# Wprowadzenie

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## Założenia

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## Implementacja

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## Wnioski

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# Schemat bazy

# Tabele

## Conferences

**CREATE TABLE Conferences (**

**ConferenceID INT NOT NULL IDENTITY,**

**Name VARCHAR(100) NOT NULL,**

**Place VARCHAR(100) NOT NULL,**

**DiscountForStudents FLOAT NOT NULL DEFAULT 0,**

**Description VARCHAR(200) NOT NULL,**

**CONSTRAINT ProperDiscountForStudents CHECK (**

**DiscountForStudents >= 0**

**AND DiscountForStudents <= 100**

**),**

**CONSTRAINT ProperDescription CHECK (LEN(Description) > 5),**

**CONSTRAINT Conferences\_pk PRIMARY KEY (ConferenceID)**

**);**

## ConferenceDays

**CREATE TABLE ConferenceDays (**

**ConferenceDayID INT NOT NULL IDENTITY,**

**Conferences\_ConferenceID INT NOT NULL,**

**DATE DATE NOT NULL,**

**NumberOfParticipants INT NOT NULL,**

**CONSTRAINT PositiveNumberOfConferenceParticipants CHECK (NumberOfParticipants > 0),**

**CONSTRAINT ConferenceDays\_pk PRIMARY KEY (ConferenceDayID)**

**);**

**-- Reference: Conferences\_ConferenceDays (table: ConferenceDays)**

**ALTER TABLE ConferenceDays ADD CONSTRAINT Conferences\_ConferenceDays FOREIGN KEY (Conferences\_ConferenceID) REFERENCES Conferences (ConferenceID)**

## ConferenceCosts

**CREATE TABLE ConferenceCosts (**

**ConferenceCostID INT NOT NULL IDENTITY,**

**Conferences\_ConferenceID INT NOT NULL,**

**Cost DECIMAL(9, 2) NOT NULL,**

**DateFrom DATE NOT NULL,**

**DateTo DATE NOT NULL,**

**CONSTRAINT ProperDayDifferance CHECK (DateFrom <= DateTo),**

**CONSTRAINT NonnegativeCostConf CHECK (Cost >= 0),**

**CONSTRAINT ConferenceCosts\_pk PRIMARY KEY (ConferenceCostID)**

**);**

**-- Reference: Conferences\_ConferenceDay (table: ConferenceCosts)**

**ALTER TABLE ConferenceCosts ADD CONSTRAINT Conferences\_ConferenceDay FOREIGN KEY (Conferences\_ConferenceID) REFERENCES Conferences (ConferenceID)**

## Workshops

**CREATE TABLE Workshops (**

**WorkshopID INT NOT NULL IDENTITY,**

**ConferenceDays\_ConferenceDayID INT NOT NULL,**

**Name VARCHAR(100) NOT NULL,**

**StartTime DATE NOT NULL,**

**EndTime DATE NOT NULL,**

**Cost DECIMAL(9, 2) NOT NULL DEFAULT 0,**

**NumberOfParticipants INT NOT NULL DEFAULT 10,**

**CONSTRAINT NonnegativeCostWorkshop CHECK (Cost >= 0),**

**CONSTRAINT ProperTimeDifferance CHECK (StartTime <= EndTime),**

**CONSTRAINT PosiviteWorkshopParticipants CHECK (NumberOfParticipants > 0),**

**CONSTRAINT Workshops\_pk PRIMARY KEY (WorkshopID)**

**);**

**-- Reference: Workshops\_ConferenceDays (table: Workshops)**

**ALTER TABLE Workshops ADD CONSTRAINT Workshops\_ConferenceDays FOREIGN KEY (ConferenceDays\_ConferenceDayID) REFERENCES ConferenceDays (ConferenceDayID)**

## ConferenceBooking

**CREATE TABLE ConferenceBooking (**

**ConferenceBookingID INT NOT NULL IDENTITY,**

**Clients\_ClientID INT NOT NULL,**

**Conferences\_ConferenceID INT NOT NULL,**

**BookingDate DATE NOT NULL DEFAULT getdate(),**

**IsCanceled BIT NOT NULL DEFAULT 0,**

**CONSTRAINT ConferenceBooking\_pk PRIMARY KEY (ConferenceBookingID)**

**);**

**-- Reference: BookingConference\_Clients (table: ConferenceBooking)**

**ALTER TABLE ConferenceBooking ADD CONSTRAINT BookingConference\_Clients FOREIGN KEY (Clients\_ClientID) REFERENCES Clients (ClientID)**

**-- Reference: BookingConference\_Conferences (table: ConferenceBooking)**

**ALTER TABLE ConferenceBooking ADD CONSTRAINT BookingConference\_Conferences FOREIGN KEY (Conferences\_ConferenceID) REFERENCES Conferences (ConferenceID)**

## ConferenceDayBooking

**CREATE TABLE ConferenceDayBooking (**

**ConferenceDayBookingID INT NOT NULL IDENTITY,**

**ConferenceBooking\_ConferenceBookingID INT NOT NULL,**

**ConferenceDays\_ConferenceDayID INT NOT NULL,**

**BookingDate DATE NOT NULL DEFAULT getdate(),**

**IsCancelled BIT NOT NULL DEFAULT 0,**

**NumberOfParticipants INT NOT NULL,**

**NumberOfStudents INT NOT NULL DEFAULT 0,**

**CONSTRAINT PositiveNumberOfParticipants CHECK (NumberOfParticipants > 0),**

**CONSTRAINT NonnegativeNumberOfStudents CHECK (NumberOfStudents >= 0),**

**CONSTRAINT ProperNumberOfStudents CHECK (NumberOfParticipants >= NumberOfStudents),**

**CONSTRAINT ConferenceDayBooking\_pk PRIMARY KEY (ConferenceDayBookingID)**

**);**

**-- Reference: ConferenceDayBooking\_ConferenceBooking (table: ConferenceDayBooking)**

**ALTER TABLE ConferenceDayBooking ADD CONSTRAINT ConferenceDayBooking\_ConferenceBooking FOREIGN KEY (ConferenceBooking\_ConferenceBookingID) REFERENCES ConferenceBooking (ConferenceBookingID)**

**-- Reference: ConferenceDayBooking\_ConferenceDays (table: ConferenceDayBooking)**

**ALTER TABLE ConferenceDayBooking ADD CONSTRAINT ConferenceDayBooking\_ConferenceDays FOREIGN KEY (ConferenceDays\_ConferenceDayID) REFERENCES ConferenceDays (ConferenceDayID)**

## WorkshopBooking

**CREATE TABLE WorkshopBooking (**

**WorkshopBookingID INT NOT NULL IDENTITY,**

**Workshops\_WorkshopID INT NOT NULL,**

**ConferenceDayBooking\_ConferenceDayBookingID INT NOT NULL,**

**BookingDate DATE NOT NULL DEFAULT getdate(),**

**NumberOfParticipants INT NOT NULL,**

**CONSTRAINT PositiveWorkshopNumberOfParticipants CHECK (NumberOfParticipants > 0),**

**CONSTRAINT WorkshopBooking\_pk PRIMARY KEY (WorkshopBookingID)**

**);**

**-- Reference: WorkshopBooking\_ConferenceDayBooking (table: WorkshopBooking)**

**ALTER TABLE WorkshopBooking ADD CONSTRAINT WorkshopBooking\_ConferenceDayBooking FOREIGN KEY (ConferenceDayBooking\_ConferenceDayBookingID) REFERENCES ConferenceDayBooking (ConferenceDayBookingID)**

**-- Reference: WorkshopBooking\_Workshops (table: WorkshopBooking)**

**ALTER TABLE WorkshopBooking ADD CONSTRAINT WorkshopBooking\_Workshops FOREIGN KEY (Workshops\_WorkshopID) REFERENCES Workshops (WorkshopID)**

## Payments

**CREATE TABLE Payments (**

**PaymentID INT NOT NULL IDENTITY,**

**ConferenceBooking\_ConferenceBookingID INT NOT NULL,**

**Amount DECIMAL(9, 2) NOT NULL,**

**PayDate DATE NOT NULL DEFAULT getdate(),**

**CONSTRAINT PositiveValue CHECK (Amount > 0),**

**CONSTRAINT Payments\_pk PRIMARY KEY (PaymentID)**

**);**

**-- Reference: Payments\_ConferenceBooking (table: Payments)**

**ALTER TABLE Payments ADD CONSTRAINT Payments\_ConferenceBooking FOREIGN KEY (ConferenceBooking\_ConferenceBookingID) REFERENCES ConferenceBooking (ConferenceBookingID)**

## Participants

**CREATE TABLE Participants (**

**ParticipantID INT NOT NULL IDENTITY,**

**FirstName VARCHAR(40) NOT NULL,**

**LastName VARCHAR(40) NOT NULL,**

**Email VARCHAR(100) NOT NULL,**

**Street VARCHAR(40) NOT NULL,**

**City VARCHAR(40) NOT NULL,**

**PostalCode VARCHAR(10) NOT NULL,**

**County VARCHAR(40) NOT NULL,**

**CONSTRAINT Participants\_pk PRIMARY KEY (ParticipantID)**

**);**

## DayParticipants

**CREATE TABLE DayParticipants (**

**DayParticipantID INT NOT NULL IDENTITY,**

**ConferenceDayBooking\_ConferenceDayBookingID INT NOT NULL,**

**Participants\_ParticipantID INT NOT NULL,**

**StudentID VARCHAR(6) NULL DEFAULT NULL,**

**CONSTRAINT ProperStudentID CHECK (**

**StudentID LIKE '^\d{6}$'**

**OR StudentID IS NULL**

**),**

**CONSTRAINT DayParticipants\_pk PRIMARY KEY (DayParticipantID)**

**);**

**-- Reference: DayParticipants\_ConferenceDayBooking (table: DayParticipants)**

**ALTER TABLE DayParticipants ADD CONSTRAINT DayParticipants\_ConferenceDayBooking FOREIGN KEY (ConferenceDayBooking\_ConferenceDayBookingID) REFERENCES ConferenceDayBooking (ConferenceDayBookingID)**

**-- Reference: Participants\_DayParticipants (table: DayParticipants)**

**ALTER TABLE DayParticipants ADD CONSTRAINT Participants\_DayParticipants FOREIGN KEY (Participants\_ParticipantID) REFERENCES Participants (ParticipantID)**

## WorkshopParticipants

**CREATE TABLE WorkshopParticipants (**

**WorkshopParticipantID INT NOT NULL IDENTITY,**

**WorkshopBooking\_WorkshopBookingID INT NOT NULL,**

**DayParticipants\_DayParticipantID INT NOT NULL,**

**CONSTRAINT WorkshopParticipants\_pk PRIMARY KEY (WorkshopParticipantID)**

**);**

**-- Reference: DayParticipants\_WorkshopParticipants (table: WorkshopParticipants)**

**ALTER TABLE WorkshopParticipants ADD CONSTRAINT DayParticipants\_WorkshopParticipants FOREIGN KEY (DayParticipants\_DayParticipantID) REFERENCES DayParticipants (DayParticipantID)**

**-- Reference: WorkshopParticipants\_WorkshopBooking (table: WorkshopParticipants)**

**ALTER TABLE WorkshopParticipants ADD CONSTRAINT WorkshopParticipants\_WorkshopBooking FOREIGN KEY (WorkshopBooking\_WorkshopBookingID) REFERENCES WorkshopBooking (WorkshopBookingID)**

## Clients

**CREATE TABLE Clients (**

**ClientID INT NOT NULL IDENTITY,**

**IsCompany BIT NOT NULL,**

**Name VARCHAR(100) NOT NULL,**

**Surname VARCHAR(100) NULL,**

**Email VARCHAR(100) NOT NULL,**

**CONSTRAINT Clients\_pk PRIMARY KEY (ClientID)**

**);**

# Widoki

## MostPopularWorkshops

**CREATE VIEW view\_MostPopularWorkshops**

**AS**

**SELECT TOP 10 conf.name AS ConferenceName,**

**w.workshopid,**

**w.name,**

**isnull(sum(wp.workshopparticipantid), 0) AS popularnosc**

**FROM Workshops AS w**

**INNER JOIN conferencedays AS cd ON cd.conferencedayid = w.ConferenceDays\_ConferenceDayID**

**INNER JOIN conferences AS conf ON conf.conferenceid = cd.Conferences\_ConferenceID**

**INNER JOIN WorkshopBooking AS wb ON wb.Workshops\_WorkshopID = w.WorkshopID**

**INNER JOIN WorkshopParticipants AS wp ON wp.WorkshopBooking\_WorkshopBookingID = wb.workshopbookingid**

**GROUP BY w.workshopid,**

**w.name,**

**conf.name**

**ORDER BY popularnosc DESC**

## MostPopularConferences

**CREATE VIEW view\_MostPopularConferences**

**AS**

**SELECT TOP 10 c.ConferenceID,**

**c.Name,**

**isnull(sum(dp.DayParticipantID), 0) AS popularity**

**FROM Conferences AS c**

**INNER JOIN ConferenceDays AS cd ON cd.Conferences\_ConferenceID = c.ConferenceID**

**INNER JOIN ConferenceDayBooking AS cdb ON cdb.ConferenceDays\_ConferenceDayID = cd.ConferenceDayID**

**INNER JOIN DayParticipants AS dp ON dp.ConferenceDayBooking\_ConferenceDayBookingID = cdb.ConferenceDayBookingID**

**GROUP BY c.ConferenceID,**

**c.Name**

**ORDER BY popularity DESC**

## MostPopularConferencesByStudents

**CREATE VIEW view\_MostPopularConferencesByStudents**

**AS**

**SELECT TOP 10 c.ConferenceID,**

**c.Name,**

**isnull(sum(dp.DayParticipantID), 0) AS popularity**

**FROM Conferences AS c**

**INNER JOIN ConferenceDays AS cd ON cd.Conferences\_ConferenceID = c.ConferenceID**

**INNER JOIN ConferenceDayBooking AS cdb ON cdb.ConferenceDays\_ConferenceDayID = cd.ConferenceDayID**

**INNER JOIN DayParticipants AS dp ON dp.ConferenceDayBooking\_ConferenceDayBookingID = cdb.ConferenceDayBookingID**

**AND dp.StudentID IS NOT NULL**

**GROUP BY c.ConferenceID,**

**c.Name**

**ORDER BY popularity DESC**

## MostPopularWorkshopsByStudents

**CREATE VIEW view\_MostPopularWorkshopsByStudents**

**AS**

**SELECT TOP 10 conf.name AS ConferenceName,**

**w.workshopid,**

**w.name,**

**isnull(sum(wp.workshopparticipantid), 0) AS popularnosc**

**FROM Workshops AS w**

**INNER JOIN conferencedays AS cd ON cd.conferencedayid = w.ConferenceDays\_ConferenceDayID**

**INNER JOIN conferences AS conf ON conf.conferenceid = cd.Conferences\_ConferenceID**

**INNER JOIN WorkshopBooking AS wb ON wb.Workshops\_WorkshopID = w.WorkshopID**

**INNER JOIN WorkshopParticipants AS wp ON wp.WorkshopBooking\_WorkshopBookingID = wb.workshopbookingid**

**INNER JOIN DayParticipants AS dp ON dp.DayParticipantID = wp.DayParticipants\_DayParticipantID**

**AND dp.StudentID IS NOT NULL**

**GROUP BY w.workshopid,**

**w.name,**

**conf.name**

**ORDER BY popularnosc DESC**

## MostProfitableConference

**CREATE VIEW view\_MostProfitableConference**

**AS**

**SELECT TOP 10 c.ConferenceID,**

**c.Name,**

**cc.Cost + a.koszt AS cena**

**FROM Conferences AS c**

**INNER JOIN ConferenceCosts AS cc ON cc.Conferences\_ConferenceID = c.ConferenceID**

**INNER JOIN (**

**SELECT con.ConferenceID,**

**(**

**SELECT isnull(sum(w.Cost), 0) AS koszta**

**FROM conferencedays AS cd**

**INNER JOIN Workshops AS w ON w.ConferenceDays\_ConferenceDayID = cd.ConferenceDayID**

**WHERE cd.Conferences\_ConferenceID = con.ConferenceID**

**) AS koszt**

**FROM Conferences AS con**

**) AS a ON c.ConferenceID = a.ConferenceID**

**ORDER BY cena**

## MostProfitableWorkshops

**CREATE VIEW view\_MostProfitableWorkshops**

**AS**

**SELECT TOP 10 c.name AS NazwaKonferencji,**

**w.name,**

**w.cost**

**FROM Workshops AS w**

**INNER JOIN ConferenceDays AS cd ON cd.ConferenceDayID = w.ConferenceDays\_ConferenceDayID**

**INNER JOIN Conferences AS c ON c.ConferenceID = cd.Conferences\_ConferenceID**

**ORDER BY w.cost DESC**

## WorkshopsFreePlaces

**CREATE VIEW view\_WorkshopsFreePlaces**

**AS**

**SELECT c.name AS ConferenceName,**

**w.workshopid,**

**w.name,**

**w.numberofparticipants AS Miejsca,**

**isnull(SUM(wp.WorkshopParticipantID), 0) AS Zajete,**

**w.numberofparticipants - isnull(SUM(wb.NumberOfParticipants), 0) AS WolneMiejsca**

**FROM workshops AS w**

**INNER JOIN WorkshopBooking AS wb ON wb.workshops\_workshopid = w.workshopid**

**INNER JOIN WorkshopParticipants AS wp ON wp.WorkshopBooking\_WorkshopBookingID = wb.WorkshopBookingID**

**INNER JOIN conferencedays AS cd ON cd.conferencedayid = w.conferencedays\_conferencedayid**

**INNER JOIN conferences AS c ON c.conferenceid = cd.conferences\_conferenceid**

**GROUP BY w.workshopid,**

**w.name,**

**w.numberofparticipants,**

**c.name**

## ConferenceFreePlaces

**CREATE VIEW view\_ConferenceFreePlaces**

**AS**

**SELECT c.name,**

**cd.DATE,**

**isnull(sum(dp.DayParticipantID), 0) AS Zajete,**

**cdb.NumberOfParticipants AS Miejsca,**

**cdb.NumberOfParticipants - isnull(sum(dp.DayParticipantID), 0) AS WolneMiejsca**

**FROM Conferences AS c**

**INNER JOIN ConferenceDays AS cd ON cd.Conferences\_ConferenceID = c.ConferenceID**

**INNER JOIN ConferenceDayBooking AS cdb ON cdb.ConferenceDays\_ConferenceDayID = cd.ConferenceDayID**

**INNER JOIN DayParticipants AS dp ON dp.ConferenceDayBooking\_ConferenceDayBookingID = cdb.ConferenceDayBookingID**

**GROUP BY c.Name,**

**cd.DATE,**

**cdb.NumberOfParticipants**

## AvailableConferenceDays

**CREATE VIEW view\_AvailableConferenceDays**

**AS**

**SELECT cdp.\***

**FROM VIEW\_ConferenceFreePlaces cdp**

**WHERE WolneMiejsca > 0**

## AvailableWorkshops

**CREATE VIEW view\_AvailableWorkshops**

**AS**

**SELECT w.\***

**FROM view\_WorkshopsFreePlaces w**

**WHERE WolneMiejsca > 0**

## ClientsActivity

**CREATE VIEW view\_ClientsActivity**

**AS**

**SELECT c.\*,**

**isnull((**

**SELECT COUNT(\*)**

**FROM conferencebooking AS cb**

**WHERE cb.clients\_clientid = c.ClientID**

**), 0) AS Bookings,**

**isnull((**

**SELECT SUM(p.amount)**

**FROM conferencebooking AS cb**

**INNER JOIN payments AS p ON cb.ConferenceBookingID = p.ConferenceBooking\_ConferenceBookingID**

**WHERE cb.clients\_clientid = c.ClientID**

**), 0) AS Payments**

**FROM Clients AS c**

## MostProfitableClients

**CREATE VIEW view\_MostProfitableClients**

**AS**

**SELECT TOP 10 c.\***

**FROM view\_ClientsActivity c**

**ORDER BY Payments**