Podstawy baz danych
Projekt konferencje

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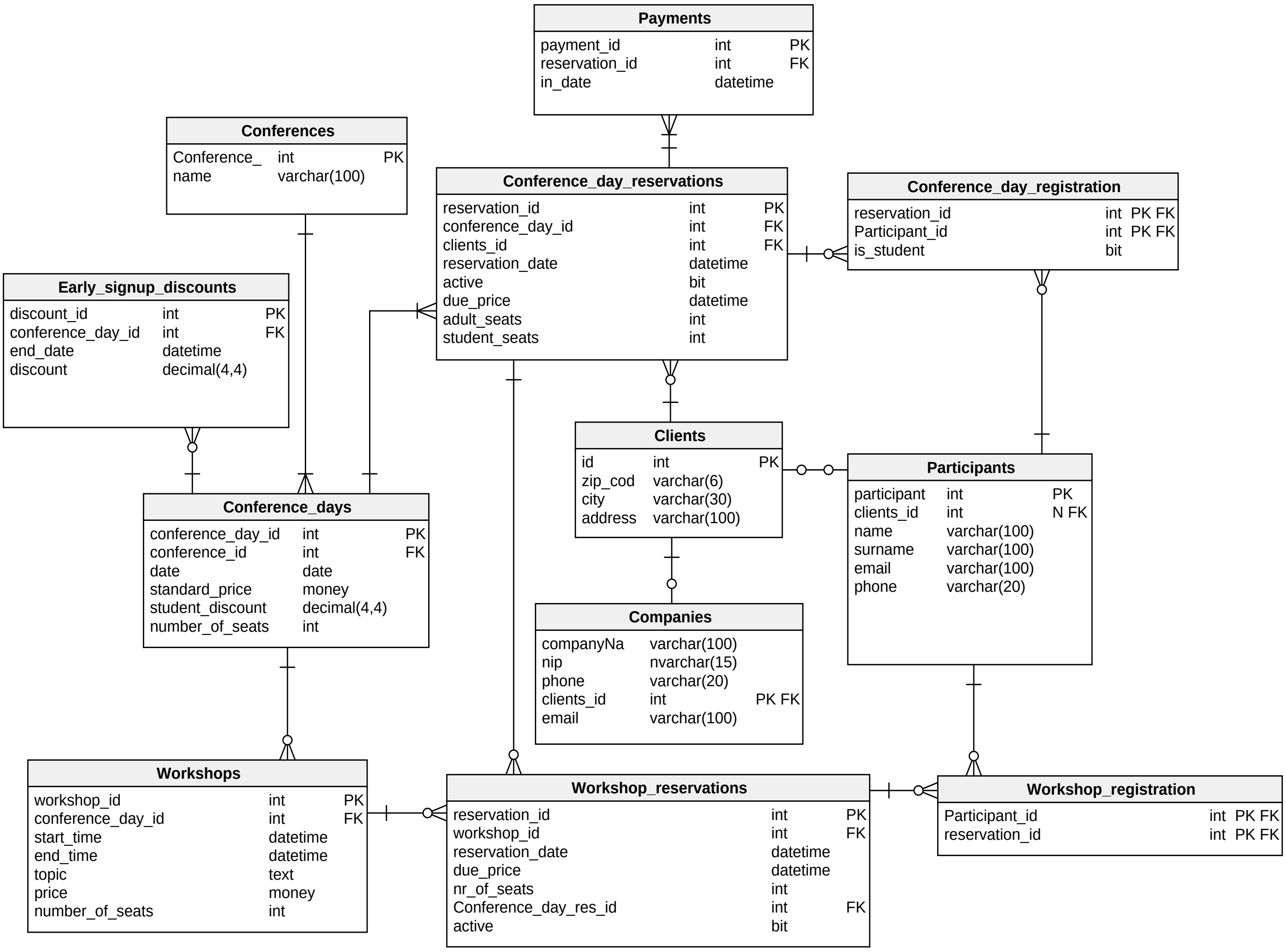
Objaśnienie schematu bazy

- Clients - Reprezentuje klientów chcących opłacić miejsca na konferencjach i warsztatach. Klientem może być zarówno firma, jak i osoba prywatna. W zależności od tego dane klienta reprezentowane są przez odpowiednią relację w bazie.
- Companies - Jeśli klient jest firmą, przechowuje jego dane.
- Participants - Jeśli klient jest osobą prywatną, przechowuje jego dane.
- Conferences - Reprezentuje konferencję z którą powiązane są odpowiednie dni konferencyjne, oraz warsztaty.
- Conference_days - Reprezentuje pojedynczy dzień konferencji. Powiązana jest z nim ustalona opłata za uczestnictwo. Zniżki obowiązujące w zależności od daty rejestracji zwarte są w relacji Early_Signup_Discounts.
- Early_Signup_Discounts - Odpowiada za informację o tabeli zniżek na dany dzień konferencyjny. Pojedyncza zniżka przechowywana jest w krotce z atrybutami w postaci procentowej obniżki ceny standardowej, oraz ostatniego dnia w którym obowiązuje.
- Conference_day_reservations - Realizuje rezerwacje na poszczególny dzień konferencji. Każda rezerwacja powiązana jest z klientem, który ją opłaca. Za powiązanie rezerwacji z uczestnikiem odpowiada osobna relacja. Zawiera także pole due_price określające termin płatności. Atrybut active odpowiada za możliwość rezygnacji z podjętej rezerwacji (uznaliśmy, że usuwanie krotki z bazy może nie być optymalnym rozwiązaniem, jako że zawarte w niej dane mogą jeszcze być przydatne z punktu widzenia logiki biznesowej). Atrybuty adult_seats i student_seats służą do liczenia kosztu podjęcia rezerwacji przed powiązaniem jej z uczestnikami konferencji.
- Conference_day_registration - Wiąże rezerwację z uczestnikami konferencji. Atrybut is_student informuje, czy danemu uczestnikowi przysługuje zniżka studencka.
- Payments - Przechowuje informacje o wpływach pieniężnych powiązanych z daną rejestracją.
- Workshops - Reprezentuje warsztaty odbywające się w trakcie odpowiednich dni konferencyjnych.
- Workshops_reservations - Opisuje rezerwacje na warsztaty w sposób analogiczny do rezerwacji na konferencje.
- Workshops_registrations - Łączy rezerwację z uczestnikami w sposób analogiczny do dni konferencyjnych.



Payments

payment_id	int	PK
reservation_id	int	FK
in_date	datetime	

Conferences

Conference_	int	PK
name	varchar(100)	

Conference_day_reservations

reservation_id	int	PK
conference_day_id	int	FK
clients_id	int	FK
reservation_date	datetime	
active	bit	
due_price	datetime	
adult_seats	int	
student_seats	int	

Conference_day_registration

reservation_id	int	PK FK
Participant_id	int	PK FK
is_student	bit	

Early_signup_discounts

discount_id	int	PK
conference_day_id	int	FK
end_date	datetime	
discount	decimal(4,4)	

Clients

id	int	PK
zip_cod	varchar(6)	
city	varchar(30)	
address	varchar(100)	

Participants

participant	int	PK
clients_id	int	N FK
name	varchar(100)	
surname	varchar(100)	
email	varchar(100)	
phone	varchar(20)	

Conference_days

conference_day_id	int	PK
conference_id	int	FK
date	date	
standard_price	money	
student_discount	decimal(4,4)	
number_of_seats	int	

Companies

companyNa	varchar(100)	
nip	nvarchar(15)	
phone	varchar(20)	
clients_id	int	PK FK
email	varchar(100)	

Workshops

workshop_id	int	PK
conference_day_id	int	FK
start_time	datetime	
end_time	datetime	
topic	text	
price	money	
number_of_seats	int	

Workshop_reservations

reservation_id	int	PK
workshop_id	int	FK
reservation_date	datetime	
due_price	datetime	
nr_of_seats	int	
Conference_day_res_id	int	FK
active	bit	

Workshop_registration

Participant_id	int	PK FK
reservation_id	int	PK FK

Implementacja

```
-- tables
-- Table: Clients
CREATE TABLE Clients (
    id int  NOT NULL IDENTITY,
    zip_code varchar(6)  NOT NULL,
    city varchar(30)  NOT NULL,
    address varchar(100)  NOT NULL,
    CONSTRAINT Clients_pk PRIMARY KEY  (id)
);

-- Table: Companies
CREATE TABLE Companies (
    companyName varchar(100)  NOT NULL,
    nip nvarchar(15)  NOT NULL CHECK ((nip not like '%[^0-9]%') and (LEN(nip) = 10) and (nip
    not like '0%' or nip like '1%')),
    phone varchar(20)  NOT NULL,
    clients_id int  NOT NULL,
    email varchar(100)  NOT NULL CHECK (email like '%_@__%.__%'),
    CONSTRAINT unique_nip UNIQUE (nip),
    CONSTRAINT checkNip CHECK (dbo.IsValidNip(nip) = 1),
    CONSTRAINT Companies_pk PRIMARY KEY  (clients_id)
);

-- Table: Conference_day_registration
CREATE TABLE Conference_day_registration (
    reservation_id int  NOT NULL,
    Participant_id int  NOT NULL,
    is_student bit  NOT NULL DEFAULT 0,
    CONSTRAINT Conference_day_registration_pk PRIMARY KEY  (reservation_id,Participant_id)
);

-- Table: Conference_day_reservations
CREATE TABLE Conference_day_reservations (
    reservation_id int  NOT NULL IDENTITY,
    conference_day_id int  NOT NULL,
    clients_id int  NOT NULL,
    reservation_date datetime  NOT NULL DEFAULT GETDATE(),
    active bit  NOT NULL DEFAULT 1,
    due_price datetime  NOT NULL DEFAULT DATEADD(week, 2, GETDATE()) CHECK (due_price >=
    GETDATE()),
    adult_seats int  NOT NULL DEFAULT 0 CHECK (adult_seats >= 0),
    student_seats int  NOT NULL DEFAULT 0 CHECK (student_seats >= 0),
    CONSTRAINT Conference_day_reservations_pk PRIMARY KEY  (reservation_id)
);

-- Table: Conference_days
CREATE TABLE Conference_days (
    conference_day_id int  NOT NULL IDENTITY,
    conference_id int  NOT NULL,
    date date  NOT NULL DEFAULT GETDATE(),
    standard_price money  NOT NULL DEFAULT 0 CHECK (standard_price >= 0),
    student_discount decimal(4,4)  NOT NULL DEFAULT 0 CHECK (student_discount >= 0),
    number_of_seats int  NOT NULL DEFAULT 0 CHECK (number_of_seats >= 0),
    CONSTRAINT Conference_days_pk PRIMARY KEY  (conference_day_id)
);

-- Table: Conferences
CREATE TABLE Conferences (
    Conference_id int  NOT NULL IDENTITY,
    name varchar(100)  NOT NULL,
    CONSTRAINT Conferences_pk PRIMARY KEY  (Conference_id)
);

-- Table: Early_signup_discounts
CREATE TABLE Early_signup_discounts (
    discount_id int  NOT NULL IDENTITY,
    conference_day_id int  NOT NULL,
    end_date datetime  NOT NULL,
    discount decimal(4,4)  NOT NULL DEFAULT 0,
    CONSTRAINT Early_signup_discounts_pk PRIMARY KEY  (discount_id)
);

-- Table: Participants
CREATE TABLE Participants (
    participant_id int  NOT NULL IDENTITY,
    clients_id int  NULL DEFAULT Null,
    name varchar(100)  NOT NULL,
    surname varchar(100)  NOT NULL,
    email varchar(100)  NOT NULL CHECK (email like '%_@__%.__%'),
    phone varchar(20)  NOT NULL,
    CONSTRAINT Participants_pk PRIMARY KEY  (participant_id)
);

-- Table: Payments
CREATE TABLE Payments (
    payment_id int  NOT NULL IDENTITY,
    reservation_id int  NOT NULL,
    in_date datetime  NOT NULL,
    value money  NOT NULL,
    CONSTRAINT Payments_pk PRIMARY KEY  (payment_id)
);

-- Table: Workshop_registration
CREATE TABLE Workshop_registration (
    Participant_id int  NOT NULL,
    reservation_id int  NOT NULL,
    CONSTRAINT Workshop_registration_pk PRIMARY KEY  (Participant_id,reservation_id)
);

-- Table: Workshop_reservations
CREATE TABLE Workshop_reservations (
    reservation_id int  NOT NULL IDENTITY,
    workshop_id int  NOT NULL,
    reservation_date datetime  NOT NULL DEFAULT GETDATE(),
    due_price datetime  NOT NULL DEFAULT DATEADD(week, 2, GETDATE()) CHECK (due_price >=
    GETDATE()),
    nr_of_seats int  NOT NULL DEFAULT 0 CHECK (nr_of_seats >= 0),
    Conference_day_res_id int  NOT NULL,
    active bit  NOT NULL DEFAULT 1,
    CONSTRAINT Workshop_reservations_pk PRIMARY KEY  (reservation_id)
);

-- Table: Workshops
CREATE TABLE Workshops (
    workshop_id int  NOT NULL IDENTITY,
    conference_day_id int  NOT NULL,
    start_time datetime  NOT NULL,
    end_time datetime  NOT NULL CHECK (end_time >= GETDATE()),
    topic text  NOT NULL,
    price money  NOT NULL CHECK (price >= 0),
    number_of_seats int  NOT NULL DEFAULT 0 CHECK (number_of_seats >= 0),
    CONSTRAINT Workshops_pk PRIMARY KEY  (workshop_id)
);

-- foreign keys
-- Reference: Companies_Clients (table: Companies)
ALTER TABLE Companies ADD CONSTRAINT Companies_Clients
    FOREIGN KEY (clients_id)
    REFERENCES Clients (id);

-- Reference: Conference_day_registration_Conference_day_reservations (table:
    Conference_day_registration)
ALTER TABLE Conference_day_registration ADD CONSTRAINT
    Conference_day_registration_Conference_day_reservations
    FOREIGN KEY (reservation_id)
    REFERENCES Conference_day_reservations (reservation_id)
    ON DELETE  CASCADE;

-- Reference: Conference_day_registration_Participants (table: Conference_day_registration)
ALTER TABLE Conference_day_registration ADD CONSTRAINT
    Conference_day_registration_Participants
    FOREIGN KEY (Participant_id)
    REFERENCES Participants (participant_id)
    ON DELETE  CASCADE;

-- Reference: Conference_day_reservations_Clients (table: Conference_day_reservations)
ALTER TABLE Conference_day_reservations ADD CONSTRAINT Conference_day_reservations_Clients
    FOREIGN KEY (clients_id)
    REFERENCES Clients (id);
```

```sql
-- Reference: Conference_day_reservations_Conference_days (table: Conference_day_reservations)
ALTER TABLE Conference_day_reservations ADD CONSTRAINT
    Conference_day_reservations_Conference_days
    FOREIGN KEY (conference_day_id)
    REFERENCES Conference_days (conference_day_id)
    ON DELETE  CASCADE;

-- Reference: Conference_days_Conferences (table: Conference_days)
ALTER TABLE Conference_days ADD CONSTRAINT Conference_days_Conferences
    FOREIGN KEY (conference_id)
    REFERENCES Conferences (Conference_id)
    ON DELETE  CASCADE;

-- Reference: Discounts_Conference_days (table: Early_signup_discounts)
ALTER TABLE Early_signup_discounts ADD CONSTRAINT Discounts_Conference_days
    FOREIGN KEY (conference_day_id)
    REFERENCES Conference_days (conference_day_id)
    ON DELETE  CASCADE;

-- Reference: Participants_Clients (table: Participants)
ALTER TABLE Participants ADD CONSTRAINT Participants_Clients
    FOREIGN KEY (clients_id)
    REFERENCES Clients (id)
    ON DELETE  SET NULL;

-- Reference: Payments_Conference_day_reservations (table: Payments)
ALTER TABLE Payments ADD CONSTRAINT Payments_Conference_day_reservations
    FOREIGN KEY (reservation_id)
    REFERENCES Conference_day_reservations (reservation_id);

-- Reference: Workshop_registration_Participants (table: Workshop_registration)
ALTER TABLE Workshop_registration ADD CONSTRAINT Workshop_registration_Participants
    FOREIGN KEY (Participant_id)
    REFERENCES Participants (participant_id)
    ON DELETE  CASCADE;

-- Reference: Workshop_registration_Workshop_reservations (table: Workshop_registration)
ALTER TABLE Workshop_registration ADD CONSTRAINT Workshop_registration_Workshop_reservations
    FOREIGN KEY (reservation_id)
    REFERENCES Workshop_reservations (reservation_id)
    ON DELETE  CASCADE;

-- Reference: Workshop_reservations_Conference_day_reservations (table: Workshop_reservations)
ALTER TABLE Workshop_reservations ADD CONSTRAINT
    Workshop_reservations_Conference_day_reservations
    FOREIGN KEY (Conference_day_res_id)
    REFERENCES Conference_day_reservations (reservation_id)
    ON DELETE  CASCADE;

-- Reference: Workshop_reservations_Workshops (table: Workshop_reservations)
ALTER TABLE Workshop_reservations ADD CONSTRAINT Workshop_reservations_Workshops
    FOREIGN KEY (workshop_id)
    REFERENCES Workshops (workshop_id)
    ON DELETE  CASCADE;

-- Reference: Workshops_Conference_days (table: Workshops)
ALTER TABLE Workshops ADD CONSTRAINT Workshops_Conference_days
    FOREIGN KEY (conference_day_id)
    REFERENCES Conference_days (conference_day_id);

-- End of file.
```

../Create.sql

```sql
CREATE FUNCTION IsValidNip(
    @nip nvarchar(15)
)
    RETURNS bit
AS
BEGIN
    IF ISNUMERIC(@nip) = 0
        BEGIN
            RETURN 0
        END

    IF @nip = '0000000000'
        BEGIN
            RETURN 0
        END
    IF @nip = '1234567891'
        BEGIN
            RETURN 0
        END
    IF @nip = '1111111111'
        BEGIN
            RETURN 0
        END
    IF @nip = '1111111112'
        BEGIN
            RETURN 0
        END
    IF @nip = '9999999999'
        BEGIN
            RETURN 0
        END
    IF @nip = '1111111112'
        BEGIN
            RETURN 0
        END

    DECLARE @sum INT;
    SET @sum = 6 * CONVERT(INT, SUBSTRING(@nip, 1, 1)) +
               5 * CONVERT(INT, SUBSTRING(@nip, 2, 1)) +
               7 * CONVERT(INT, SUBSTRING(@nip, 3, 1)) +
               2 * CONVERT(INT, SUBSTRING(@nip, 4, 1)) +
               3 * CONVERT(INT, SUBSTRING(@nip, 5, 1)) +
               4 * CONVERT(INT, SUBSTRING(@nip, 6, 1)) +
               5 * CONVERT(INT, SUBSTRING(@nip, 7, 1)) +
               6 * CONVERT(INT, SUBSTRING(@nip, 8, 1)) +
               7 * CONVERT(INT, SUBSTRING(@nip, 9, 1));

    IF CONVERT(TINYINT, SUBSTRING(@nip, 10, 1)) = (@sum % 11)
        BEGIN
            RETURN 1
        END
    RETURN 0
END
```

../Functions/isValidNip.sql