Magdalena Skarbińska
Sebastian Misztal
Piotr Magiera

Projekt systemu bazy danych

Spis treści

Funkcje:

I. Klienci indywidualni

a. składanie zamówienia na miejscu lub na wynos na stronie www
b. dostęp do menu
c. możliwość rezerwacji stolika (dla co najmniej 2 osób)
d. rezerwacja stolika z warunkami
e. potwierdzenie zamówienia
f. prośba o miesięczną fakturę
g. podgląd do historii zamówień

II. Firmy

a. składanie zamówienia na miejscu lub na wynos na stronie www
b. dostęp do menu
c. rezerwacja stolików (na firmę lub na pracownika)
d. potwierdzenie zamówienia
e. prośba o miesięczną fakturę
f. pogląd do historii zamówień

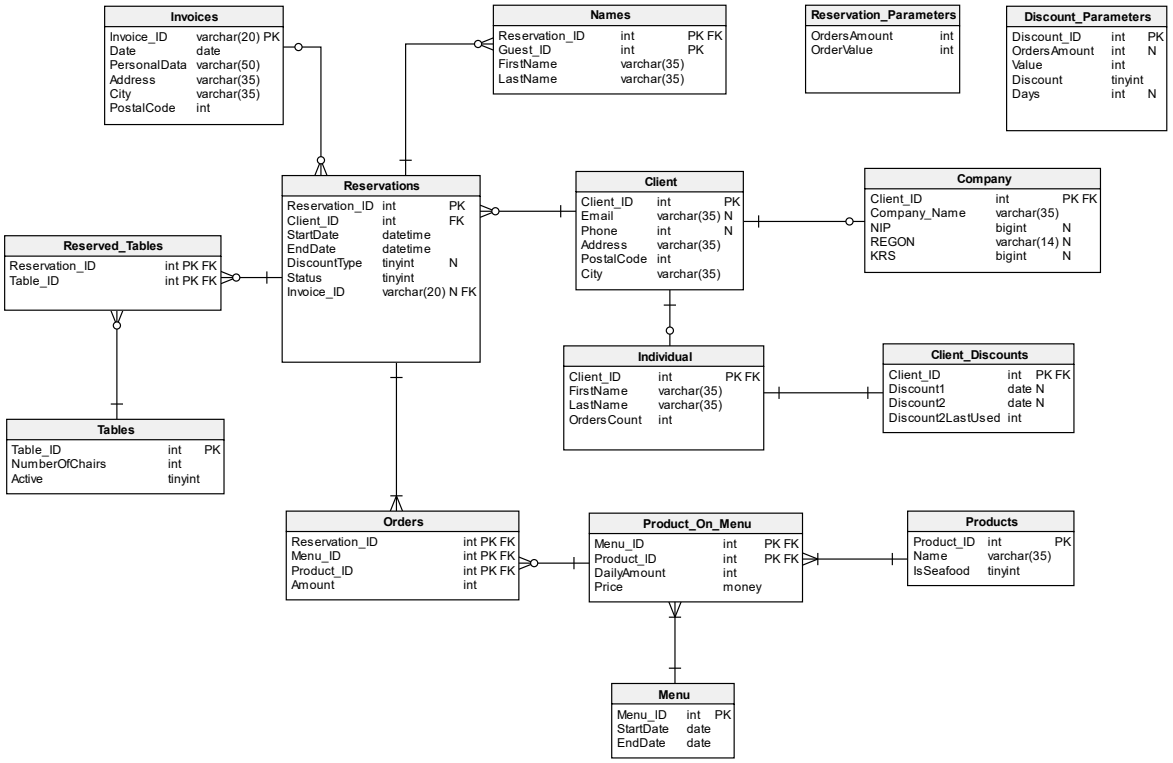
III. Obsługa

a. wystawienie faktury dla zamówienia
b. wystawienie faktur zbiorczych
c. akceptacja i wskazanie stolika
d. sprawdzanie statusu zamówienia (płatność)
e. przyjmowanie zamówienia osobiście

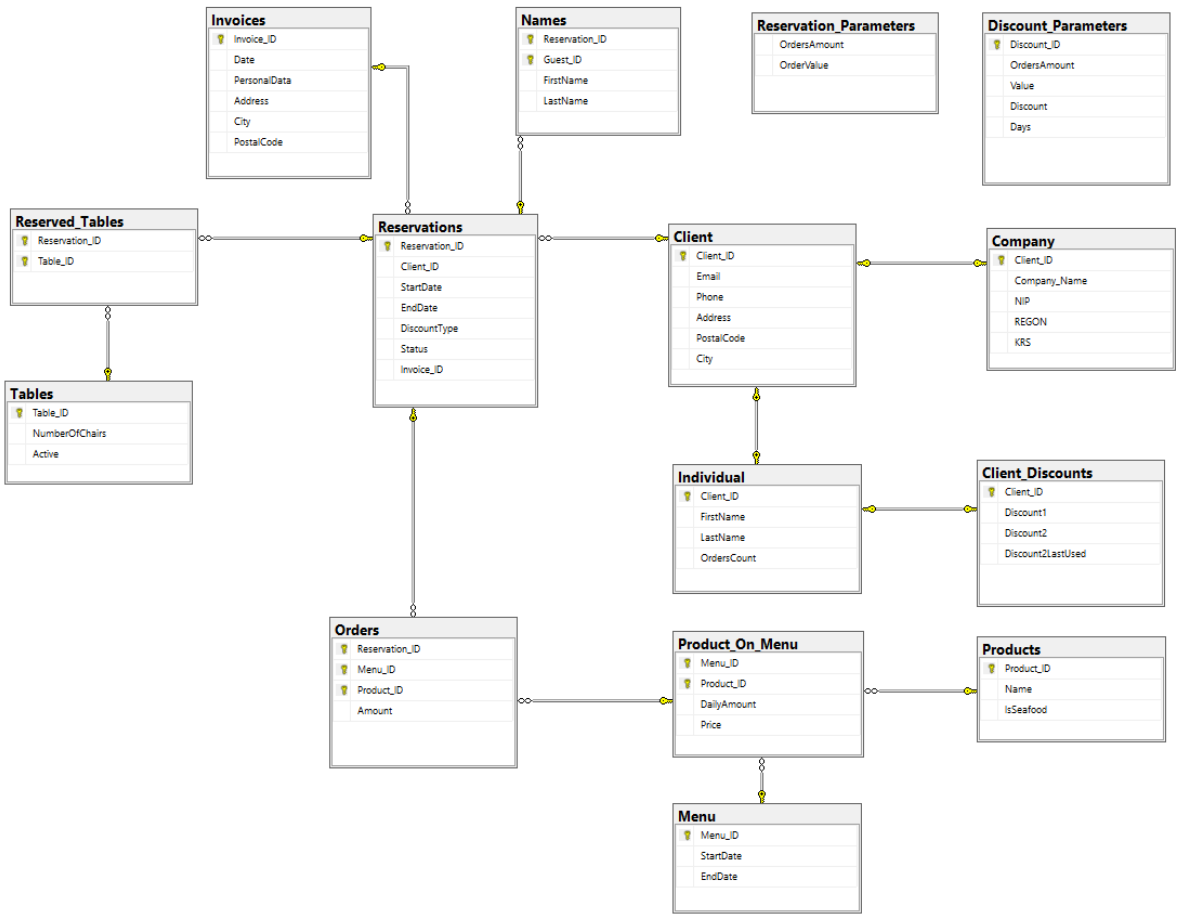
IV. Szef restauracji

a. ustalanie menu
b. generowanie raportu miesięcznego – przychód, średnia wartość zamówienia, liczba rezerwacji, ile każdego produktu zostało sprzedane
c. aktualizacja danych

Schemat bazy danych



Vertabelo



Tabele i warunki integralności

I. Client

Tabela przechowująca informacje o klientach korzystających z systemu.

Client_ID – unikalny numer klienta służący identyfikacji.
Email – adres mailowy.
Phone – telefon kontaktowy.
Adress – ulica i numer domu.
PostalCode – kod pocztowy.
City – miasto zamieszkania.

```
1.  CREATE TABLE Client (
2.      Client_ID int  NOT NULL,
3.      Email varchar(35)  NULL,
4.      Phone int  NULL,
5.      Address varchar(35)  NOT NULL,
6.      PostalCode int  NOT NULL,
7.      City varchar(35)  NOT NULL,
8.      CONSTRAINT Email_check CHECK (Email like '%[a-zA-Z0-9][@][a-zA-Z0-9]%[.][a-zA-
    Z0-9]%'),
9.      CONSTRAINT Phone_check CHECK (CAST(Phone as nvarchar) like  '[0-9][0-9][0-9][0-
    9][0-9][0-9][0-9][0-9][0-9]'),
10.     CONSTRAINT PostalCode_check CHECK (PostalCode like '[0-9][0-9][0-9][0-9][0-
    9]'),
11.     CONSTRAINT Address_check CHECK (Address not like '%[^a-zA-Z0-9. ]%'),
12.     CONSTRAINT City_check CHECK (City not like '%[^a-zA-Z ]%'),
13.     CONSTRAINT Client_pk PRIMARY KEY  (Client_ID)
14. );
```

II. Client_Discounts

Tabela przechowująca dane o zniżkach dostępnych dla danego klienta.

Client_ID – numer identyfikacyjny klienta, którego dotyczą zniżki.
Discount1 – data, od której dostępna jest pierwsza zniżka (ustawiana tylko raz).
Discount2 – data, od której dostępna jest druga zniżka (do wykorzystania przez liczbę dni z tabeli Discount_Parameters).
Discount2LastUsed – numer identyfikacyjny zamówienia, w którym ostatnio została użyta druga zniżka.

```
1.  CREATE TABLE Client_Discounts (
2.      Client_ID int  NOT NULL,
3.      Discount1 date  NULL,
4.      Discount2 date  NULL,
5.      Discount2LastUsed int  NOT NULL,
6.      CONSTRAINT Discount2LastUsed_Check CHECK (Discount2LastUsed >= 0),
7.      CONSTRAINT Client_Discounts_pk PRIMARY KEY  (Client_ID)
8.  );
```

III. Company

Tabela przechowująca dane firm będących klientami restauracji.

Client_ID – numer identyfikacyjny klienta firmowego.
Company_Name – nazwa firmy.
NIP, REGON, KRS – identyfikatory potrzebne do faktur.
TODO

```
1.  CREATE TABLE Company (
2.      Client_ID int  NOT NULL,
3.      Company_Name varchar(35)  NOT NULL,
4.      NIP bigint  NULL,
5.      REGON varchar(14)  NULL,
6.      KRS bigint  NULL,
7.      CONSTRAINT NIP_check CHECK (CAST(NIP as nvarchar) like '[0-9][0-9][0-9][0-9][0-
    9][0-9][0-9][0-9][0-9][0-9]'),
8.      CONSTRAINT REGON_check CHECK (REGON like '[0-9][0-9][0-9][0-9][0-9][0-9][0-
    9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]'),
9.      CONSTRAINT KRS_check CHECK (CAST(KRS as nvarchar)  like '[0-9][0-9][0-9][0-
    9][0-9][0-9][0-9][0-9][0-9][0-9]'),
10.     CONSTRAINT Company_pk PRIMARY KEY  (Client_ID)
11. );
```

IV. Discount_Parameters

Tabela przechowująca szczegółowe dane o zniżkach.

Discount_ID – numer zniżki.
OrdersAmount – minimalna liczba zamówień konieczna do uzyskania zniżki.
Value – minimalna wartość każdego zamówienia konieczna do uzyskania zniżki (0 w przypadku zniżki nr 1).
Discount – wartość zniżki w procentach.
Days – długość trwania zniżki (null w przypadku nieskończonej liczby dni).

```
1.  CREATE TABLE Discount_Parameters (
2.      Discount_ID int  NOT NULL,
3.      OrdersAmount int  NULL,
4.      Value int  NOT NULL,
5.      Discount tinyint  NOT NULL,
6.      Days int  NULL,
7.      CONSTRAINT OrdersAmount_Check2 CHECK (OrdersAmount > 0),
8.      CONSTRAINT Value_Check CHECK (Value > 0),
9.      CONSTRAINT Discount_Check CHECK (Discount > 0 and Discount <= 100),
10.     CONSTRAINT Days_Check CHECK (Days > 0),
11.     CONSTRAINT Discount_Parameters_pk PRIMARY KEY  (Discount_ID)
12. );
```

V. Individual

Tabela z informacjami o kliencie indywidualnym.

Client_ID – numer identyfikacyjny klienta.
FirstName – imię klienta.
LastName – nazwisko klienta.
OrdersCount – liczba dotychczasowych zamówień klienta (używana do określenia, czy może dokonać rezerwacji).

```
1.  CREATE TABLE Individual (
2.      Client_ID int  NOT NULL,
3.      FirstName varchar(35)  NOT NULL,
4.      LastName varchar(35)  NOT NULL,
5.      OrdersCount int  NOT NULL,
6.      CONSTRAINT OrdersCount_Check CHECK (OrdersCount >= 0),
7.      CONSTRAINT Individual_pk PRIMARY KEY  (Client_ID)
8.  );
```

VI. Invoices

Tabela z informacjami o wydanych fakturach.

Invoice_ID – numer identyfikacyjny faktury.
Reservation_ID – numer identyfikacyjny rezerwacji, do której została wydana faktura.

```
1.  CREATE TABLE Invoices (
2.      Invoice_ID varchar(20)  NOT NULL,
3.      Date date  NOT NULL,
4.      PersonalData varchar(50)  NOT NULL,
5.      Adress varchar(35)  NOT NULL,
6.      City varchar(35)  NOT NULL,
7.      PostalCode int  NOT NULL,
8.      CONSTRAINT Invoice_ID_Check CHECK (Invoice_ID not like '%[^0-9/]%'),
9.      CONSTRAINT Postal_Code_Check_2 CHECK (PostalCode like '[0-9][0-9][0-9][0-9][0-
    9]'),
10.     CONSTRAINT Address_Check_2 CHECK (Address not like '%[^a-zA-Z0-9. ]%'),
11.     CONSTRAINT City_Check_2 CHECK (City not like '%[^a-zA-Z ]%'),
12.     CONSTRAINT Invoices_pk PRIMARY KEY  (Invoice_ID)
13. );
```

VII. Menu

Tabela przechowująca informacje o danym menu.

Menu_ID – numer identyfikacyjny menu.
StartDate – data początku obowiązywania menu.
EndDate – data końca obowiązywania menu.

```
1.  CREATE TABLE Menu (
2.      Menu_ID int  NOT NULL,
3.      StartDate date  NOT NULL,
4.      EndDate date  NOT NULL,
5.      CONSTRAINT Date_Check CHECK (StartDate <= EndDate),
6.      CONSTRAINT Menu_pk PRIMARY KEY  (Menu_ID)
7.  );
```

VIII. Names

Tabela z informacjami o danych osobowych osób, na które firma złożyła rezerwację.

First_Name – imię danej osoby.
Last_Name – nazwisko danej osoby.

```
1.  CREATE TABLE Names (
2.      Reservation_ID int  NOT NULL,
3.      Guest_ID int  NOT NULL,
4.      FirstName varchar(35)  NOT NULL,
5.      LastName varchar(35)  NOT NULL,
6.      CONSTRAINT Names_pk PRIMARY KEY  (Guest_ID,Reservation_ID)
7.  );
```

IX. Orders

Tabela przechowująca informacje o zamówieniach.

Reservation_ID – numer identyfikacyjny rezerwacji.
Menu_ID – numer identyfikacyjny menu, z którego zostało złożone zamówienie.
Product_ID – numer identyfikacyjny zamawianego produktu.
Amount – ilość zamawianego produktu.

```
1.  CREATE TABLE Orders (
2.      Reservation_ID int  NOT NULL,
3.      Menu_ID int  NOT NULL,
4.      Product_ID int  NOT NULL,
5.      Amount int  NOT NULL,
6.      CONSTRAINT Amount_check CHECK (Amount > 0),
7.      CONSTRAINT Orders_pk PRIMARY KEY  (Reservation_ID,Menu_ID,Product_ID)
8.  );
```

X. Product_On_Menu

Tabela z informacjami o produktach w menu.

Menu_ID – numer identyfikacyjny menu, w którym dany produkt się znajduje.
Product_ID – numer identyfikacyjny produktu.
DailyAmount – dzienny limit danego produktu.
Price – cena produktu w danym menu.

```
1.  CREATE TABLE Product_On_Menu (
2.      Menu_ID int  NOT NULL,
3.      Product_ID int  NOT NULL,
4.      DailyAmount int  NOT NULL,
5.      Price money  NOT NULL,
6.      CONSTRAINT DailyAmount_Check CHECK (DailyAmount > 0),
7.      CONSTRAINT Price_Check CHECK (Price > 0),
8.      CONSTRAINT Product_On_Menu_pk PRIMARY KEY  (Menu_ID,Product_ID)
9.  );
```

XI. Products

Tabela z informacjami o szczegółach dotyczących danego produktu (dania).

Product_ID – numer identyfikacyjny produktu
Name – nazwa produktu
IsSeafood – informacja o tym, czy produkt jest z kategorii „owoce morza” (0 – nie, 1 – tak)

```
1.  CREATE TABLE Products (
2.      Product_ID int IDENTITY  NOT NULL,
3.      Name varchar(35)  NOT NULL,
4.      IsSeafood tinyint  NOT NULL,
5.      CONSTRAINT Name_Check CHECK (Name not like '%[^a-zA-Z ]%'),
6.      CONSTRAINT IsSeafood_Check CHECK (IsSeafood in (0, 1)),
7.      CONSTRAINT Products_pk PRIMARY KEY  (Product_ID)
8.  );
```

XII. Reservation_Parameters

Tabela przechowująca szczegóły dotyczące warunków składania rezerwacji online.

OrdersAmount – liczba poprzednich zamówień wymagana do złożenia rezerwacji
OrderValue – minimalna wartość zamówień opisanych powyżej

```
9.  CREATE TABLE Reservation_Parameters (
10.     OrdersAmount int  NOT NULL,
11.     OrderValue int  NOT NULL,
12.     CONSTRAINT OrdersAmount_Check CHECK (OrdersAmount > 0),
13.     CONSTRAINT OrderValue_Check CHECK (OrderValue > 0)
14. );
15.
```

XIII. Reservations

Tabela z informacjami o rezerwacjach dla danych klientów

Reservation_ID – numer identyfikacyjny rezerwacji
Client_ID – numer identyfikacyjny klienta
StartDate – data i godzina początku rezerwacji
EndDate – data i godzina końca rezerwacji
DiscountType – numer zniżki przypisanej do zamówienia
Status – status zamówienia, gdzie: 0 - nieopłacone na wynos , 1 - opłacone na wynos, 2- nieopłacone na miejscu, 3 - opłacone na miejscu, 4 - anulowane nieoddane, 5 - anulowane oddane, 6 – zapłacone zakończone

```
16. CREATE TABLE Reservations (
17.     Reservation_ID int  NOT NULL,
18.     Client_ID int  NOT NULL,
19.     StartDate datetime  NOT NULL,
20.     EndDate datetime  NOT NULL,
21.     DiscountType tinyint  NULL,
22.     Status tinyint  NOT NULL,
23.     Invoice_ID varchar(20) NULL,
24.     CONSTRAINT Date_Check2 CHECK (StartDate <= EndDate),
25.     CONSTRAINT DiscountType_Check CHECK (DiscountType in (NULL, 0, 1)),
26.     CONSTRAINT Status_Check CHECK (Status in (0, 1, 2, 3, 4, 5, 6)),
27.     CONSTRAINT Reservations_pk PRIMARY KEY  (Reservation_ID)
28. );
29.
```

XIV. Reserved_Tables

Tabela z informacjami o zarezerwowanych stolikach

Reservation_ID – numer identyfikacyjny rezerwacji odnoszącej się do danego stolika.
Table_ID – numer identyfikacyjny stolika.

```
30. CREATE TABLE Reserved_Tables (
31.     Reservation_ID int  NOT NULL,
32.     Table_ID int  NOT NULL,
33.     CONSTRAINT Reserved_Tables_pk PRIMARY KEY  (Reservation_ID,Table_ID)
34. );
```

XV. Tables

Tabela z informacjami o stolikach w restauracji.

Table_ID – numer identyfikacyjny stolika.
NumberOfChairs – liczba krzeseł przy danym stoliku.
Active – informacja o tym, czy stolik jest obecnie w użyci (czy nie został wycofany, zniszczony etc.).

```
35. CREATE TABLE Tables (
36.     Table_ID int  NOT NULL,
37.     NumberOfChairs int  NOT NULL,
38.     Active tinyint  NOT NULL,
39.     CONSTRAINT Active_check CHECK (Active in (0, 1)),
40.     CONSTRAINT Chairs_check CHECK (NumberOfChairs > 0),
41.     CONSTRAINT Tables_pk PRIMARY KEY  (Table_ID)
42. );
43.
```

XVI. Relacje między tabelami

```
1.  -- foreign keys
2.  -- Reference: Client_Discounts_Clients (table: Client_Discounts)
3.  ALTER TABLE Client_Discounts ADD CONSTRAINT Client_Discounts_Clients
4.      FOREIGN KEY (Client_ID)
5.      REFERENCES Individual (Client_ID);
6.
7.  -- Reference: Company_Client (table: Company)
8.  ALTER TABLE Company ADD CONSTRAINT Company_Client
9.      FOREIGN KEY (Client_ID)
10.     REFERENCES Client (Client_ID);
11.
12. -- Reference: Individual_Client (table: Individual)
13. ALTER TABLE Individual ADD CONSTRAINT Individual_Client
14.     FOREIGN KEY (Client_ID)
15.     REFERENCES Client (Client_ID);
16.
17. -- Reference: Menu_Menu_date (table: Product_On_Menu)
18. ALTER TABLE Product_On_Menu ADD CONSTRAINT Menu_Menu_date
19.     FOREIGN KEY (Menu_ID)
20.     REFERENCES Menu (Menu_ID);
21.
22. -- Reference: Orders_Product_On_Menu (table: Orders)
23. ALTER TABLE Orders ADD CONSTRAINT Orders_Product_On_Menu
24.     FOREIGN KEY (Menu_ID,Product_ID)
25.     REFERENCES Product_On_Menu (Menu_ID,Product_ID);
26.
27. -- Reference: Orders_Reservations (table: Orders)
28. ALTER TABLE Orders ADD CONSTRAINT Orders_Reservations
29.     FOREIGN KEY (Reservation_ID)
30.     REFERENCES Reservations (Reservation_ID);
31.
32. -- Reference: Product_On_Menu_Products (table: Product_On_Menu)
33. ALTER TABLE Product_On_Menu ADD CONSTRAINT Product_On_Menu_Products
34.     FOREIGN KEY (Product_ID)
35.     REFERENCES Products (Product_ID);
36.
```

```
-- Reference: Reservations_Client (table: Reservations)
ALTER TABLE Reservations ADD CONSTRAINT Reservations_Client
    FOREIGN KEY (Client_ID)
    REFERENCES Client (Client_ID);

-- Reference: Reservations_Invoices (table: Reservations)
ALTER TABLE Reservations ADD CONSTRAINT Reservations_Invoices
    FOREIGN KEY (Invoice_ID)
    REFERENCES Invoices (Invoice_ID);

-- Reference: Reservations_Names (table: Names)
ALTER TABLE Names ADD CONSTRAINT Reservations_Names
    FOREIGN KEY (Reservation_ID)
    REFERENCES Reservations (Reservation_ID);

-- Reference: Reserved_Tables_Reservations (table: Reserved_Tables)
ALTER TABLE Reserved_Tables ADD CONSTRAINT Reserved_Tables_Reservations
    FOREIGN KEY (Reservation_ID)
    REFERENCES Reservations (Reservation_ID);

-- Reference: Reserved_Tables_Tables (table: Reserved_Tables)
ALTER TABLE Reserved_Tables ADD CONSTRAINT Reserved_Tables_Tables
    FOREIGN KEY (Table_ID)
    REFERENCES Tables (Table_ID);
```

Widoki

CurrentMenu

```
CREATE view [dbo].[CurrentMenu] as
SELECT POM.Product_ID, POM.Menu_ID, M.StartDate, M.EndDate, POM.Price
FROM   dbo.Menu AS M
INNER JOIN dbo.Product_On_Menu AS POM ON M.Menu_ID = POM.Menu_ID
WHERE (CAST(M.EndDate AS DATE) >= CAST(GETDATE() AS DATE))
```

OrdersForToday

```
CREATE view [dbo].[OrdersForToday] as
select p.Name, o.Amount, r.StartDate
from Orders o
join Products p on p.Product_ID = o.Product_ID
left join Reservations r on r.Reservation_ID = o.Reservation_ID
where r.Status in(0,2)
and CAST( r.StartDate AS DATE) = CAST( GETDATE() AS DATE);
```

Procedury

Od autorów:
Mamy świadomość, że użycie identity na ID większości tabel uprościłoby kod (brak konieczności używania funkcji getHighest(…)), jednak z uwagi na ograniczony zasób czasu zaimplementowaliśmy identity tylko dla tabeli Products. Z tego samego powodu transakcje są używane tylko w procedurach zaczynających się od Create(…), choć zastosowanie znalazłyby we wszystkich procedurach modyfikujących zawartość bazy danych.

CreateNewClient

```
CREATE OR ALTER   PROCEDURE [dbo].[createNewClient]
@Email AS varchar(35) = NULL,
@Phone AS int = NULL,
@Address AS varchar(35),
@PostalCode AS int,
@City AS varchar(35)
AS
    BEGIN
        BEGIN TRY
            IF EXISTS
                (
                SELECT * FROM Client
                WHERE Email = @Email
                )
            BEGIN
                ;THROW 52000, 'Email already exists.',1
            END

            IF EXISTS
                (
                SELECT * FROM Client
                WHERE Phone = @Phone
                )
            BEGIN
                ;THROW 52000, 'Phone already exists.',1
            END


            DECLARE @ClientID int;
            SET @ClientID = [dbo].getHighestClientID();
            INSERT INTO Client(Client_ID, Email, Phone, Address, PostalCode, City)
            VALUES(@ClientID+1, @Email, @Phone, @Address, @PostalCode, @City);

        END TRY
        BEGIN CATCH
            DECLARE @errorMsg nvarchar(2048)
                = 'Cannot add client. Error: ' + ERROR_MESSAGE();
            THROW 52000, @errorMSg, 1;
        END CATCH
    END;
```

CreateIndividualClient

```
CREATE OR ALTER   PROCEDURE [dbo].[createIndividualClient]
@Email AS varchar(35) = NULL,
@Phone AS int = NULL,
@Address AS varchar(35),
@PostalCode AS int,
@City AS varchar(35),

@FirstName AS varchar(35),
@LastName AS varchar(35)
AS
    BEGIN
        BEGIN TRY
            DECLARE @ClientID int;
            SET @ClientID = [dbo].getHighestClientID();
            EXEC [dbo].[createNewClient] @Email, @Phone, @Address, @PostalCode,
   @City

            INSERT INTO Individual(Client_ID, FirstName, LastName, OrdersCount)
```

```
            VALUES (@ClientID + 1, @FirstName, @LastName, 0)

            INSERT INTO Client_Discounts(Client_ID, Discount1, Discount2,
    Discount2LastUsed)
            VALUES (@ClientID+1, NULL, NULL, 0)
        END TRY
        BEGIN CATCH
        DECLARE @errorMsg nvarchar(2048)
                = 'Cannot add individual client. Error: ' + ERROR_MESSAGE();
            THROW 52000, @errorMSg, 1;
        END CATCH
    END;
```

CreateCompanyClient

```
ALTER   PROCEDURE [dbo].[createCompanyClient]
@Email AS varchar(35) = NULL,
@Phone AS int = NULL,
@Address AS varchar(35),
@PostalCode AS int,
@City AS varchar(35),

@CompanyName AS varchar(35),
@NIP AS bigint,
@REGON AS varchar(14),
@KRS AS bigint
AS
    BEGIN
        BEGIN TRY
            DECLARE @ClientID int;
            SET @ClientID = [dbo].getHighestClientID()
            EXEC [dbo].createNewClient @Email, @Phone, @Address, @PostalCode, @City

            IF EXISTS
                (
                select * from Company
                where @NIP = NIP
                )
                AND @NIP != NULL
            BEGIN
                ;THROW 52000, 'Nip already in database.',1
            END

            IF EXISTS
                (
                select * from Company
                where @REGON = REGON
                )
                AND @REGON != NULL
            BEGIN
                ;THROW 52000, 'regon already in database.',1
            END

            IF EXISTS
                (
                select * from Company
                where @KRS = KRS
                )
                AND @KRS != NULL
            BEGIN
                ;THROW 52000, 'krs already in database.',1
            END

            INSERT INTO Company(Client_ID, Company_Name, NIP, REGON, KRS)
```

```
50.             VALUES (@ClientID + 1, @CompanyName, @NIP, @REGON, @KRS)
51.
52.         END TRY
53.         BEGIN CATCH
54.         DECLARE @errorMsg nvarchar(2048)
55.                 = 'Cannot add company client. Error: ' + ERROR_MESSAGE();
56.             THROW 52000, @errorMSg, 1;
57.         END CATCH
58.     END
```

AddDishToProducts

Użyto IDENTITY

```
1.  ALTER   PROCEDURE [dbo].[addDishToProducts]
2.  @Name AS varchar(35),
3.  @isSeaFood AS tinyint
4.  AS
5.  BEGIN
6.      BEGIN TRY
7.          IF EXISTS
8.              (
9.              SELECT * FROM Products
10.             WHERE @Name = Name
11.             )
12.         BEGIN
13.             ;THROW 52000, 'Product with this name is already in database.',1
14.         END
15.
16.         INSERT INTO Products(Name, IsSeafood)
17.         VALUES (Name, @isSeaFood)
18.     END TRY
19.     BEGIN CATCH
20.     DECLARE @errorMsg nvarchar(2048)
21.                 = 'Cannot add dish to products. Error: ' + ERROR_MESSAGE();
22.             THROW 52000, @errorMSg, 1;
23.     END CATCH
24.     END;
```

AddProductToMenu

```
1.  ALTER   PROCEDURE [dbo].[addProductToMenu]
2.  @ProductID AS int,
3.  @DailyAmount AS int,
4.  @Price AS money,
5.  @StartDate AS date,
6.  @EndDate AS date,
7.  @MenuID AS int
8.  AS
9.      BEGIN
10.         BEGIN TRY
11.
12.         IF EXISTS
13.             (
14.             SELECT * FROM Product_On_Menu
15.             JOIN Menu m on m.Menu_ID = Product_On_Menu.Menu_ID
16.             where StartDate = @StartDate and Product_ID = @ProductID
17.             )
18.         BEGIN
19.             ;THROW 52000, 'Product with this id already exists in menu with this
    start date.',1
20.         END
21.
```

```
        IF NOT(@StartDate < @EndDate)
        RETURN 1;

        INSERT INTO Menu(Menu_ID, StartDate, EndDate)
        VALUES (@MenuID , @StartDate, @EndDate)

        INSERT INTO Product_On_Menu(Menu_ID, Product_ID, DailyAmount, Price)
        VALUES (@MenuID , @ProductID, @DailyAmount, @Price)

        END TRY
        BEGIN CATCH
        DECLARE @errorMsg nvarchar(2048)
                = 'Cannot add dish to menu. Error: ' + ERROR_MESSAGE();
            THROW 52000, @errorMSg, 1;
        END CATCH

    END
```

AddPersonToReservation

```
create or ALTER procedure [dbo].[AddPersonToReservation]
@Reservation_ID int,
@FirstName varchar(35),
@Lastname varchar(35)
as
begin
    set nocount on
    begin try
        insert into Names
        (
            Reservation_ID,
            FirstName,
            LastName
        )
        values
        (
            @Reservation_ID,
            @FirstName,
            @Lastname
        )
    end try
    begin catch
        declare @errorMsg nvarchar(2048)
        = 'Cannot add person to reservation. Error message: '
        + ERROR_MESSAGE();
    ;throw 52000, @errorMsg, 1
    end catch
end
```

EditDatesOfMenuSet

```
CREATE OR ALTER PROCEDURE [dbo].[editDatesOfMenuSet]
@MenuID AS int,
@StartDate AS date,
@EndDate AS date
AS
    BEGIN
        IF (@MenuID <= [dbo].getHighestMenuID() AND @StartDate < @EndDate)
            UPDATE Menu
            SET StartDate = @StartDate, EndDate = @EndDate
            WHERE Menu_ID = @MenuID
    END
```

CancelReservation

```
CREATE OR ALTER PROCEDURE [dbo].[cancelReservation]
@ReservationID AS int
AS
    BEGIN
        DECLARE @Status int;
        SET @Status = [dbo].getActualStatus(@ReservationID)
        IF (@Status IN(0,2))
            UPDATE Reservations
            SET Status = 5
            WHERE Reservation_ID = @ReservationID
        ELSE
            IF (@Status IN (1,3))
                UPDATE Reservations
                SET Status = 4
                WHERE Reservation_ID = @ReservationID
    END
```

EndReservation

```
CREATE OR ALTER PROCEDURE [dbo].[endReservation]
@ReservationID AS int
AS
    BEGIN
    BEGIN TRY
        IF NOT EXISTS
            (
            SELECT * FROM Reservations
            WHERE @ReservationID = Reservation_ID
            )
        BEGiN
            ;THROW 52000, 'No reservation with given reservation id',1
        END

       UPDATE Reservations
       SET Status = 6
       WHERE Reservation_ID = @ReservationID
    END TRY

    BEGIN CATCH
    DECLARE @errorMsg nvarchar(2048)
        ='Cannot end reservation. Error: ' + ERROR_MESSAGE();
        THROW 52000, @errorMsg, 1;
    END CATCH

END
```

CreateReservation

```
ALTER   PROCEDURE [dbo].[createReservation]
@ClientID AS int,
@StartDate AS datetime,
@EndDate AS datetime,
@DiscountType AS tinyint,
@Status AS tinyint
AS
    BEGIN

```

```
    BEGIN TRY
        DECLARE @ReservationID int;
        SET @ReservationID = [dbo].getHighestReservationID()
        INSERT INTO Reservations(Reservation_ID, Client_ID, StartDate, EndDate,
DiscountType, Status)
        VALUES (@ReservationID + 1, @ClientID, @StartDate, @EndDate, @DiscountType,
@Status)
    END TRY

    BEGIN CATCH
    DECLARE @errorMsg nvarchar(2048)
                = 'Cannot add reservation . Error: ' + ERROR_MESSAGE();
            THROW 52000, @errorMSg, 1;
        END CATCH

    END
```

EditProductAmountInReservation

```
ALTER procedure [dbo].[EditProductAmountInReservation]
@Reservation_ID int,
@Product_ID int,
@Amount int
as
begin
    begin try
        if not exists
            (
                select * from Reservations
                where Reservation_ID = @Reservation_ID
            )
            begin
                ;throw 52000, 'Reservation does not exist.', 1
            end
        if not exists
            (
                select * from Orders o
                where o.Reservation_ID = @Reservation_ID
            )
            begin
                ;throw 52000, 'Order does not exist.', 1
            end
            update Orders
                set Amount = @Amount
                where Reservation_ID = @Reservation_ID and Product_ID = @Product_ID
    end try
    begin catch
        declare @errorMsg nvarchar(2048)
        = 'Cannot change order amount. Error message: '
        + ERROR_MESSAGE();
    ;throw 52000, @errorMsg, 1
    end catch
end
```

OrdersForTodaySortedByDate

```
1.  ALTER procedure [dbo].[OrdersForTodaySortedByDate] as
2.  select p.Name, o.Amount, r.StartDate
3.  from Orders o
4.  join Products p on p.Product_ID = o.Product_ID
5.  left join Reservations r on r.Reservation_ID = o.Reservation_ID
6.  where r.Status in(0,2)
7.  and CAST( r.StartDate AS DATE) = CAST( GETDATE() AS DATE)
8.  order by r.StartDate asc
```

SelectSumOfAllProductsBetween

```
1.  ALTER PROCEDURE [dbo].[SelectSumOfAllProductsBetween] @StartDate Date,
2.  @EndDate Date
3.  AS
4.  SELECT P.Name, SUM(O.Amount) AS ilosc, SUM(O.Amount * PoM.Price)
5.  FROM Products P
6.  JOIN Product_On_Menu PoM ON Pom.Product_ID = P.Product_ID
7.  JOIN Orders O ON O.Product_ID = PoM.Product_ID AND O.Menu_ID = PoM.Menu_ID
8.  JOIN Reservations R ON R.Reservation_ID = O.Reservation_ID
9.  WHERE CAST(R.StartDate AS DATE) >= @StartDate
10. AND CAST(R.EndDate AS DATE) <= @EndDate
11. GROUP BY P.Name
```

ShowAllFreeTablesBetweenDates

```
1.  ALTER procedure [dbo].[ShowAllFreeTablesBetweenDates]
2.  @InputStartDate datetime,
3.  @InputEndDate datetime
4.  as
5.  select t.Table_ID, t.NumberOfChairs
6.  from Tables t
7.  join Reserved_Tables rt on rt.Table_ID = t.Table_ID
8.  join Reservations r on r.Reservation_ID = rt.Reservation_ID
9.  where t.Active=1 and r.EndDate <= @InputStartDate and r.StartDate >= @InputEndDate;
```

AddReservationToInvoice

```
1.  create procedure AddReservationToInvoice
2.  @Reservation_ID as int,
3.  @Invoice_ID as int
4.  as
5.  begin
6.  begin try
7.  if exists
8.  (select * from Reservations where Reservation_ID=@Reservation_ID and Invoice_ID is
    not null)
9.  begin
10. ; throw 52000, 'reservation was already added to invoice',1
11. end
12. update Reservations
13. set Invoice_ID = @Invoice_ID
14. WHERE Reservation_ID = @Reservation_ID
15. end try
16. begin catch
```

```
17. DECLARE @errorMsg nvarchar(2048)='Cannot asign reservation to invoice. Error: ' +
    ERROR_MESSAGE();
18. THROW 52000, @errorMsg, 1;
19. END CATCH
20. end
```

CreateInvoice

```
1.  create procedure CreateInvoice
2.  @CreationDate as date,
3.  @Invoice_ID as varchar(20),
4.  @PersonalData as varchar(50),
5.  @Address as varchar(35),
6.  @City as varchar(35),
7.  @PostalCode as int
8.  as
9.  begin transaction
10. begin try
11.     insert into Invoices
12.     (
13.     Invoice_ID,
14.     Date,
15.     PersonalData,
16.     Address,
17.     City,
18.     PostalCode
19.     )
20.     values
21.     (
22.     @Invoice_ID,
23.     @CreationDate,
24.     @PersonalData,
25.     @Address,
26.     @City,
27.     @PostalCode
28.     )
29.     end try
30.     begin catch
31.     declare @errorMsg nvarchar(2048) = 'Cannot create invoice. Error message:
    '+ERROR_MESSAGE();
32.     rollback transaction;
33.     ;throw 52000, @errorMsg, 1;
34.     end catch
35. commit transaction
```

Funkcje

MenuUntil

```
1.  CREATE OR ALTER FUNCTION [dbo].menuUntil(@EndDate DATE)
2.  RETURNS TABLE
3.  AS
4.      return(SELECT c.Product_ID, c.Menu_ID, c.StartDate, c.EndDate
5.      FROM currentMenu c
6.      WHERE CAST(c.StartDate AS DATE) <= CAST(@EndDate AS DATE)
```

GetFullReservationCost

```
1.  CREATE OR ALTER FUNCTION [dbo].getFullReservationCost(@ReservationID int)
2.  RETURNS INT
3.  AS
4.  BEGIN
5.      return(SELECT SUM(o.Amount * POM.Price) FROM Orders o
6.          JOIN Product_On_Menu POM ON POM.Menu_ID = o.Menu_ID AND POM.Product_ID =
    o.Product_ID
7.          WHERE o.Reservation_ID = @ReservationID)
8.  END
```

GetHighestClientID

```
1.  CREATE OR ALTER FUNCTION [dbo].[getHighestClientID] ()
2.  RETURNS int
3.  AS
4.  BEGIN
5.     return (
6.          SELECT TOP 1 C.Client_ID
7.          FROM Client C
8.          ORDER BY C.Client_ID DESC
9.         )
10. END
```

GetHighestIndividual

```
1.  CREATE OR ALTER FUNCTION [dbo].[getHighestIndividual] ()
2.  RETURNS int
3.  AS
4.  BEGIN
5.     return (
6.          SELECT TOP 1 C.Client_ID
7.          FROM Individual C
8.          ORDER BY C.Client_ID DESC
9.         )
10. END
```

GetHighestMenuID

```
1.  CREATE OR ALTER FUNCTION [dbo].[getHighestMenuID]()
2.  RETURNS int
3.  AS
4.      BEGIN
5.          return (
```

```
            SELECT TOP 1 PoM.Menu_ID
            FROM Product_On_Menu PoM
            ORDER BY PoM.Menu_ID DESC
            )
    END
```

GetFreeTablesBetweenDates

```
CREATE OR ALTER FUNCTION [dbo].[getFreeTablesBetweenDates](
@StartDate AS datetime,
@EndDate AS datetime
)
RETURNS TABLE
AS
    return(
            SELECT T.Table_ID
            FROM Tables T
            WHERE T.Active = 1

            EXCEPT (
            SELECT DISTINCT T.Table_ID
            FROM Tables T
            JOIN Reserved_Tables RT on T.Table_ID = RT.Table_ID
            JOIN Reservations R2 on RT.Reservation_ID = R2.Reservation_ID
            WHERE (R2.StartDate<= @StartDate AND R2.EndDate >= @StartDate)
               OR (R2.StartDate <= @EndDate AND R2.EndDate >= @EndDate)
            )
    )
```

GetAmountOfFreeTables

```
CREATE OR ALTER FUNCTION [dbo].[getAmountOfFreeTables](
    @StartDate AS datetime,
    @EndDate AS datetime,
    @MinimalSize AS int
)
RETURNS int
AS
    BEGIN
        return(
            SELECT COUNT(*)
            FROM [dbo].getFreeTablesBetweenDates(@StartDate, @EndDate) FT
            JOIN Tables T ON T.Table_ID = FT.Table_ID
            WHERE T.NumberOfChairs >= @MinimalSize
            )
    END
```

GetHighestEmployeeID

```
CREATE OR ALTER FUNCTION [dbo].[getHighestEmployeeID]()
RETURNS int
AS
BEGIN
   return (
        SELECT TOP 1 N.Guest_ID
        FROM Names N
        ORDER BY N.Guest_ID DESC
       )
END
```

GetActualStatus

```
CREATE OR ALTER FUNCTION [dbo].[getActualStatus](
    @ReservationID AS int
)
RETURNS int
AS
    BEGIN
        return (
            SELECT R.Status
            FROM Reservations R
            WHERE R.Reservation_ID = @ReservationID
            )
    END
```

GetHighestReservationID

```
CREATE OR ALTER FUNCTION [dbo].[getHighestReservationID]()
RETURNS int
AS
BEGIN
   return (
        SELECT TOP 1 R.Reservation_ID
        FROM Reservations R
        ORDER BY R.Reservation_ID DESC
       )
END
```

GenerateReportMoney

```
CREATE OR ALTER FUNCTION [dbo].[generateReportMoney](
@StartDate AS date
)
RETURNS table
AS
    return(
            SELECT SUM(O.Amount*POM.Price) income, AVG(O.Amount*POM.Price)
avg_order_value, COUNT(R.Reservation_ID) order_count
            FROM Reservations R
            JOIN Orders O on O.Reservation_ID = R.Reservation_ID
            JOIN Product_On_Menu POM on POM.Product_ID = O.Product_ID and
POM.Menu_ID = O.Menu_ID
            WHERE R.Status = 6 and CAST(R.EndDate as date) >= @StartDate and
CAST(R.EndDate as date) <= dateadd(month, 1, @StartDate)
        )
```

GenerateReportProducts

```
CREATE OR ALTER FUNCTION [dbo].[generateReportProducts](
@StartDate AS date
)
RETURNS table
AS
    return(
            SELECT P.Name id_of_product, SUM(O.Amount) as units_sold
            FROM Reservations R
            JOIN Orders O on O.Reservation_ID = R.Reservation_ID
```

```
            JOIN Product_On_Menu POM on POM.Product_ID = O.Product_ID and
POM.Menu_ID = O.Menu_ID
            JOIN Products P on P.Product_ID = POM.Product_ID
            WHERE R.Status = 6 and CAST(R.EndDate as date) >= @StartDate and
CAST(R.EndDate as date) <= dateadd(month, 1, @StartDate)
            GROUP BY P.Product_ID, P.Name
        )
```

Triggery

TrgCancelReservation

Trigger dodający jeden do licznika zamówień spełniających wymogi pierwszego rabatu.

```
CREATE OR ALTER TRIGGER trgCancelReservation ON [dbo].[Reservations]
AFTER UPDATE
AS
BEGIN
    DECLARE @ClientID int;
    DECLARE @ReservationID int;
    DECLARE @Status tinyint;

    IF ((SELECT COUNT(*) FROM inserted) = 0)
        THROW 51000, 'empty_Update', 1;

    IF ((SELECT COUNT(*) FROM inserted) > 0)
        BEGIN
            SELECT @ClientID = i.Client_ID, @ReservationID = i.Reservation_ID,
@Status = i.Status FROM inserted i;
            IF((SELECT COUNT(*) FROM [dbo].[Individual]) > 0
                    AND @Status = 6
                     AND [dbo].getFullReservationCost(@ReservationID) > (SELECT
TOP 1 d.Value FROM [dbo].[Discount_Parameters] d))
                UPDATE Individual
                SET OrdersCount += 1
                WHERE Client_ID = @ClientID;
        END
END
```

Indeksy

Reservation_Status_Index

```
CREATE INDEX Reservation_Status_Index on Reservations (Status);
```

Reservation_ID_Index

```
CREATE INDEX Reservation_ID_Index on Reservations (Reservation_ID);
```

Tables_Index

```
CREATE INDEX Tables_Index on Tables(Table_ID);
```

Reserved_Tables_Table

```
CREATE INDEX Reserved_Tables_Table on Reserved_Tables(Table_ID);
```

Reserved_Tables_Reservation

```
CREATE INDEX Reserved_Tables_Reservation on Reserved_Tables(Reservation_ID);
```

Role

Manager

```
CREATE ROLE manager

GRANT EXECUTE to manager
GRANT SELECT, INSERT, UPDATE, DELETE, ALTER to manager
```

Customer

```
CREATE ROLE customer

GRANT EXECUTE ON [dbo].[AddPersonToReservation] to customer
GRANT EXECUTE ON [dbo].[cancelReservation]to customer
GRANT EXECUTE ON [dbo].[createCompanyClient]to customer
GRANT EXECUTE ON [dbo].[createIndividualClient]to customer
GRANT SELECT ON dbo.CurrentMenu to customer
```

Staff

```
CREATE ROLE staff

GRANT EXECUTE ON [dbo].[addDishToProducts] to staff
GRANT EXECUTE ON [dbo].[AddPersonToReservation] to staff
GRANT EXECUTE ON [dbo].[addProductToMenu]to staff
GRANT EXECUTE ON [dbo].[AddReservationToInvoice]to staff
GRANT EXECUTE ON [dbo].[AddTableToReservation]to staff
GRANT EXECUTE ON [dbo].[cancelReservation]to staff
GRANT EXECUTE ON [dbo].[ChangeReservationStatus]to staff
GRANT EXECUTE ON [dbo].[createCompanyClient]to staff
GRANT EXECUTE ON [dbo].[createIndividualClient]to staff
GRANT EXECUTE ON [dbo].[CreateInvoice]to staff
GRANT EXECUTE ON [dbo].[createNewClient]to staff
GRANT EXECUTE ON [dbo].[createReservation]to staff
GRANT EXECUTE ON [dbo].[editDatesOfMenuSet]to staff
GRANT EXECUTE ON [dbo].[EditProductAmountInReservation]to staff
GRANT EXECUTE ON [dbo].[endReservation]to staff
GRANT EXECUTE ON [dbo].[OrdersForTodaySortedByDate]to staff
GRANT EXECUTE ON [dbo].[SelectSumOfAllProductsBetween]to staff
GRANT EXECUTE ON [dbo].[ShowAllFreeTablesBetweenDates]to staff


GRANT SELECT ON dbo.CurrentMenu to staff
GRANT SELECT ON dbo.OrdersForToday to staff

GRANT SELECT ON [dbo].[getFreeTablesBetweenDates] to staff
GRANT SELECT ON [dbo].[menuUntil] to staff
```

```
28.
29. GRANT EXECUTE ON [dbo].[CountOfAllFreeTablesBetweenDates] to staff
30. GRANT EXECUTE ON [dbo].[getActualStatus] to staff
31. GRANT EXECUTE ON [dbo].[getAmountOfFreeTables] to staff
32. GRANT EXECUTE ON [dbo].[getFullReservationCost] to staff
```