Podstawy baz danych
Projekt i implementacja systemu bazodanowego

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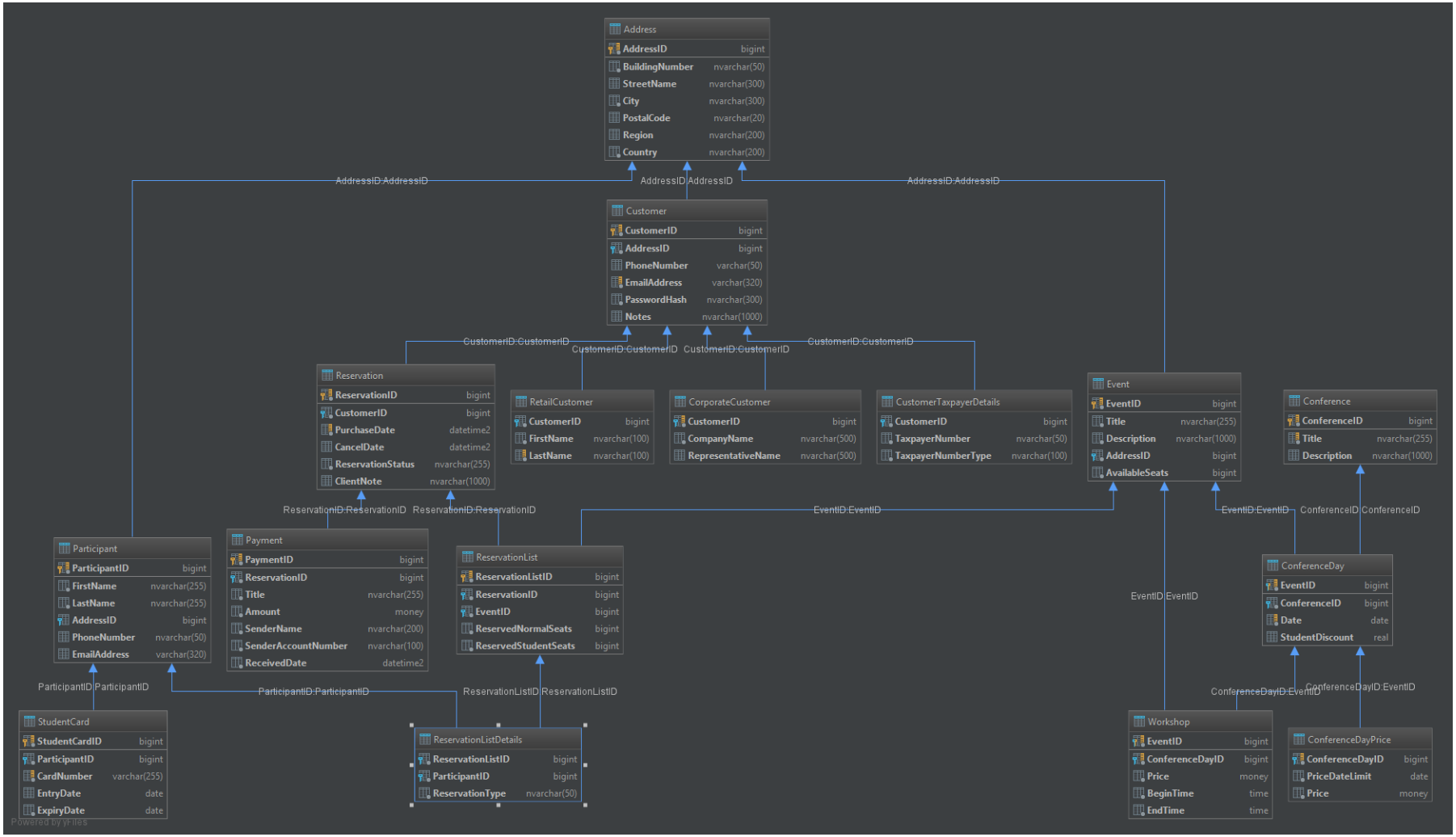
1 Opis systemu

Firma organizuje konferencje, które mogą być jedno- lub kilkudniowe. Klienci, którymi są firmy lub osoby prywatne rejestrują się przez serwis www. Muszą podać listę uczestników nie później niż 2 tygodnie przed rozpoczęciem konferencji/warsztatu. Dla konferencji kilkudniowych uczestnicy mogą rejestrować się na dowolne z tych dni. Z poszczególnymi dniami konferencji związane warsztaty, na których uczestnictwo jest możliwe tylko w przypadku uczestnictwa w odpowiednim dniu konferencji. Warsztaty mają stałą cenę, a dni konferencji różne w zależności od momentu zarezerwowania sobie miejsca. W obu sytuacjach liczba miejsc jest ograniczona. Klienci mają tydzień na dokonanie płatności, inaczej rezerwacja jest anulowana. Baza danych dostarcza organizatorowi zbiór najważniejszych danych takich jak listy osobowe uczestników na dany dzień, czy warsztat lub informacje o klientach korzystających najczęściej z jego usług. Baza dostarcza danych, które są wyświetlane użytkownikowi, przyjmuje również wszelkie informacje o dokonywanych rejestracjach, płatnościach itd.

2 Schemat


Address
AddressID bigint
BuildingNumber nvarchar(50)
StreetName nvarchar(300)
City nvarchar(300)
PostalCode nvarchar(20)
Region nvarchar(200)
Country nvarchar(200)
Customer
CustomerID bigint
AddressID bigint
PhoneNumber varchar(50)
EmailAddress varchar(320)
PasswordHash nvarchar(300)
Notes nvarchar(1000)
Reservation
ReservationID bigint
CustomerID bigint
PurchaseDate datetime2
CancelDate datetime2
ReservationStatus nvarchar(255)
ClientNote nvarchar(1000)
RetailCustomer
CustomerID bigint
FirstName nvarchar(100)
LastName nvarchar(100)
CorporateCustomer
CustomerID bigint
CompanyName nvarchar(500)
RepresentativeName nvarchar(500)
CustomerTaxpayerDetails
CustomerID bigint
TaxpayerNumber nvarchar(50)
TaxpayerNumberType nvarchar(100)
Event
EventID bigint
Title nvarchar(255)
Description nvarchar(1000)
AddressID bigint
AvailableSeats bigint
Conference
ConferenceID bigint
Title nvarchar(255)
Description nvarchar(1000)
Participant
ParticipantID bigint
FirstName nvarchar(255)
LastName nvarchar(255)
AddressID bigint
PhoneNumber nvarchar(50)
EmailAddress varchar(320)
Payment
PaymentID bigint
ReservationID bigint
Title nvarchar(255)
Amount money
SenderName nvarchar(200)
SenderAccountNumber nvarchar(100)
ReceivedDate datetime2
ReservationList
ReservationListID bigint
ReservationID bigint
EventID bigint
ReservedNormalSeats bigint
ReservedStudentSeats bigint
ConferenceDay
EventID bigint
ConferenceID bigint
Date date
StudentDiscount real
StudentCard
StudentCardID bigint
ParticipantID bigint
CardNumber varchar(255)
EntryDate date
ExpiryDate date
ReservationListDetails
ReservationListID bigint
ParticipantID bigint
ReservationType nvarchar(50)
Workshop
EventID bigint
ConferenceDayID bigint
Price money
BeginTime time
EndTime time
ConferenceDayPrice
ConferenceDayID bigint
PriceDateLimit date
Price money
AddressID:AddressID
AddressID AddressID
AddressID:AddressID
CustomerID:CustomerID
CustomerID:CustomerID
CustomerID:CustomerID
CustomerID:CustomerID
ReservationID:ReservationID
ReservationID:ReservationID
EventID:EventID
EventID:EventID
ConferenceID ConferenceID
EventID EventID
ParticipantID ParticipantID
ParticipantID:ParticipantID
ReservationListID ReservationListID
ConferenceDayID:EventID
ConferenceDayID:EventID
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3 Opis tabel

3.1 Address

Tabela przechowująca adresy zamieszkania klientów bądź wydarzeń. Adres składa się z (ID, nr budynku, ulica, miasto, kod pocztowy, region, kraj).

```
create table Address
(
        AddressID bigint identity
        constraint PK_ADDRESS
        primary key,
        BuildingNumber nvarchar(50) not null,
        StreetName nvarchar(300),
        City nvarchar(300) not null,
        PostalCode nvarchar(20),
        Region nvarchar(200),
        Country nvarchar(200) not null
)
go
```

3.2 Conference

Tabela przechowuje nazwę i opis konferencji. Przyporządkowane są do niej odpowiednie dni konferencji, skąd można odczytać jej datę rozpoczęcia i zakończenia.

```
create table Conference
(
        ConferenceID bigint identity
        constraint PK_CONFERENCE
        primary key,
        Title nvarchar(255) not null,
        Description nvarchar(1000)
)
go
```

3.3 ConferenceDay

Przechowuje informacje na temat pojedynczego dnia konferencji. Zawartość tabeli:

- ID - klucz główny
- ConferenceID - przyporządkowywuje dzień konferencji do tabeli
- Date - data dnia konferencji
- StudentDiscount - procentowa zniżka studencka ($0 \leqslant StudentDiscount \leqslant 1$)

```
create table ConferenceDay
(
        EventID bigint not null
        constraint PK_CONFERENCEDAY
        primary key,
        ConferenceID bigint not null
        constraint ConferenceDay_fk1
        references Conference,
        Date date not null,
        StudentDiscount real
        constraint CK_ConferenceDay
        check ([StudentDiscount]>=0 AND [StudentDiscount]<=1)
)
go

alter table ConferenceDay
        add constraint ConferenceDay_fk0
        foreign key (EventID) references Event
go
```

3.4 ConferenceDayPrice

Przechowuje informacje na temat opłaty za dzień konferencji w zależności od czasu jaki pozostał do jego rozpoczęcia. PriceDateLimit - do tego dnia włącznie obowiązuje data cena (chyba, że istnieje mniejsza).

```
create table ConferenceDayPrice
(
        ConferenceDayID bigint not null
        constraint FK_ConferenceDayPrice
        references ConferenceDay,
        PriceDateLimit date not null,
        Price money not null
        constraint CK_ConferenceDayPrice
        check ([Price]>=0)
)
go
```

3.5 CorporateCustomer

Przechowuje informacje o kliencie reprezentującym osobę prawną. Zawartość tabeli:

- ID - klucz główny
- CompanyName - nazwa firmy
- RepresentativeName - imię i nazwisko osoby reprezentującej firmę.

```
create table CorporateCustomer
(
        CustomerID bigint not null unique,
        CompanyName nvarchar(500) not null,
        RepresentativeName nvarchar(500)
)
go

alter table CorporateCustomer
        add constraint CorporateCustomer_fk0
        foreign key (CustomerID) references Customer
go
```

3.6 Customer

Przechowuje część wspólną klienta prywatnego i firmy. Zawartość tabeli:

- ID - klucz główny
- AddressID - miejsce zamieszkania klienta prywatnego lub adres firmy
- PhoneNumber - numer telefonu
- PasswordHash - zahashowana postać hasła wykorzystywanego do logowania się do serwisu www
- Notes - dodatkowe informacje na temat klienta

```
create table Customer
(
        CustomerID bigint identity
        constraint PK_CUSTOMER
        primary key,
        AddressID bigint not null
        constraint FK_Customer_Address
        references Address,
        PhoneNumber varchar(50),
        EmailAddress varchar(320) not null,
        PasswordHash nvarchar(300) not null,
        Notes nvarchar(1000)
)
go
```

3.7 CustomerTaxpayerDetails

Przechowuje specjalny typ identyfikujący klienta. Może to być PESEL, SSN, NIP lub REGON.

- TaxpayerNumber - numer identyfikatora klienta
- TaxpayerNumberType - rodzaj identyfikatora

```
create table CustomerTaxpayerDetails
(
        CustomerID bigint not null
        constraint FK_CustomerTaxpayerDetails_Customer
        references Customer,
        TaxpayerNumber nvarchar(50) not null,
        TaxpayerNumberType nvarchar(100) not null
)
go
```

3.8 Event

Część wspólna warsztatu i dnia konferencji. Zawartość tabeli:

- ID - klucz główny
- Title - tytuł wydarzenia
- Description - opis wydarzenia
- AddressID - miejsce, gdzie odbędzie się event
- AvailableSeats - wszystkie przewidziane miejsca

```
create table Event
(
        EventID bigint identity
        constraint PK_EVENT
        primary key,
        Title nvarchar(255) not null,
        Description nvarchar(1000) not null,
        AddressID bigint not null
        constraint Event_fk0
        references Address,
        AvailableSeats bigint not null
        constraint CK_AvailableSeats
        check ([AvailableSeats]>0)
)
go
```

3.9 Participant

Tabela opisująca osoby wybierające się na wydarzenie

- ID - klucz główny
- FirstName - Imię
- LastName - Nazwisko
- AddressID - Miejsce zamieszkania
- EmailAddress - Adres E-mail

```
create table Participant
(
        ParticipantID bigint identity
        constraint PK_PARTICIPANT
        primary key,
```

```
        FirstName nvarchar(255) not null,
        LastName nvarchar(255) not null,
        AddressID bigint
        constraint Participant_fk0
        references Address,
        PhoneNumber nvarchar(50),
        EmailAddress varchar(320)
)
go
```

3.10 Payment

Tabela przechowująca opisy płatności. Zawartość tabeli:

- ID - klucz główny
- ReservationID - identyfikator rezerwacji, na który była płatność
- Title - tytuł przelewu
- Amount - wartość wpłaty
- SenderName - nazwa konta, skąd przyszła wpłata
- SenderAccountNumber - numer konta, skąd przyszła wpłata
- ReceivedDate - termin otrzymania płatności

```
create table Payment
(
        PaymentID bigint identity
        constraint PK_PAYMENT
        primary key,
        ReservationID bigint not null,
        Title nvarchar(255) not null,
        Amount money not null,
        SenderName nvarchar(200) not null,
        SenderAccountNumber nvarchar(100) not null,
        ReceivedDate datetime2 not null
)
go

alter table Payment
        add constraint Payment_fk0
        foreign key (ReservationID) references Reservation
go
```

3.11 Reservation

Przechowuje informacje na temat rezerwacji. Zawartość tabeli:

- ID - klucz główny
- CustomerID - identyfikator klienta, który dokonał rezerwacji
- PurchaseDate - data rezerwacji
- CancelDate - data rezygnazji z rezerwacji; NULL dla rezerwacji, które nie sa anulowane
- ReservationStatus - status rezerwacji (anulowana, opłacona, zarezerwowana)
- ClientNote - dodatkowe informacje klienta

```
create table Reservation
(
        ReservationID bigint identity
        constraint PK_RESERVATION
        primary key,
        CustomerID bigint not null
        constraint Reservation_fk0
        references Customer,
        PurchaseDate datetime2 not null,
        CancelDate datetime2,
        ReservationStatus nvarchar(255) not null
        constraint CK_ReservationEnum
        check ([ReservationStatus]='Canceled' OR [ReservationStatus]='Paid'
                                        OR [ReservationStatus]='Reserved'),
        ClientNote nvarchar(1000),
        constraint CK_Dates
        check ([PurchaseDate]<[CancelDate])
)
go
```

3.12 ReservationList

Tabela listy rezerwacji. Przechowuje listę osób na jedno wydarzenie w ramach jednej rezerwacji. Zawartość tabeli:

- ID - klucz główny
- ReservationID - identyfikator rezerwacji
- EventID - identyfikator wydarzenia
- ReservedNormalSeats - ilość zarezerwowanych biletów normalnych
- ReservedStudentSeats - ilość zarezerwowanych biletów studenckich

```
create table ReservationList
(
        ReservationListID bigint identity
        constraint PK_RESERVATIONLIST
        primary key,
        ReservationID bigint not null
        constraint ReservationList_fk0
        references Reservation,
        EventID bigint not null
        constraint ReservationList_fk1
        references Event,
        ReservedNormalSeats bigint not null,
        ReservedStudentSeats bigint not null,
        constraint CK_ReservationList
        check ([ReservedNormalSeats]>=0 AND [ReservedStudentSeats]>=0
                AND ([ReservedNormalSeats]+[ReservedStudentSeats])>0)
)
go
```

3.13 RetailCustomer

Przechowuje informacje o kliencie prywatnym Zawartość tabeli:

- ID - klucz główny
- FirstName - imię
- LastName - nazwisko

```
create table RetailCustomer
(
        CustomerID bigint not null
        constraint RetailCustomer_fk0
        references Customer,
        FirstName nvarchar(100) not null,
        LastName nvarchar(100) not null
)
go
```

3.14 StudentCard

Przechowuje informacje o legitymacjach studenckich uczestników konferencji. Zawartość tabeli:

- ID - klucz główny
- ParticipantID - identyfikator uczestnika
- CardNumber - numer legitymacji
- EntryDate - data wprowadzenia do systemu
- ExpiryDate - data zakończenia obowiązywania

```
create table StudentCard
(
        StudentCardID bigint identity
        constraint PK_STUDENTCARD
        primary key,
        ParticipantID bigint not null
        constraint StudentCard_fk0
        references Participant,
        CardNumber varchar(255) not null,
        EntryDate date,
        ExpiryDate date not null,
        constraint CK_StudentCard
        check ([EntryDate]<[ExpiryDate])
)
go
```

3.15 Workshop

Przechowuje informacje o legitymacjach studenckich uczestników konferencji. Zawartość tabeli:

- ID - klucz główny
- ConferenceDayID - identyfikator dnia konferencji
- Price - cena udziału
- BeginTime - godzina rozpoczęcia
- EndTime - godzina zakończenia

```
create table Workshop
(
        EventID bigint not null
        constraint PK_WORKSHOP
        primary key
        constraint Workshop_fk0
        references Event,
        ConferenceDayID bigint not null
        constraint FK_WorkshopOrder
        references ConferenceDay,
        Price money not null
        constraint CK_Workshop_Price
```

```
        check ([Price]>=0),
        BeginTime time not null,
        EndTime time not null,
        constraint CK_Workshop
        check ([BeginTime]<[EndTime])
)
go
```

3.16 ReservationListDetails

Przechowuje informacje kto znajduje się na danej liście rezerwacji i czy korzysta z legitymacji studenckiej. Zawartość tabeli:

- ReservationListID - identyfikator listy rezerwacji
- ParticipantID - identyfikator uczestnika
- ReservationType - wskazuje, czy wybrany bilet jest ulgowy czy normalny

```
create table ReservationListDetails
(
        ReservationListID bigint not null
        constraint ReservationListDetails_fk0
        references ReservationList,
        ParticipantID bigint not null
        constraint ReservationListDetails_fk1
        references Participant,
        ReservationType nvarchar(50) not null
        constraint CK_ReservationListDetails
        check ([ReservationType]='Normal' OR [ReservationType]='Student')
)
go
```

4 Widoki i procedury jako widoki z parametrem

4.1 AllCustomersWithAddresses

Wyświetla wszystkich klientów w bazie razem z przyporządkowanymi do nich adresami.

```
CREATE VIEW AllCustomersWithAddresses AS
        SELECT CompanyName + ISNULL('␣represented␣by␣' + RepresentativeName,
        '␣(no␣representative)')  AS Name, PhoneNumber, EmailAddress,
        BuildingNumber, StreetName, City, PostalCode, Region, Country, Notes
        FROM dbo.CorporateCustomersWithAddress
        UNION
        SELECT FirstName + '␣' + LastName, PhoneNumber, EmailAddress,
        BuildingNumber, StreetName, City, PostalCode, Region, Country, Notes
        FROM dbo.RetailCustomersWithAddresses
go
```

4.2 AvailableSeatsInAllEvents

Wyświetla ilość dostępnych miejsc na wszystkich wydarzeniach

```
CREATE VIEW AvailableSeatsInAllEvents AS
        SELECT E.EventID, E.AvailableSeats - ISNULL(SUM(RL.ReservedSeats), 0)
                                                    AS AvailableSeats
        FROM Event E
        LEFT JOIN ReservationList RL ON RL.EventID = E.EventID
        GROUP BY E.EventID, E.AvailableSeats
go
```

4.3 CorporateCustomersWithAddresses

Wyświetla klientów firmowych razem z adresami.

```
CREATE VIEW dbo.CorporateCustomersWithAddress
AS
        SELECT        dbo.CorporateCustomer.CompanyName,
        dbo.CorporateCustomer.RepresentativeName, dbo.Customer.PhoneNumber,
        dbo.Customer.EmailAddress, dbo.Address.BuildingNumber,
        dbo.Address.StreetName, dbo.Address.City, dbo.Address.PostalCode,
        dbo.Address.Region, dbo.Address.Country, dbo.Customer.Notes
        FROM dbo.Customer
        INNER JOIN dbo.CorporateCustomer
        ON dbo.Customer.CustomerID = dbo.CorporateCustomer.CustomerID
        INNER JOIN dbo.Address
        ON dbo.Customer.AddressID = dbo.Address.AddressID
go
```

4.4 CustomersWithPayments

Wyświetla klientów razem z ich płatnościami

```
CREATE VIEW dbo.CustomersWithPayments
AS
        SELECT C.CustomerID, R.ReservationID, (dbo.funPriceForReservation(
                R.ReservationID) - ISNULL(SUM(P.Amount),0)) AS Amount
        FROM Customer C
        JOIN Reservation R ON R.CustomerID = C.CustomerID
        LEFT JOIN Payment P ON P.ReservationID = R.ReservationID
        GROUP BY C.CustomerID, R.ReservationID
go
```

4.5 MostLoyalCompanies

Wyświetla 10 firm, które mają na swoim koncie najwięcej rezerwacji.

```
CREATE VIEW dbo.MostLoyalCompanies
AS
        SELECT        TOP (10) PERCENT WITH TIES dbo.CorporateCustomer.
        CompanyName AS [Company Name], SUM(dbo.ReservationList.
        ReservedNormalSeats) AS [Total number of reserved normal tickets],
        SUM(dbo.ReservationList.ReservedStudentSeats) AS [Total number of
        reserved student tickets]
        FROM dbo.ReservationList
        INNER JOIN dbo.Reservation
        ON dbo.ReservationList.ReservationID =dbo.Reservation.ReservationID
        CROSS JOIN dbo.CorporateCustomer
        GROUP BY dbo.CorporateCustomer.CompanyName
        ORDER BY SUM(dbo.ReservationList.ReservedNormalSeats) +
        SUM(dbo.ReservationList.ReservedStudentSeats) DESC
go
```

4.6 MostLoyalRetailers

Wyświetla 10 klientów prywatnych, którzy mają na swoim koncie najwięcej rezerwacji.

```
CREATE VIEW dbo.MostLoyalRetailers
AS
SELECT TOP (10) PERCENT WITH TIES dbo.RetailCustomer.FirstName AS
                        [First Name],
dbo.RetailCustomer.LastName AS [Last Name],
SUM(dbo.ReservationList.ReservedNormalSeats) AS
                        [Total number of reserved normal tickets],
SUM(dbo.ReservationList.ReservedStudentSeats) AS
                        [Total number of reserved student tickets]
```

```
FROM dbo.ReservationList
INNER JOIN dbo.Reservation
ON dbo.ReservationList.ReservationID = dbo.Reservation.ReservationID
CROSS JOIN dbo.RetailCustomer
GROUP BY dbo.RetailCustomer.FirstName, dbo.RetailCustomer.LastName
ORDER BY SUM(dbo.ReservationList.ReservedNormalSeats) +
        SUM(dbo.ReservationList.ReservedStudentSeats) DESC
go
```

4.7 MostPopularEvents

Wyświetla 10 najpopularniejszych wydarzeń.

```
CREATE VIEW dbo.MostPopularEvents
AS
        SELECT        TOP (10) PERCENT WITH TIES dbo.Event.Title,
        dbo.Event.Description, dbo.ReservationList.ReservedNormalSeats,
        dbo.ReservationList.ReservedStudentSeats
        FROM dbo.ReservationListDetails
        INNER JOIN dbo.Participant
        ON dbo.ReservationListDetails.ParticipantID =
                                dbo.Participant.ParticipantID
        INNER JOIN dbo.ReservationList
        ON dbo.ReservationListDetails.ReservationListID =
                                dbo.ReservationList.ReservationListID
        INNER JOIN dbo.Event
        ON dbo.ReservationList.EventID = dbo.Event.EventID
        ORDER BY dbo.ReservationList.ReservedNormalSeats +
                                dbo.ReservationList.ReservedStudentSeats DESC
go
```

4.8 ParticipantsAtEvents

Wyświetla dane wszystkich uczestników na wszystkich wydarzeniach.

```
CREATE VIEW ParticipantsAtEvents AS
        (SELECT E.EventID, P.FirstName, P.LastName, P.AddressID,
                        P.PhoneNumber, P.EmailAddress
        FROM Event E
        LEFT JOIN ReservationList RL ON RL.EventID = E.EventID
        LEFT JOIN ReservationListDetails RLD ON RLD.ReservationListID =
                        RL.ReservationListID
        LEFT JOIN Participant P ON P.ParticipantID = RLD.ParticipantID
        WHERE RLD.ParticipantID IS NOT NULL)
go
```

4.9 ReservationListWithUnknownParticipants

Wyświetla te listy rezerwacji, gdzie nie są znani wszyscy uczestnicy.

```
CREATE VIEW dbo.ReservationListWithUnknownParticipants
AS
        SELECT R.ReservationID, RL.ReservationListID, COUNT(RLD.ParticipantID)
        AS ParticipantCount, RL.ReservedNormalSeats, RL.ReservedStudentSeats
        FROM dbo.Reservation AS R
        LEFT OUTER JOIN dbo.ReservationList AS RL
        ON R.ReservationID = RL.ReservationID
        LEFT OUTER JOIN dbo.ReservationListDetails AS RLD
        ON RL.ReservationListID = RLD.ReservationListID
        GROUP BY R.ReservationID, RL.ReservationListID,
                RL.ReservedNormalSeats, RL.ReservedStudentSeats
        HAVING(COUNT(RLD.ParticipantID) < RL.ReservedNormalSeats +
                                RL.ReservedStudentSeats)
go
```

4.10 ReservationsThatRequireParticipantAssignation

Wyświetla te listy rezerwacji, gdzie nie są znani wszyscy uczestnicy, a termin rozpoczęcia wydarzenia jest przekroczył próg 14 dni.

```
CREATE VIEW dbo.ReservationsThatRequireParticipantAssignation
AS
        SELECT RLUP.ReservationID, RLUP.ParticipantCount AS
        [Number of specified participants], RLUP.ReservationListID,
        RLUP.ReservedNormalSeats AS [Reserved normal ticket number],
        RLUP.ReservedStudentSeats AS [Reserved student ticket number]
        FROM dbo.ReservationList AS RL
        INNER JOIN dbo.Event AS E
        ON RL.EventID = E.EventID
        INNER JOIN dbo.ReservationListWithUnknownParticipants AS RLUP
        ON RLUP.ReservationListID = RL.ReservationListID
        WHERE (DATEDIFF(d, GETDATE(), dbo.funGetEventDate(E.EventID)) <= 14)
go
```

4.11 RetailCustomersWithAdresses

Wyświetla klientów prywatnych z adresami.

```
CREATE VIEW dbo.RetailCustomersWithAdresses
AS
        SELECT dbo.RetailCustomer.FirstName, dbo.RetailCustomer.LastName,
        dbo.Customer.PhoneNumber, dbo.Customer.EmailAddress, dbo.Address.
        BuildingNumber, dbo.Address.StreetName, dbo.Address.City, dbo.Address.
        PostalCode, dbo.Address.Region,
        dbo.Address.Country, dbo.Customer.Notes
        FROM dbo.Address
        INNER JOIN dbo.Customer
        ON dbo.Address.AddressID = dbo.Customer.AddressID
        INNER JOIN dbo.RetailCustomer
        ON dbo.Customer.CustomerID = dbo.RetailCustomer.CustomerID
go
```

4.12 AllConferences

Wyświetla dane wszystkich konferencji wraz z zarezerwowanymi miejscami i ilością warsztatów.

```
CREATE VIEW dbo.AllConferences
AS
        SELECT C.ConferenceID, C.Title, C.Description,
        MIN(CD.Date) AS [Start Date], MAX(CD.Date) AS [End Date],
        COUNT(CD.EventID) AS [Number Of Days],
        SUM(dbo.funGetWorkshopsTotalCount(CD.EventID))
                                        AS [Total number of workshops],
        SUM(dbo.funGetReservedSeatsNumber(CD.EventID))
                                        AS [Total number of reserved seats]
        FROM dbo.Conference AS C INNER JOIN
        dbo.ConferenceDay AS CD ON C.ConferenceID = CD.ConferenceID
        GROUP BY C.Title, C.Description, C.ConferenceID
go
```

4.13 EventsForConference

Dla danej konferencji wyświetla opis wszystkich wydarzeń z nią związanych.

```
CREATE PROCEDURE dbo.EventsForConference(
@ConferenceID bigint)
AS BEGIN
        SELECT E.Title, E.Description, CD.Date, E.AvailableSeats,
        A.BuildingNumber, A.StreetName, A.City
        FROM Conference C
```

```
        INNER JOIN ConferenceDay CD ON CD.ConferenceID = C.ConferenceID
        INNER JOIN Event E ON E.EventID = CD.EventID
        INNER JOIN Address A ON A.AddressID = E.AddressID
        WHERE C.ConferenceID = @ConferenceID
        UNION
        SELECT E2.Title, E2.Description, CD2.Date, E2.AvailableSeats,
                A2.BuildingNumber, A2.StreetName, A2.City
        FROM Conference C2
        INNER JOIN ConferenceDay CD2 ON CD2.ConferenceID = C2.ConferenceID
        INNER JOIN Workshop W ON W.ConferenceDayID = CD2.EventID
        INNER JOIN Event E2 ON E2.EventID = W.EventID
        INNER JOIN Address A2 ON A2.AddressID = E2.AddressID
        WHERE C2.ConferenceID = @ConferenceID
END
go
```

4.14 EventsForParticipants

Dla danego uczestnika wyświetla wszystkie wydarzenia, na które jest zapisany.

```
CREATE PROCEDURE dbo.EventsForParticipant(@ParID bigint)
AS BEGIN
        SELECT E.Title, E.Description, A.BuildingNumber, A.StreetName,
                A.City, A.PostalCode, A.Country, A.Region
        FROM Participant P
        LEFT JOIN ReservationListDetails RLD
        ON RLD.ParticipantID = P.ParticipantID
        JOIN ReservationList RL
        ON RL.ReservationListID = RLD.ReservationListID
        JOIN Event E ON E.EventID = RL.EventID
        JOIN Address A ON E.AddressID = A.AddressID
        WHERE P.ParticipantID = @ParID
END
go
```

4.15 ConferenceForParticipant

Dla danego uczestnika wyświetla wszystkie konferencje, na które jest zapisany.

```
CREATE PROCEDURE dbo.ConferenceForParticipant(@ParID bigint)
AS BEGIN
        SELECT C.Title, C.Description
        FROM Participant P
        LEFT JOIN ReservationListDetails RLD
        ON RLD.ParticipantID = P.ParticipantID
        JOIN ReservationList RL
        ON RL.ReservationListID = RLD.ReservationListID
        JOIN Event E ON E.EventID = RL.EventID
        JOIN ConferenceDay CD ON CD.EventID = E.EventID
        JOIN Conference C ON C.ConferenceID = CD.ConferenceID
        WHERE P.ParticipantID = @ParID
END
go
```

4.16 ParticipantListForConference

Dla danej konferencji wyświetla listę wszystkich uczestników

```
CREATE PROCEDURE dbo.ParticipantListForConference(@ConfID bigint)
AS BEGIN
        SELECT P.FirstName, P.LastName, A.BuildingNumber, A.StreetName,
        A.City, A.PostalCode, A.Region, A.Country,
                        P.PhoneNumber, P.EmailAddress
        FROM Conference Con
```

```
        LEFT JOIN ConferenceDay CD ON CD.ConferenceID = Con.ConferenceID
        JOIN Event E ON E.EventID = CD.EventID
        LEFT JOIN ReservationList RL ON RL.EventID = E.EventID
        LEFT JOIN ReservationListDetails RLD
        ON RLD.ReservationListID = RL.ReservationListID
        JOIN Participant P ON P.ParticipantID = RLD.ParticipantID
        JOIN Address A ON A.AddressID = P.AddressID
        WHERE Con.ConferenceID = @ConfID
END
go
```

4.17 ParticipantListForCustomer

Wyświetla listę wszystkich uczestników zarezerwowanych przez danego klienta

```
CREATE PROCEDURE dbo.ParticipantListForCustomer(@CustID bigint)
AS BEGIN
        SELECT P.FirstName, P.LastName, A.BuildingNumber, A.StreetName,
        A.City, A.PostalCode, A.Region, A.Country,
                        P.PhoneNumber, P.EmailAddress
        FROM Customer C
        LEFT JOIN Reservation R ON R.CustomerID = C.CustomerID
        LEFT JOIN ReservationList RL ON RL.ReservationID = R.ReservationID
        LEFT JOIN ReservationListDetails RLD
        ON RLD.ReservationListID = RL.ReservationListID
        JOIN Participant P ON P.ParticipantID = RLD.ParticipantID
        JOIN Address A ON A.AddressID = P.AddressID
        WHERE C.CustomerID = @CustID
END
go
```

4.18 ParticipantListForEvent

Wyświetla listę wszystkich uczestników zarezerwowanych na dane wydarzenie

```
CREATE PROCEDURE dbo.ParticipantListForEvent(@EventID bigint)
AS BEGIN
        SELECT P.FirstName, P.LastName, A.BuildingNumber, A.StreetName,
        A.City, A.PostalCode, A.Region, A.Country,
                        P.PhoneNumber, P.EmailAddress
        FROM Event E
        LEFT JOIN ReservationList RL ON RL.EventID = E.EventID
        LEFT JOIN ReservationListDetails RLD
        ON RLD.ReservationListID = RL.ReservationListID
        JOIN Participant P ON P.ParticipantID = RLD.ParticipantID
        JOIN Address A ON A.AddressID = P.AddressID
        WHERE E.EventID = @EventID
END
go
```

4.19 ReservationsForCustomer

Wyświetla listę wszystkich rezerwacji danego klienta

```
CREATE PROCEDURE dbo.ReservationsForCustomer (@CusID bigint)
AS BEGIN
        SELECT ReservationID, PurchaseDate, CancelDate,
                ReservationStatus, ClientNote FROM Reservation
        WHERE CustomerID = @CusID
END
go
```

4.20 PaymentsForCustomer

Wyświetla listę wszystkich wpłat dokonanych przez klienta.

```
CREATE PROCEDURE dbo.PaymentsForCustomer(@CusID bigint)
AS BEGIN
        SELECT P.PaymentID, P.Title, P.Amount, P.SenderName,
                P.SenderAccountNumber, P.ReceivedDate
        FROM Customer C
        JOIN Reservation R ON R.CustomerID = C.CustomerID
        JOIN Payment P ON P.ReservationID = R.ReservationID
        WHERE C.CustomerID = @CusID
END
go
```

5 Funkcje

5.1 funGetEventDate

Zwraca datę wybranego wydarzenia

```
CREATE FUNCTION [dbo].[funGetEventDate]
(
-- Add the parameters for the function here
        @EventID BigInt
)
RETURNS Date
AS
BEGIN
-- Declare the return variable here
        Declare @workshop Bit
        SET @workshop = dbo.funIsWorkshop(@EventID)
        IF @workshop = 1
        RETURN (SELECT CD.Date FROM Workshop W
                        JOIN ConferenceDay CD
                        ON W.ConferenceDayID = CD.ConferenceID
                        WHERE W.EventID = @EventID)

        RETURN (SELECT CD.Date FROM ConferenceDay CD
                        WHERE CD.EventID = @EventID)
END
go
```

5.2 funGetNumberOfDistinctReservedEvents

Zwraca listę różnych zarezerwowanych wydarzeń.

```
CREATE FUNCTION dbo.funGetNumberOfDistinctReservedEvents
(
        @ReservationID BigInt
)
RETURNS BigInt
AS
BEGIN
        -- Declare the return variable here
        DECLARE @DistinctEvents BigInt
        -- Add the T-SQL statements to compute the return value here
        SELECT @DistinctEvents = (SELECT COUNT(RL.EventID)
                FROM dbo.ReservationList RL
                WHERE RL.ReservationID = @ReservationID)
        -- Return the result of the function
        RETURN @DistinctEvents
END
go
```

5.3 funGetReservedSeatsNumber

Zwraca listę zarezerwowanych miejsc na dane wydarzenie.

```
CREATE FUNCTION dbo.funGetReservedSeatsNumber
(
        @EventID BigInt
)
RETURNS BigInt
AS
BEGIN
        -- Declare the return variable here
        DECLARE @ReservedSeats BigInt
        -- Add the T-SQL statements to compute the return value here
        SET @ReservedSeats = (SELECT ISNULL(SUM(RL.ReservedNormalSeats +
                RL.ReservedStudentSeats), 0) FROM ReservationList RL
                WHERE RL.EventID = @EventID)

        -- Return the result of the function
        RETURN @ReservedSeats
END
go
```

5.4 funGetWorkshopCount

Zwraca ilość Warsztatów danego dnia konferencji i uczestnika.

```
CREATE FUNCTION dbo.funGetWorkshopCount
(
        @ParticipantID BigInt,
        @ConferenceDayID BigInt
)
RETURNS BigInt
AS
BEGIN
        -- Declare the return variable here
        DECLARE @WorkshopCount BigInt
        -- Add the T-SQL statements to compute the return value here
        SET @WorkshopCount = (
                SELECT COUNT(W.EventID)
                FROM Workshop W
                JOIN ReservationList RL ON W.EventID = RL.EventID
                JOIN ReservationListDetails RLD
                ON RLD.ReservationListID = RL.ReservationListID
                WHERE RLD.ParticipantID = @ParticipantID
                AND W.ConferenceDayID = @ConferenceDayID)

        -- Return the result of the function
        RETURN @WorkshopCount
END
go
```

5.5 funGetWorkshopsTotalCount

Zwraca liczbę warsztatów dla całego dnia konferencji.

```
CREATE FUNCTION [dbo].[funGetWorkshopsTotalCount]
(
@ConferenceDayID BigInt
)
RETURNS BigInt
AS
BEGIN
        -- Declare the return variable here
        DECLARE @WorkshopCount BigInt
```

```
        -- Add the T-SQL statements to compute the return value here
        SET @WorkshopCount = (
                SELECT COUNT(W.EventID)
                FROM Workshop W
                WHERE W.ConferenceDayID = @ConferenceDayID)

        -- Return the result of the function
        RETURN @WorkshopCount
END
go
```

5.6 funGetNumOfVacantSeats

Zwraca liczbę wolnych miejsc dla danego wydarzenia.

```
CREATE FUNCTION [dbo].[funGetNumOfVacantSeats]
(
        @EventID BigInt
)
RETURNS int
AS
BEGIN
        DECLARE @retval BigInt;
        SET @retval = (
                SELECT E.AvailableSeats - SUM(ISNULL(RL.ReservedNormalSeats, 0)
                 + ISNULL(RL.ReservedStudentSeats, 0))
                FROM Event E
                LEFT JOIN ReservationList RL ON E.EventID = RL.EventID
                WHERE E.EventID = @EventID
                GROUP BY E.AvailableSeats);
        RETURN @retval
END
go
```

5.7 funGetOverlappingWorkshopsNumber

Zwraca liczbę nakładających się na siebie warsztatów dla uczestnika.

```
CREATE FUNCTION dbo.funGetOverlappingWorkshopsNumber
(
        -- Add the parameters for the function here
        @ParticipantID BigInt
)
RETURNS BigInt
AS
BEGIN
        -- Declare the return variable here
        DECLARE @OverlappingWorkshops BigInt
        -- Add the T-SQL statements to compute the return value here
        SET @OverlappingWorkshops = (SELECT COUNT(WL1.EventID)
                FROM  dbo.tabFunGetAttendedWorkshopsList(1) WL1
                CROSS JOIN dbo.tabFunGetAttendedWorkshopsList(1) WL2
                WHERE dbo.funGetEventDate(WL1.EventID)
                 = dbo.funGetEventDate(WL2.EventID)  AND
                (WL1.BeginTime BETWEEN WL2.BeginTime AND WL2.EndTime
                 OR WL1.EndTime BETWEEN WL2.BeginTime AND WL2.EndTime))

        RETURN @OverlappingWorkshops
END
go
```

5.8 funGetSpecifiedSeatsForGivenType

Zwraca liczbę uczestników dla danej listy rezerwacji, których dane znamy. W zależności od typu sprawdzać można bilety normalne i studenckie.

```
CREATE FUNCTION dbo.funGetSpecifiedSeatsForGivenType
(
        -- Add the parameters for the function here
        @ReservationListID BigInt,
        @Type nvarchar(50)
)
RETURNS BigInt
AS
BEGIN
        -- Declare the return variable here
        DECLARE @SpecifiedSeats BigInt
        -- Add the T-SQL statements to compute the return value here
        SELECT @SpecifiedSeats = (SELECT COUNT(Rl.ParticipantID)
         FROM dbo.ReservationListDetails RL WHERE RL.ReservationListID
          = @ReservationListID AND RL.ReservationType = @Type)
        -- Return the result of the function
        RETURN @SpecifiedSeats
END
go
```

5.9 funPriceForCustomer

Zwraca kwotę, którą do zapłacenia ma dany klient za wszystkie rezerwacje.

```
CREATE FUNCTION dbo.funPriceForCustomer(@CusID bigint)
RETURNS money
AS
BEGIN
        DECLARE @ret money
        SET @ret = (SELECT ISNULL(SUM(
                        dbo.funPriceForReservation
                                (Reservation.ReservationID)), 0)
                FROM Customer
                LEFT JOIN Reservation
                ON Reservation.CustomerID = Customer.CustomerID
                WHERE Customer.CustomerID = @CusID)
        RETURN @ret
END
go
```

5.10 funPriceForReservation

Zwraca kwotę, którą do zapłacenia ma dany klient za wybraną rezerwacje.

```
CREATE FUNCTION dbo.funPriceForReservation(@ResID bigint)
RETURNS money
AS
BEGIN
        DECLARE @ret money
        SET @ret = (SELECT ISNULL(SUM(
                        dbo.funPriceForReservationList(
                        ReservationList.ReservationListID)
                        ),0)
                FROM Reservation
                LEFT JOIN ReservationList
                 ON Reservation.ReservationID = ReservationList.ReservationID
                WHERE Reservation.ReservationID = @ResID)
        RETURN @ret
END
go
```

5.11 funPriceForReservationList

Zwraca kwotę, którą do zapłacenia ma dany klient za wybraną listę rezerwacji.

```
CREATE FUNCTION dbo.funPriceForReservationList (@RLID bigint)
RETURNS money
AS BEGIN
  DECLARE @ret money
  IF EXISTS (SELECT * FROM Workshop W2 INNER JOIN ReservationList RL2 ON
    W2.EventID = RL2.ReservationListID WHERE RL2.ReservationListID = @RLID)
  BEGIN
    SET @ret = (SELECT (RL.ReservedNormalSeats+RL.ReservedStudentSeats)*W.Price
     AS MoneyToPay
    FROM ReservationList RL
    INNER JOIN Workshop W ON W.EventID = RL.EventID
    WHERE RL.ReservationListID = @RLID)
  END
  ELSE
  BEGIN
    DECLARE @date date
    SET @date = (SELECT Reservation.PurchaseDate FROM ReservationList
      JOIN Reservation
      ON Reservation.ReservationID = ReservationList.ReservationID
    WHERE ReservationList.ReservationListID = @RLID)
```

```
21
22      DECLARE @price money
23      SET @price =
24        dbo.funPriceForConferenceDayFromDateOfReservation(@RLID, @date)
25      SET @ret = (SELECT (RL.ReservedNormalSeats * @price) +
26        (RL.ReservedStudentSeats * @price * (1-CD.StudentDiscount))
27        FROM ReservationList RL
28        INNER JOIN ConferenceDay CD ON CD.EventID = RL.EventID
29      WHERE RL.EventID = @RLID)
30    END
31    RETURN @ret
32  END
33  go
```

5.12 funIsWorkshop

Zwraca informację, czy dane wydarzenie jest warsztatem.

```
1   CREATE FUNCTION dbo.funIsWorkshop
2   (
3     -- Add the parameters for the function here
4     @EventID BigInt
5   )
6   RETURNS Bit
7   AS
8   BEGIN
9     -- Declare the return variable here
10    IF EXISTS(SELECT * FROM Workshop W WHERE W.EventID = @EventID)
11      RETURN 1
12    RETURN 0
13  END
14  go
```

5.13 funPriceForConferenceDayFromDateOfReservation

Zwraca informację, o cenie dnia konferencji w zależności od podanej daty.

```
1   CREATE FUNCTION dbo.funPriceForConferenceDayFromDateOfReservation
2   (
3     @ConferenceDayID BigInt,
4     @ReservationDate date
5   )
6   RETURNS Money
7   AS
8   BEGIN
9     RETURN
10    (
11    SELECT TOP 1 CDP.Price FROM ConferenceDayPrice CDP
12    WHERE CDP.ConferenceDayID = @ConferenceDayID
13    AND @ReservationDate <= CDP.PriceDateLimit
14    ORDER BY CDP.PriceDateLimit
15    )
16  END
17  go
```

5.14 funRemainingPayForCustomer

Zwraca informację, o łącznej kwocie do zapłaty dla danego klienta.

```
1   CREATE FUNCTION dbo.funRemainingPayForCustomer(@CusID bigint)
2   RETURNS money
3   AS
4   BEGIN
5     DECLARE @ret money
```

```
  SET @ret =  (SELECT SUM(C.Amount)
  FROM dbo.CustomersWithPayments C
  WHERE C.CustomerID = @CusID
  GROUP BY C.CustomerID)
  RETURN ISNULL(@ret, 0)
END
go
```

5.15 funRemainingPayForReservation

Zwraca informację, o łącznej kwocie do zapłaty dla danej rezerwacji.

```
CREATE FUNCTION [dbo].[funRemainingPayForReservation](
  @ReservationID BigInt
)
RETURNS Money
AS BEGIN
  DECLARE @Return Money
  SET @Return = (SELECT CP.Amount
    FROM dbo.CustomersWithPayments CP
    WHERE CP.ReservationID = @ReservationID)

  RETURN ISNULL(@Return, 0)
END
go
```

5.16 tabFunGetAttendedWorkshopsList

Zwraca listę warsztatów, w których dany użytkownik bierze udział.

```
CREATE FUNCTION [dbo].[tabFunGetAttendedWorkshopsList]
(
-- Add the parameters for the function here
@ParticipantID BigInt
)
RETURNS TABLE
AS
RETURN
(
  SELECT W.EventID, W.ConferenceDayID, W.BeginTime, W.EndTime, W.Price
  FROM Workshop W
  JOIN ReservationList RL ON RL.EventID = W.EventID
  JOIN ReservationListDetails RLD
  ON RLD.ReservationListID = RL.ReservationListID
  WHERE RLD.ParticipantID = @ParticipantID
)
go
```

5.17 tabFunGetListOfParticipants

Zwraca listę uczestników dla danego wydarzenia.

```
CREATE FUNCTION dbo.tabFunGetListOfParticipants
(
  -- Add the parameters for the function here
  @EventID BigInt
)
RETURNS TABLE
AS
RETURN
(
  SELECT RLD.ParticipantID
  FROM ReservationListDetails RLD
  JOIN ReservationList RL
```

```
  ON RL.ReservationListID = RLD.ReservationListID
  WHERE RL.EventID = @EventID
)
go
```

6 Procedury

6.1 AddAddress

Dodaje nowy adres do bazy.

```
CREATE PROCEDURE dbo.AddAddress(
        @BuildingNumber nvarchar(50),
        @StreetName nvarchar(300),
        @City nvarchar(300),
        @PostalCode nvarchar(20),
        @Region nvarchar(200),
        @Country nvarchar(200))
AS BEGIN
        INSERT INTO Address(BuildingNumber, StreetName,
                City, PostalCode, Region, Country)
        VALUES (@BuildingNumber, @StreetName, @City,
                @PostalCode, @Region, @Country);
END
go
```

6.2 AddConference

Dodaje nową konferencję do bazy.

```
CREATE PROCEDURE dbo.AddConference(
        @Title          nvarchar(255),
        @Desc           nvarchar(1000),
        @BegTime        date,
        @EndTime        date,
        @DDiscount      real,
        @DAddress       bigint,
        @DAvailableSeats bigint)
AS BEGIN
        INSERT INTO Conference(Title, Description)
        VALUES(@Title, @Desc);
        DECLARE @i int
        DECLARE @all int
        DECLARE @confID bigint
        SET @confID = SCOPE_IDENTITY()
        SET @i = DATEDIFF(d, @BegTime, @EndTime)
        SET @all = @i
        WHILE (@i >= 0)
        BEGIN
        INSERT INTO Event(Title, Description, AddressID, AvailableSeats)
        VALUES(@Title + ': day no. ' + CAST((@all - @i) as nvarchar),
                @Desc, @DAddress, @DAvailableSeats);
        INSERT INTO ConferenceDay(EventID, ConferenceID,
                        Date, StudentDiscount)
        VALUES(SCOPE_IDENTITY(), @confID,
                DATEADD(d, @all - @i, @BegTime), @DDiscount)
        SET @i = @i - 1
        END
END
go
```

6.3 AddCorporateCustomer

Dodaje nową firmę do bazy klientów.

```
CREATE PROCEDURE dbo.AddCorporateCustomer(
        @CompanyName nvarchar(500),
        @Representative nvarchar(500),
        @AddressID bigint,
        @PhoneNumber varchar(50),
        @Email varchar(320),
        @Notes nvarchar(1000),
        @TaxpayerNumber nvarchar(50),
        @TaxpayerNumberType nvarchar(100))
AS BEGIN
        DECLARE @CusID bigint
        BEGIN TRANSACTION
        ALTER TABLE Customer DISABLE TRIGGER [trg_Ctr_IU_CheckSpecifiedType];
        INSERT INTO Customer
        VALUES(@AddressID, @PhoneNumber, @Email, @Notes);
        SET @CusID = SCOPE_IDENTITY();
        INSERT INTO CorporateCustomer
        VALUES(@CusID, @CompanyName, @Representative);
        INSERT INTO ClientTaxpayerDetails
        VALUES(@CusID, @TaxpayerNumber, @TaxpayerNumberType);
        ALTER TABLE Customer ENABLE TRIGGER [trg_Ctr_IU_CheckSpecifiedType];
        COMMIT
END
go
```

6.4 AddParticipant

Dodaje nowego uczestnika do bazy uczestników.

```
CREATE PROCEDURE dbo.AddParticipant(
        @FirstName nvarchar(255),
        @LastName nvarchar(255),
        @AddressID bigint,
        @PhoneNumber nvarchar(50),
        @Email varchar(320))
AS BEGIN
        INSERT INTO Participant(FirstName, LastName, AddressID,
                                PhoneNumber, EmailAddress)
        VALUES (@FirstName, @LastName, @AddressID, @PhoneNumber, @Email);
END
go
```

6.5 AddPayment

Dodaje nową płatność do bazy.

```
CREATE PROCEDURE dbo.AddPayment(
        @ReservationID bigint,
        @Title nvarchar(255),
        @Amount money,
        @SenderName nvarchar(200),
        @SenderAccountNumber nvarchar(100),
        @ReceivedDate datetime2)
AS BEGIN
        INSERT INTO Payment VALUES(@ReservationID, @Title, @Amount,
                           @SenderName, @SenderAccountNumber, @ReceivedDate)
END
go
```

6.6 AddReservation

Rezerwuje nowe miejsca na wydarzenie.

```
CREATE PROCEDURE [dbo].[AddReservation](
        @CustomerID bigint,
        @PurchaseDate datetime2,
        @ClientNote nvarchar(1000),
        @EventID        bigint,
        @ReservedNormalSeats bigint,
        @ReservedStudentSeats bigint)
AS BEGIN
        BEGIN TRANSACTION
        ALTER TABLE Reservation DISABLE TRIGGER
                                trg_Res_I_CheckIfReservationNotEmpty
        INSERT INTO Reservation(CustomerID, PurchaseDate,
                                CancelDate, ReservationStatus, ClientNote)
        VALUES (@CustomerID, @PurchaseDate, NULL, 'Reserved', @ClientNote)
        DECLARE @Key bigint
        SET @Key = SCOPE_IDENTITY()
        IF NOT EXISTS(SELECT ReservationStatus FROM Reservation
                WHERE ReservationID=@Key AND ReservationStatus='Canceled')
        BEGIN
        INSERT INTO ReservationList
        VALUES(@Key, @EventID, @ReservedNormalSeats, @ReservedStudentSeats)
        ALTER TABLE Reservation ENABLE TRIGGER
                                trg_Res_I_CheckIfReservationNotEmpty
        END
        COMMIT;
END
go
```

6.7 AddRetailCustomer

Dodaje klienta prywatnego do bazy klientów.

```
CREATE PROCEDURE dbo.AddRetailCustomer(
        @FirstName nvarchar(100),
        @LastName nvarchar(100),
        @AddressID bigint,
        @PhoneNumber varchar(50),
        @Email varchar(320),
        @Notes nvarchar(1000),
        @TaxpayerNumber nvarchar(50),
        @TaxpayerNumberType nvarchar(100))
AS BEGIN
        DECLARE @CusID bigint
        BEGIN TRANSACTION
        ALTER TABLE Customer DISABLE TRIGGER [trg_Ctr_IU_CheckSpecifiedType];
        INSERT INTO Customer VALUES(@AddressID, @PhoneNumber, @Email, @Notes);
        SET @CusID = SCOPE_IDENTITY()
        INSERT INTO RetailCustomer VALUES(@CusID, @FirstName, @LastName);
        INSERT INTO ClientTaxpayerDetails
                VALUES(@CusID, @TaxpayerNumber, @TaxpayerNumberType);
        ALTER TABLE Customer ENABLE TRIGGER [trg_Ctr_IU_CheckSpecifiedType];
        COMMIT
END
go
```

6.8 AddWorkshop

Dodaje nowy warsztat.

```
CREATE PROCEDURE dbo.AddWorkshop(
        @ConferenceDayID bigint,
```

```
        @Price money,
        @BegTime time,
        @EndTime time,
        @Title nvarchar(255),
        @Description nvarchar(1000),
        @AvailableSeats bigint,
        @Address        bigint)
AS BEGIN
        INSERT INTO Event(Title, Description, AddressID, AvailableSeats)
        VALUES(@Title, @Description, @Address, @AvailableSeats);
        INSERT INTO Workshop VALUES(SCOPE_IDENTITY(), @ConferenceDayID,
                @Price, @BegTime, @EndTime)
END
go
```

6.9 CancelReservation

Anuluje rezerwację.

```
CREATE PROCEDURE dbo.CancelReservation(
        @ReservationID bigint,
        @CancelDate datetime2)
AS BEGIN
        UPDATE Reservation
        SET CancelDate = @CancelDate, ReservationStatus = 'Canceled'
        WHERE ReservationID = @ReservationID
        DELETE FROM ReservationListDetails
        WHERE ReservationListDetails.ReservationListID IN(
                SELECT RLD.ReservationListID
                FROM Reservation R
                LEFT JOIN ReservationList RL
                ON R.ReservationID = RL.ReservationID
                LEFT JOIN ReservationListDetails RLD
                ON RLD.ReservationListID = RL.ReservationListID
                WHERE R.ReservationID = @ReservationID)

        DELETE FROM ReservationList
        WHERE ReservationList.ReservationListID IN(
                SELECT RL.ReservationListID
                FROM Reservation R
                LEFT JOIN ReservationList RL
                ON R.ReservationID = RL.ReservationID
                WHERE R.ReservationID = @ReservationID)
END
go
```

6.10 ModifyConferenceDay

Ustawia wartości konkretnego dnia konferencji po utworzeniu przez *AddConference*.

```
CREATE PROCEDURE dbo.ModifyConferenceDay(
        @CDayID bigint,
        @Title nvarchar(255),
        @Description nvarchar(1000),
        @AddressID bigint,
        @AvailableSeats bigint,
        @Discount real)
AS BEGIN
        UPDATE Event
        SET Title = @Title,
        Description = @Description,
        AddressID = @AddressID,
        AvailableSeats = @AvailableSeats
        WHERE Event.EventID = @CDayID
```

```
        UPDATE ConferenceDay
        SET StudentDiscount = @Discount
        WHERE ConferenceDay.EventID = @CDayID
END
go
```

6.11 IdentificatorsForEvent

Zwraca tabelę, która zawiera wszystkie informacje niezbędne do wydrukowania plakietki dla uczestnika konferencji.

```
CREATE PROCEDURE [IdentificatorsForEvent]
        @EventID bigint
AS BEGIN
        SET NOCOUNT ON;
        SELECT P.FirstName AS [First Name], P.LastName AS [Last Name],
                                CC.CompanyName AS [Company Name]
        FROM Participant P
        JOIN ReservationListDetails RLD
        ON P.ParticipantID = RLD.ParticipantID
        JOIN ReservationList RL
        ON RLD.ReservationListID = RL.ReservationListID
        JOIN Reservation R ON R.ReservationID = RL.ReservationID
        JOIN CorporateCustomer CC ON CC.CustomerID = R.CustomerID
        WHERE RL.EventID = @EventID
        UNION
        SELECT P.FirstName, P.LastName, null
        FROM Participant P
        JOIN ReservationListDetails RLD
        ON P.ParticipantID = RLD.ParticipantID
        JOIN ReservationList RL
        ON RLD.ReservationListID = RL.ReservationListID
        JOIN Reservation R ON R.ReservationID = RL.ReservationID
        JOIN RetailCustomer RC ON RC.CustomerID = R.CustomerID
        WHERE RL.EventID = @EventID
END
go
```

6.12 RemoveAddress

Usuwa adres z bazy.

```
CREATE PROCEDURE dbo.RemoveAddress(
        @AddressID bigint)
AS BEGIN
        DELETE FROM Address WHERE Address.AddressID = @AddressID
END
go
```

6.13 RemoveConference

Usuwa konferencję z bazy razem ze wszystkimi przyporządkowanymi do niej dniami konferencji, warsztatami, listami rezerwacji.

```
CREATE PROCEDURE dbo.RemoveConference(
        @ConferenceID bigint)
AS BEGIN
        DECLARE @I bigint
        DECLARE cur CURSOR LOCAL FOR
        SELECT EventID
        FROM ConferenceDay
        WHERE ConferenceID=@ConferenceID
        OPEN cur;
        FETCH NEXT FROM cur INTO @I;
```

```
        WHILE @@FETCH_STATUS=0
        BEGIN
                EXEC [dbo].RemoveEvent @I;
                FETCH NEXT FROM cur INTO @I;
        END
        CLOSE cur;
        DEALLOCATE cur;
        DELETE FROM Conference WHERE ConferenceID = @ConferenceID
END
go
```

6.14 RemoveConferenceDayPrice

Usuwa zbędny przedział cenowy dnia konferencji.

```
CREATE PROCEDURE dbo.RemoveConferenceDayPrice(
        @ConferenceDayID bigint,
        @PriceDateLimit date)
AS BEGIN
        DELETE FROM ConferenceDayPrice
        WHERE ConferenceDayID=@ConferenceDayID
        AND PriceDateLimit=@PriceDateLimit
END
go
```

6.15 RemoveCustomer

Usuwa klienta z bazy (zarówno prywatnego jak i firmę).

```
CREATE PROCEDURE dbo.RemoveCustomer(
        @CustomerID bigint)
AS BEGIN
        DECLARE @date date
        SET @date = GETDATE()
        DECLARE @I bigint
        DECLARE cur CURSOR LOCAL FOR
        SELECT ReservationID
        FROM Reservation
        WHERE CustomerID = @CustomerID
        OPEN cur;
        FETCH NEXT FROM cur INTO @I;
        WHILE @@FETCH_STATUS=0
        BEGIN
        EXEC [dbo].CancelReservation  @I, @date
        FETCH NEXT FROM cur INTO @I;
        END
        CLOSE cur;
        DEALLOCATE cur;
        DELETE FROM ClientTaxpayerDetails WHERE CustomerID=@CustomerID
        DELETE FROM CorporateCustomer WHERE CustomerID=@CustomerID
        DELETE FROM RetailCustomer WHERE CustomerID=@CustomerID
        DELETE FROM Customer WHERE CustomerID=@CustomerID
END
go
```

6.16 RemoveEvent

Usuwa wydarzenie z konferencji wraz z jego listami rezerwacji. Jeżeli jest to dzień konferencji usuwa również wszystkie przypisane do niego warsztaty.

```
CREATE PROCEDURE dbo.RemoveEvent(
@EventID bigint)
AS BEGIN
        IF EXISTS(SELECT * FROM Event E JOIN Workshop W ON
```

```
                        W.EventID = E.EventID AND W.EventID=@EventID)
        BEGIN
                --Usuwanie Reservation List
                DECLARE @I bigint
                DECLARE cur CURSOR LOCAL FOR
                SELECT ReservationListID
                FROM ReservationList
                WHERE EventID = @EventID
                OPEN cur;
                FETCH NEXT FROM cur INTO @I;
                WHILE @@FETCH_STATUS=0
                BEGIN
                EXEC [dbo].RemoveReservationList @I
                FETCH NEXT FROM cur INTO @I;
                END
                CLOSE cur;
                DEALLOCATE cur;
                DELETE FROM Workshop WHERE Workshop.EventID = @EventID
                DELETE FROM Event WHERE Event.EventID = @EventID
        END
        ELSE
        BEGIN
                --Usuwanie ConferenceDayPrice
                DECLARE @I2 bigint
                DECLARE cur2 CURSOR LOCAL FOR
                SELECT PriceDateLimit
                FROM ConferenceDayPrice
                WHERE ConferenceDayID=@EventID
                OPEN cur2;
                FETCH NEXT FROM cur2 INTO @I2;
                WHILE @@FETCH_STATUS=0
                BEGIN
                EXEC [dbo].RemoveConferenceDayPrice @EventID, @I2
                FETCH NEXT FROM cur2 INTO @I2;
                END
                CLOSE cur2;
                DEALLOCATE cur2;
                --Usuwanie Workshop
                DECLARE cur3 CURSOR LOCAL FOR
                SELECT EventID
                FROM Workshop
                WHERE Workshop.ConferenceDayID = @EventID
                OPEN cur3;
                FETCH NEXT FROM cur3 INTO @I2;
                WHILE @@FETCH_STATUS=0
                BEGIN
                EXEC [dbo].RemoveEvent @I2
                FETCH NEXT FROM cur3 INTO @I2;
                END
                CLOSE cur3;
                DEALLOCATE cur3;
                --Usuwanie Reservation List
                DECLARE cur4 CURSOR LOCAL FOR
                SELECT ReservationListID
                FROM ReservationList
                WHERE EventID = @EventID
                OPEN cur4;
                FETCH NEXT FROM cur4 INTO @I2;
                WHILE @@FETCH_STATUS=0
                BEGIN
                EXEC [dbo].RemoveReservationList @I2
                FETCH NEXT FROM cur4 INTO @I2;
                END
```

```
                CLOSE cur4;
                DEALLOCATE cur4;
                DELETE FROM ConferenceDay
                WHERE ConferenceDay.EventID = @EventID
                DELETE FROM Event WHERE Event.EventID = @EventID
        END
END
go
```

6.17 RemoveOverdueReservations

Anuluje wszystkie rezerwacje, które po upływie tygodnia nie zostały opłacone.

```
CREATE PROCEDURE RemoveOverdueReservations
AS BEGIN
        DECLARE @I bigint
        DECLARE @Date date
        SET @Date = GETDATE()
        DECLARE cur CURSOR LOCAL FOR
        SELECT ReservationID
        FROM Reservation
        WHERE ReservationStatus = 'Reserved'
        AND DATEDIFF(d, PurchaseDate, GETDATE()) > 7
        OPEN cur;
        FETCH NEXT FROM cur INTO @I;
        WHILE @@FETCH_STATUS=0
        BEGIN
        EXEC [dbo].[CancelReservation] @I, @Date
        FETCH NEXT FROM cur INTO @I;
        END
        CLOSE cur;
        DEALLOCATE cur;
END
go
```

6.18 RemoveParticipant

Usuwa dane osobowe uczestnika.

```
CREATE PROCEDURE dbo.RemoveParticipant(
        @ParticipantID bigint)
AS BEGIN
        DELETE FROM Participant WHERE @ParticipantID = ParticipantID
END
go
```

6.19 RemoveParticipantFromList

Usuwa uczestnika z listy rezerwacji.

```
CREATE PROCEDURE dbo.RemoveParticipantFromList(
        @ReservationListID bigint,
        @ParticipantID bigint)
AS BEGIN
        DELETE FROM ReservationListDetails
        WHERE ParticipantID = @ParticipantID
        AND @ReservationListID = ReservationListID
END
go
```

6.20 RemovePayment

Usuwa płatność z bazy.

```
CREATE PROCEDURE dbo.RemovePayment(
        @PaymentID bigint)
AS BEGIN
        DELETE FROM Payment WHERE PaymentID = @PaymentID
END
go
```

6.21 RemoveReservationList

Usuwa listę rezerwacji z bazy.

```
CREATE PROCEDURE dbo.RemoveReservationList(
        @ReservationListID bigint)
AS BEGIN
        DECLARE @I bigint
        DECLARE cur CURSOR LOCAL FOR
        SELECT ParticipantID
        FROM ReservationListDetails
        WHERE ReservationListID=@ReservationListID
        OPEN cur;
        FETCH NEXT FROM cur INTO @I;
        WHILE @@FETCH_STATUS=0
        BEGIN
                EXEC [dbo].[RemoveParticipantFromList] @ReservationListID, @I
                FETCH NEXT FROM cur INTO @I;
        END
        CLOSE cur;
        DEALLOCATE cur;
        DELETE FROM ReservationList
        WHERE ReservationListID = @ReservationListID
END
go
```

6.22 UpdateReservationList

Dopisuje uczestników na listę rezerwacji.

```
CREATE PROCEDURE dbo.UpdateReservationList(
        @ReservationListID bigint,
        @ParticipantID  bigint,
        @ReservationType nvarchar(50))
AS BEGIN
        INSERT INTO ReservationListDetails
        VALUES (@ReservationListID, @ParticipantID, @ReservationType)
END
go
```

7 Triggery

7.1 trg_CDP_IU_OneLimitPerDate

Utrzymanie jednoznaczności daty do której obowiązuje dana cena.

```
CREATE TRIGGER [dbo].[trg_CDP_IU_OneLimitPerDate]
ON [dbo].[ConferenceDayPrice]
AFTER INSERT, UPDATE
AS
BEGIN
-- SET NOCOUNT ON added to prevent extra result sets from
-- interfering with SELECT statements.
  SET NOCOUNT ON;
--Check if pair(pricelimit, conferenceday) is uniq
  IF EXISTS(SELECT *
```

```
    FROM ConferenceDayPrice CDP
    GROUP BY CDP.ConferenceDayID, CDP.PriceDateLimit
    HAVING COUNT(CDP.Price) > 1)
    THROW 50001, 'Conference day price can have only one date.', 1

END
go
```

7.2 trg_CDP_IU_PriceLimitDateLessThanConferenceDate

Data limitu nie może przekraczać daty dnia konferencji.

```
CREATE TRIGGER [dbo].[trg_CDP_IU_PriceLimitDateLessThanConferenceDate]
ON [dbo].[ConferenceDayPrice]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  --Conference day price limit cannot surpass conference day
  IF EXISTS(SELECT *
    FROM inserted I
    JOIN ConferenceDay CD ON CD.ConferenceID = I.ConferenceDayID
    WHERE I.PriceDateLimit >= CD.Date)
    THROW 50001,
     'Conference day price date limit cannot surpass conference day date.', 1
END
go
```

7.3 trg_CDP_IU_PriceNotDescending

Opłata za kolejne limity cenowe dla dnia konferencji nie może maleć.

```
CREATE TRIGGER [dbo].[trg_CDP_IU_PriceNotDescending]
ON [dbo].[ConferenceDayPrice]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if price is not descending.
  IF EXISTS(SELECT *
    FROM ConferenceDayPrice CDP1
    CROSS JOIN ConferenceDayPrice CDP2
    WHERE CDP1.ConferenceDayID = CDP2.ConferenceDayID
      AND (CDP1.PriceDateLimit > CDP2.PriceDateLimit
      AND CDP1.Price < CDP2.Price))
    THROW 50001, 'Conference day price cannot be descending.', 1

END
go
```

7.4 trg_CC_IU_NotAlsoRetail

Firma nie może być jednocześnie klientem indywidualnym.

```
CREATE TRIGGER [dbo].[trg_CC_IU_NotAlsoRetail]
ON [dbo].[CorporateCustomer]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
```

```
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if corporate customer is not retail
  IF EXISTS(
    SELECT *
    FROM RetailCustomer R
    JOIN inserted I ON I.CustomerID = R.CustomerID
  )
    THROW 50001, 'Customer can be of only one type.', 1
END
go
```

7.5 trg_Ctr_IU_CheckSpecifiedType

Każdy klient musi mieć określony typ: klient indywidualny lub firma.

```
CREATE TRIGGER [dbo].[trg_Ctr_IU_CheckSpecifiedType]
ON dbo.Customer
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if customer has specified type
  IF NOT (EXISTS(
    SELECT *
    FROM RetailCustomer R
    JOIN inserted I ON I.CustomerID = R.CustomerID
    ) OR EXISTS(
    SELECT *
    FROM CorporateCustomer C
    JOIN inserted I ON I.CustomerID = C.CustomerID
    ))
    THROW 50001, 'Customer must have specified type.', 1
END
go
```

7.6 trg_CTD_IU_ValidateCorporateDocs

Typy dokumentów (PESEL, SSN) nie mogą być typami dokumentów firmy.

```
CREATE TRIGGER [dbo].[trg_CTD_IU_ValidateCorporateDocs]
ON [dbo].[ClientTaxpayerDetails]
AFTER INSERT, UPDATE
AS
BEGIN
-- SET NOCOUNT ON added to prevent extra result sets from
-- interfering with SELECT statements.
SET NOCOUNT ON;
IF EXISTS
(
  SELECT *
  FROM inserted I
  JOIN CorporateCustomer CC ON I.CustomerID = CC.CustomerID
  WHERE I.TaxpayerNumberType IN ('PESEL', 'SSN')
)
THROW 50001, 'Document type not valid for corporate customer.', 1
END
go
```

7.7 trg_CTD_IU_ValidateRetailsDocs

Typy dokumentów (REGON, NIP) nie mogą być typami dokumentów klienta indywidualnego.

```
CREATE TRIGGER [dbo].[trg_CTD_IU_ValidateRetailsDocs]
ON [dbo].[ClientTaxpayerDetails]
AFTER INSERT, UPDATE
AS
BEGIN
-- SET NOCOUNT ON added to prevent extra result sets from
-- interfering with SELECT statements.
  SET NOCOUNT ON;
  IF EXISTS
  (
    SELECT *
    FROM inserted I
    JOIN RetailCustomer RC ON I.CustomerID = RC.CustomerID
    WHERE I.TaxpayerNumberType IN ('REGON', 'NIP')
  )
    THROW 50001, 'Document type not valid for retail customer.', 1
END
go
```

7.8 trg_Ev_U_AvailableSeatsWithinReservedNumbers

Modyfikacja liczby dostępnych miejsc nie może powodować stanu nadrezerwacji.

```
CREATE TRIGGER trg_Ev_U_AvailableSeatsWithinReservedNumbers
ON  dbo.Event
AFTER Update
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  IF EXISTS(
    SELECT I.EventID
    FROM inserted I
    WHERE I.AvailableSeats < dbo.funGetReservedSeatsNumber(I.EventID)
  )
    THROW 50001,
      'Already reserved seats number surpasses new available seats.', 1
END
go
```

7.9 trg_Pnt_IUD_ChangeReservationStatusWithPayment

Wraz z wykonaniem płatności zmienia się stan rezerwacji na zapłaconą, jeżeli opłacono wszystko. Usunięcie płatności lub jej modyfikacja może sprawić, że rezerwacja przestanie być opłacona.

```
CREATE TRIGGER [dbo].[trg_Pnt_IUD_ChangeReservationStatusWithPayment]
ON  [dbo].[Payment]
AFTER INSERT, UPDATE, DELETE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Set already paid reservation status to paid
  UPDATE dbo.Reservation
  SET ReservationStatus = 'Paid'
  WHERE dbo.funRemainingPayForReservation(ReservationID) <= 0
    AND ReservationStatus = 'Reserved'

  -- Set not paid reservations status to reserved
  UPDATE dbo.Reservation
  SET ReservationStatus = 'Reserved'
  WHERE dbo.funRemainingPayForReservation(ReservationID) > 0
```

```
    AND ReservationStatus = 'Paid'
END
go
```

7.10 trg_Res_I_CheckIfReservationNotEmpty

Automatyczne anulowanie rezerwacji, do której nie jest przypisane żadne rezerwowane wydarzenie.

```
CREATE TRIGGER [dbo].[trg_Res_I_CheckIfReservationNotEmpty]
ON [dbo].[Reservation]
AFTER INSERT
AS
BEGIN
  IF EXISTS(SELECT R.ReservationID
  FROM Reservation R
  WHERE R.ReservationID NOT IN (SELECT RL.ReservationID
  FROM ReservationList RL))
    THROW 50001, 'Reservation requires at least one reservation list.', 1
END
go
```

7.11 trg_Res_I_ResSurpassesPaymentLimit

Automatyczne anulowanie rezerwacji, które nie zostały opłacone w czasie 7 dni.

```
CREATE TRIGGER [dbo].[trg_Res_IU_ResSurpassesPaymentLimit]
ON [dbo].[Reservation]
AFTER INSERT, UPDATE
AS
BEGIN
  EXEC dbo.RemoveOverdueReservations
END
go
```

7.12 trg_RL_IU_EventNotOverbooked

Zapobiega wykonaniu nadmiarowych rezerwacji (przekraczających dostępne miejsca) na wydarzenie.

```
CREATE TRIGGER [dbo].[trg_RL_IU_EventNotOverbooked]
ON [dbo].[ReservationList]
AFTER INSERT, UPDATE
AS
BEGIN
-- SET NOCOUNT ON added to prevent extra result sets from
-- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if event is not overcrowded
  IF EXISTS(
    SELECT I.EventID
    FROM inserted I
    WHERE dbo.funGetNumOfVacantSeats(I.EventID) < 0
  )
    THROW 50001, 'Reservation exceeds event seats limit.', 1
END
go
```

7.13 trg_RL_IU_ResDateBeforeEventDate

Zapobiega rezerwacji na przeszłe wydarzenia.

```
CREATE TRIGGER [dbo].[trg_RL_IU_ResDateBeforeEventDate]
ON [dbo].[ReservationList]
AFTER INSERT, UPDATE
AS
```

```
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if reservation wasn't made for past events
  IF EXISTS(
    SELECT I.EventID
    FROM inserted I
    JOIN Reservation R ON R.ReservationID = I.ReservationID
    WHERE R.PurchaseDate >= dbo.funGetEventDate(I.EventID))
      THROW 50001, 'Reservation cannot be made for past events.', 1
END
go
```

7.14 trg_RL_U_ResSeatsNotSurpassingSpecifiedSeats

Zapobiega zmianie liczby zarezerwowanych miejsc, która sprawiłaby, że jest ich mniej niż liczba wyszczególnionych uczestników.

```
CREATE TRIGGER [dbo].[trg_RL_U_ResSeatsNotSurpassingSpecifiedSeats]
ON [dbo].[ReservationList]
AFTER UPDATE
AS
  BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if reserved seats number is not lower than the number of already specified
  IF EXISTS(
    SELECT I.EventID
    FROM inserted I
    WHERE dbo.funGetSpecifiedSeats(I.EventID, 'Normal') > I.ReservedNormalSeats
    OR dbo.funGetSpecifiedSeats(I.EventID, 'Student') > I.ReservedStudentSeats)
      THROW 50001,
       'Number of reserved seats is lower than specified participants.', 1
END
go
```

7.15 trg_RL_D_CancelEmptyReservation

Anuluje rezerwacje do której nie jest przypisane żadne rezerwowane wydarzenie.

```
CREATE TRIGGER [dbo].[trg_RL_D_CancelEmptyReservation]
ON [dbo].[ReservationList]
AFTER DELETE
AS
BEGIN
-- SET NOCOUNT ON added to prevent extra result sets from
-- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Changes reservation status to canceled if the last reservation list was deleted
  UPDATE Reservation
  SET ReservationStatus = 'Canceled', CancelDate = GETDATE()
  WHERE ReservationID IN (SELECT D.ReservationID
    FROM deleted D
    WHERE dbo.funGetNumberOfDistinctReservedEvents(D.ReservationID) = 0)
END
go
```

7.16 trg_RLD_IU_NoOverlappingWorkshopAttendance

Zapobiega sytuacji w której uczestnik uczestniczy w dwóch różnych wydarzeniach w tym samym czasie.

```
CREATE TRIGGER [dbo].[trg_RLD_IU_NoOverlappingWorkshopAttendance]
ON [dbo].[ReservationListDetails]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if one person takes part in only one workshop
  IF EXISTS(SELECT I.ParticipantID
    FROM inserted I
    WHERE dbo.funGetOverlappingWorkshopsNumber(I.ParticipantID) > 0)
      THROW 50001,
       'Participant can only take part in one workshop at the same time.', 1
END
go
```

7.17 trg_RLD_IU_OverbookingNormalSeats

Zapobiega sytuacji w której jest więcej uczestników z normalnymi biletami niż miejsc dla nich.

```
CREATE TRIGGER [dbo].[trg_RLD_IU_OverbookingNormalSeats]
ON [dbo].[ReservationListDetails]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check whether the event is not overbooked
  IF EXISTS(SELECT RLD.ReservationListID
    FROM ReservationListDetails RLD
    JOIN ReservationList RL ON RLD.ReservationListID = RL.ReservationListID
    WHERE RLD.ReservationType = 'Normal'
    GROUP BY RLD.ReservationListID, RL.ReservedNormalSeats
    HAVING COUNT(RLD.ParticipantID) > RL.ReservedNormalSeats)
    THROW 50001, 'Participant count exceeds reserved normal seats.', 1
END
go
```

7.18 trg_RLD_IU_OverbookingStudentSeats

Zapobiega sytuacji w której jest więcej uczestników z ulgowymi biletami niż miejsc dla nich.

```
CREATE TRIGGER [dbo].[trg_RLD_IU_OverbookingStudentSeats]
ON [dbo].[ReservationListDetails]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check whether the event is not overbooked
  IF EXISTS(SELECT RLD.ReservationListID
    FROM ReservationListDetails RLD
    JOIN ReservationList RL ON RLD.ReservationListID = RL.ReservationListID
    WHERE RLD.ReservationType = 'Student'
    GROUP BY RLD.ReservationListID, RL.ReservedStudentSeats
    HAVING COUNT(RLD.ParticipantID) > RL.ReservedStudentSeats)
    THROW 50001,
     'Participant count exceeds reserved student seats.', 1
END
go
```

7.19 trg_RLD_IU_RequiredConfDayAttendance

Zapobiega sytuacji w której jest uczestnik warsztatów nie uczestniczy w tym dniu konferencji.

```
CREATE TRIGGER [dbo].[trg_RLD_IU_RequiredConfDayAttendance]
ON [dbo].[ReservationListDetails]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check if workshop participant takes part in corresponding conference day
  IF EXISTS(SELECT I.ParticipantID
    FROM inserted I
    JOIN ReservationList RL ON RL.ReservationListID = I.ReservationListID
    JOIN Workshop W ON W.EventID = RL.EventID
    WHERE I.ParticipantID
    NOT IN (dbo.tabFunGetListOfParticipants(W.ConferenceDayID)))
    THROW 50001,
'Not␣every␣workshop␣participant␣takes␣part␣in␣corresponding␣conference␣day.', 1
END
go

go
```

7.20 trg_RLD_IU_ValidStudentCard

Zapobiega sytuacji w której jest uczestnik z biletem ulgowym nie ma dokumentu uprawniającego do zniżki.

```
CREATE TRIGGER [dbo].[trg_RLD_IU_ValidStudentCard]
ON [dbo].[ReservationListDetails]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check whether every student has valid student card
  IF EXISTS(SELECT I.ParticipantID
    FROM inserted I
    JOIN ReservationList RL ON RL.ReservationListID = I.ReservationListID
    LEFT JOIN StudentCard SC ON (SC.ParticipantID = I.ParticipantID AND
    dbo.funGetEventDate(RL.EventID) BETWEEN SC.EntryDate AND SC.ExpiryDate)
    WHERE SC.CardNumber IS NULL AND I.ReservationType = 'Student')
    THROW 50001, 'Not␣every␣student␣has␣a␣valid␣student␣card.', 1
END
go
```

7.21 trg_RLD_D_ParticipantCannotGoForWorkshopOnly

Zapobiega sytuacji w której jest usuwana jest obecność uczestnika na dniu konferencji, na którym idzie na warsztat.

```
CREATE TRIGGER [dbo].[trg_RLD_D_ParticipantCannotGoForWorkshopOnly]
ON [dbo].[ReservationListDetails]
AFTER DELETE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  -- Check whether conference day attendence requirement is present
  IF EXISTS(
    SELECT I.ParticipantID
```

```
    FROM deleted I
    JOIN ReservationList RL ON RL.ReservationListID = I.ReservationListID
    JOIN ConferenceDay CD ON CD.EventID = RL.EventID
    WHERE dbo.funGetWorkshopCount(I.ParticipantID, CD.EventID) > 0)
    THROW 50001,
     'Participant takes part in workshop at deleted reservation day.', 1
END
go
```

7.22 trg_RC_IU_NotAlsoCorporate

Klient indywidualny nie może być jednocześnie firmą.

```
CREATE TRIGGER [dbo].[trg_RC_IU_NotAlsoCorporate]
ON [dbo].[RetailCustomer]
AFTER INSERT, UPDATE
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  --Check if customer of only one type
  IF EXISTS(
    SELECT *
    FROM CorporateCustomer C
    JOIN inserted I ON I.CustomerID = C.CustomerID
  )
  BEGIN
    ;
    THROW 50001, 'Customer can be of only one type.', 1
  END
END
go
```

7.23 trg_SC_UD_CardUsedForDiscounts

Zapobiega usunięciu karty wykorzystywanej przy zniżkach.

```
CREATE TRIGGER trg_SC_UD_CardUsedForDiscounts
ON dbo.StudentCard
AFTER Update, Delete
AS
BEGIN
  -- SET NOCOUNT ON added to prevent extra result sets from
  -- interfering with SELECT statements.
  SET NOCOUNT ON;
  IF EXISTS(SELECT RLD.ParticipantID
    FROM ReservationListDetails RLD
    JOIN ReservationList RL ON RL.ReservationListID = RLD.ReservationListID
    LEFT JOIN StudentCard SC ON (SC.ParticipantID = RLD.ParticipantID AND
    dbo.funGetEventDate(RL.EventID) BETWEEN SC.EntryDate AND SC.ExpiryDate)
    WHERE SC.CardNumber IS NULL AND RLD.ReservationType = 'Student')
    THROW 50001,
    'Modify or delete one of the student card cancels discount.', 1
END
go
```

8 Indeksy

Po analizie działania zdecydowaliśmy się założyć dodatkowe indeksy (poza Primary Key'ami) na pola, po których najczęściej następuje wyszukiwanie, a które zmieniają się rzadko lub nigdy.

```
create index IX_Conference
on Conference (Title)
go
create index IX_ConferenceDay
on ConferenceDay (Date)
go
create index IX_ConferenceDayPrice
on ConferenceDayPrice (ConferenceDayID)
go
create unique index IX_Customer
on Customer (EmailAddress)
go
create index IX_Reservation
on Reservation (PurchaseDate)
go
create index IX_RetailCustomer
on RetailCustomer (LastName)
go
create index IX_Workshop
on Workshop (ConferenceDayID)
go
create unique index IX_StudentCard
on StudentCard (CardNumber)
go
```

9 Generator danych

Dane zostały wygenerowane programem RedGate SQL Data Generator. Dane na temat ilości wprowadzonych rekordów są przedstawione poniżej.

redgate

SQL Data Generator - abc

Target server: mssql.iisg.agh.edu.pl **Target database:** jjasek_a

Date generation started at: niedziela, 21 stycznia 2018 10:57:07 ended at: niedziela, 21 stycznia 2018 10:57:22

[dbo].[Conference]

Rows inserted: 80

Generation started at niedziela, 21 stycznia 2018 10:57:08, taken: less than a second

[dbo].[Address]

Rows inserted: 5,000

Generation started at niedziela, 21 stycznia 2018 10:57:08, taken: less than a second

[dbo].[Participant]

Rows inserted: 10,000

Generation started at niedziela, 21 stycznia 2018 10:57:09, taken: less than a second

[dbo].[StudentCard]

Rows inserted: 1,000

Generation started at niedziela, 21 stycznia 2018 10:57:10, taken: less than a second

[dbo].[Event]

Rows inserted: 1,000

Generation started at niedziela, 21 stycznia 2018 10:57:10, taken: less than a second

[dbo].[ConferenceDay]

Rows inserted: 250

Generation started at niedziela, 21 stycznia 2018 10:57:11, taken: less than a second

[dbo].[Workshop]

Rows inserted: 750

Generation started at niedziela, 21 stycznia 2018 10:57:11, taken: less than a second

[dbo].[ConferenceDayPrice]

Rows inserted: 500

Generation started at niedziela, 21 stycznia 2018 10:57:11, taken: less than a second

[dbo].[Customer]

Rows inserted: 10,000

Generation started at niedziela, 21 stycznia 2018 10:57:12, taken: 00:00:04 (hh:mm:ss)

[dbo].[RetailCustomer]
Rows inserted: 6,000
Generation started at niedziela, 21 stycznia 2018 10:57:16, taken: less than a second

[dbo].[Reservation]
Rows inserted: 3,000
Generation started at niedziela, 21 stycznia 2018 10:57:17, taken: less than a second

[dbo].[ReservationList]
Rows inserted: 10,000
Generation started at niedziela, 21 stycznia 2018 10:57:18, taken: 00:00:01 (hh:mm:ss)

[dbo].[ReservationListDetails]
Rows inserted: 20,000
Generation started at niedziela, 21 stycznia 2018 10:57:19, taken: 00:00:01 (hh:mm:ss)

[dbo].[Payment]
Rows inserted: 3,000
Generation started at niedziela, 21 stycznia 2018 10:57:20, taken: less than a second

[dbo].[CustomerTaxpayerDetails]
Rows inserted: 10,000
Generation started at niedziela, 21 stycznia 2018 10:57:21, taken: less than a second

[dbo].[CorporateCustomer]
Rows inserted: 4,000
Generation started at niedziela, 21 stycznia 2018 10:57:22, taken: less than a second

10 Role

W systemie wprowadzilibyśmy następujące role:

- companyDatabaseAdmin - administrator bazy danych firmy, który ma dostęp do wszystkich tabel, widoków, funkcji, procedur.
- companyWorker - zwykły pracownik firmy, który ma dostęp do bazy danych. Ma dostęp do procedur, widoków i tabel, jednak po części ograniczone tylko do wykonywania SELECT. Aby dodać, zmodyfikować lub usunąć dane, pracownik musi wykonać odpowiednią procedurę.
- customer - klient firmy, który ma dostęp do danych z poziomu aplikacji www. Klient może wyświetlać i modyfikować dane swojej rezerwacji, a także sprawdzać stan swoich płatności za pomocą odpowiednich procedur. Klient ma dostęp do niektórych widoków i tabel, ale może je tylko wyświetlić.
- participant - uczestnik konferencji, może wyświetlać wydarzenia w których uczestniczy.