завдання:

Побудова таблиць:

```
DROP DATABASE IF EXISTS cafe_Menu;
CREATE DATABASE cafe_Menu;
USE cafe_Menu;
CREATE TABLE Dish (
        DishId int AUTO_INCREMENT PRIMARY KEY ,
        DishName varchar(50) NOT NULL
);
CREATE TABLE Product(
        ProductId int AUTO_INCREMENT PRIMARY KEY ,
        ProductName varchar(50) NOT NULL,
        ProductManufacturer varchar(50)
);
CREATE TABLE DishContent (
        DishId int,
        ProductId int,
        Amount int,
        CONSTRAINT Fk_DishContent_DishId FOREIGN KEY (DishId)
        REFERENCES Dish(DishId),
        CONSTRAINT Fk_DishContent_ProductId FOREIGN KEY (ProductId)
        REFERENCES Product(ProductId));

CREATE TABLE Menu (
        DishId int,
```

```
        WeekDay varchar(10),
        Portions int ,
        CONSTRAINT Fk_Menu_DishId FOREIGN KEY (DishId)
        REFERENCES Dish(DishId),
CONSTRAINT ChkMenu_WeekDay CHECK (
        WeekDay IN 'Sunday','Monday','Tuesday','Wednesday','Thursday','Friday','Saturday'))
);
```

Заповнення таблиць:

```
INSERT INTO Dish (DishName) values ('Salmon Steak');
INSERT INTO Dish (DishName) values ('Shrimp Creole');
INSERT INTO Dish (DishName) values ('Tomato Puff Pastry');
INSERT INTO Dish (DishName) values ('Lobster Mac and Cheese');
INSERT INTO Dish (DishName) values ('Lettuce Salad with Avocado');
INSERT INTO Dish (DishName) values ('Triple-Decker Strawberry Cake');
INSERT INTO Dish (DishName) values ('Gnocchi with Sage, Butter and Parmesan');
INSERT INTO Dish (DishName) values ('Bacon Wrapped Scallops');

INSERT INTO Product (ProductName,ProductManufacturer) values('Milk','Molochnik');
INSERT INTO Product (ProductName,ProductManufacturer) values('Egg','Chicken');
INSERT INTO Product (ProductName,ProductManufacturer) values('Sugar','Cane');
INSERT INTO Product (ProductName,ProductManufacturer) values('Lobster','Ocean');
INSERT INTO Product (ProductName,ProductManufacturer) values('Strawberry','Granny');
INSERT INTO Product (ProductName,ProductManufacturer) values('Flour','Wheat');
INSERT INTO Product (ProductName,ProductManufacturer) values('Tomato','Granny');
INSERT INTO Product (ProductName,ProductManufacturer) values('Onion','Granny');
INSERT INTO Product (ProductName,ProductManufacturer) values('Cheese','Cow');
INSERT INTO Product (ProductName,ProductManufacturer) values('Pasta','Wheat');
INSERT INTO Product (ProductName,ProductManufacturer) values('Mushroom','ForestGump');
INSERT INTO Product (ProductName,ProductManufacturer) values('Lemon','Jungle');
INSERT INTO Product (ProductName,ProductManufacturer) values('Lettuce','WebVan');
INSERT INTO Product (ProductName,ProductManufacturer) values('Salmon','Ocean');
INSERT INTO Product (ProductName,ProductManufacturer) values('Parmesan','Cow');
INSERT INTO Product (ProductName,ProductManufacturer) values('Bacon','Cow');
INSERT INTO Product (ProductName,ProductManufacturer) values('Paprica','WebVan');
INSERT INTO Product (ProductName,ProductManufacturer) values('Shrimps','Ocean');
INSERT INTO Product (ProductName,ProductManufacturer) values('Avocado','WebVan');

INSERT INTO DishContent (DishId,ProductId,Amount) values(1,8,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(1,12,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(1,14,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(2,8,1);
```

```sql
INSERT INTO DishContent (DishId,ProductId,Amount) values(2,2,2);
INSERT INTO DishContent (DishId,ProductId,Amount) values(2,6,300);
INSERT INTO DishContent (DishId,ProductId,Amount) values(2,17,3);
INSERT INTO DishContent (DishId,ProductId,Amount) values(3,7,5);
INSERT INTO DishContent (DishId,ProductId,Amount) values(3,8,2);
INSERT INTO DishContent (DishId,ProductId,Amount) values(3,9,200);
INSERT INTO DishContent (DishId,ProductId,Amount) values(3,17,2);
INSERT INTO DishContent (DishId,ProductId,Amount) values(3,12,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(4,4,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(4,8,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(4,12,3);
INSERT INTO DishContent (DishId,ProductId,Amount) values(4,13,20);
INSERT INTO DishContent (DishId,ProductId,Amount) values(5,13,100);
INSERT INTO DishContent (DishId,ProductId,Amount) values(5,17,2);
INSERT INTO DishContent (DishId,ProductId,Amount) values(5,9,50);
INSERT INTO DishContent (DishId,ProductId,Amount) values(5,19,2);
INSERT INTO DishContent (DishId,ProductId,Amount) values(6,12,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(6,1,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(6,2,12);
INSERT INTO DishContent (DishId,ProductId,Amount) values(6,3,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(6,5,21);
INSERT INTO DishContent (DishId,ProductId,Amount) values(6,6,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(7,1,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(7,2,15);
INSERT INTO DishContent (DishId,ProductId,Amount) values(7,3,13);
INSERT INTO DishContent (DishId,ProductId,Amount) values(7,6,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(7,15,13);
INSERT INTO DishContent (DishId,ProductId,Amount) values(7,12,12);
INSERT INTO DishContent (DishId,ProductId,Amount) values(7,11,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(8,8,1);
INSERT INTO DishContent (DishId,ProductId,Amount) values(8,16,300);

INSERT INTO Menu (DishId,WeekDay,Portions) values(1,'Thursday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(2,'Wednesday',12);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Monday',3);
INSERT INTO Menu (DishId,WeekDay,Portions) values(4,'Wednesday',53);
INSERT INTO Menu (DishId,WeekDay,Portions) values(5,'Thursday',54);
INSERT INTO Menu (DishId,WeekDay,Portions) values(6,'Monday',23);
INSERT INTO Menu (DishId,WeekDay,Portions) values(7,'Wednesday',12);
INSERT INTO Menu (DishId,WeekDay,Portions) values(8,'Thursday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(1,'Saturday',34);
INSERT INTO Menu (DishId,WeekDay,Portions) values(2,'Monday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Sunday',34);
```

```sql
INSERT INTO Menu (DishId,WeekDay,Portions) values(4,'Thursday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(5,'Tuesday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(6,'Monday',54);
INSERT INTO Menu (DishId,WeekDay,Portions) values(7,'Sunday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(8,'Saturday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(1,'Monday',12);
INSERT INTO Menu (DishId,WeekDay,Portions) values(2,'Monday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Friday',43);
INSERT INTO Menu (DishId,WeekDay,Portions) values(4,'Friday',13);
INSERT INTO Menu (DishId,WeekDay,Portions) values(5,'Sunday',23);
INSERT INTO Menu (DishId,WeekDay,Portions) values(6,'Monday',99);
INSERT INTO Menu (DishId,WeekDay,Portions) values(7,'Friday',43);
INSERT INTO Menu (DishId,WeekDay,Portions) values(4,'Saturday',2);
INSERT INTO Menu (DishId,WeekDay,Portions) values(4,'Monday',12);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Monday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(2,'Friday',43);
INSERT INTO Menu (DishId,WeekDay,Portions) values(5,'Friday',13);
INSERT INTO Menu (DishId,WeekDay,Portions) values(7,'Sunday',23);
INSERT INTO Menu (DishId,WeekDay,Portions) values(6,'Monday',99);
INSERT INTO Menu (DishId,WeekDay,Portions) values(4,'Friday',43);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Saturday',2);
INSERT INTO Menu (DishId,WeekDay,Portions) values(6,'Monday',12);
INSERT INTO Menu (DishId,WeekDay,Portions) values(5,'Monday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(7,'Friday',43);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Friday',13);
INSERT INTO Menu (DishId,WeekDay,Portions) values(4,'Sunday',23);
INSERT INTO Menu (DishId,WeekDay,Portions) values(1,'Monday',99);
INSERT INTO Menu (DishId,WeekDay,Portions) values(1,'Friday',43);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Saturday',2);
INSERT INTO Menu (DishId,WeekDay,Portions) values(5,'Tuesday',3);
INSERT INTO Menu (DishId,WeekDay,Portions) values(6,'Tuesday',30);
INSERT INTO Menu (DishId,WeekDay,Portions) values(7,'Tuesday',23);
INSERT INTO Menu (DishId,WeekDay,Portions) values(3,'Tuesday',1);
INSERT INTO Menu (DishId,WeekDay,Portions) values(2,'Tuesday',2);
```

Запити до побудовіної БД:

1. До яких виробників треба звернутися для забезпечення меню вівторка (список за алфавітом)

```
SELECT DISTINCT Product.ProductManufacturer FROM (
    Menu JOIN DishContent
    ON Menu.DishId = DishContent.DishId
    JOIN Product
    ON DishContent.ProductId = Product.ProductId)
WHERE Menu.WeekDay = 'Tuesday'
ORDER BY Product.ProductManufacturer;
```

2. Яку кількість продукту "Назва" треба приготувати на тиждень.

```
SELECT SUM(DishContent.Amount) AS Total
FROM (
Menu JOIN DishContent
ON Menu.DishId = DishContent.DishId);
```

3. Чи треба закуповувати продукт "Назва".

```
SELECT COUNT(Product.ProductName) AS Amount FROM
DishContent JOIN Product
ON DishContent.ProductId = Product.ProductId
WHERE Product.ProductName = 'Onion';
```

4. Показати виробника, що має поставити найбільшу кількість продуктів для забезпечення меню на тиждень

```
SELECT Product.ProductManufacturer, COUNT(DishContent.Amount) AS Quantity FROM
Menu JOIN DishContent
ON Menu.DishId = DishContent.DishId
JOIN Product
ON DishContent.ProductId = Product.ProductId
GROUP BY ProductManufacturer
ORDER BY Quantity DESC
LIMIT 1;
```

Screenshots:

```
ProductManufacturer
Cane
Chicken
Cow
ForestGump
Granny
Jungle
Molochnik
WebVan
Wheat
Total
5484
Amount
5
ProductManufacturer      Quantity
Granny   41
dima@dima-pc:~/Workspace/Database$ ▋
```

Висновок:

Я отримав навик складати аналітичні вирази на основі потреб користувача.