Baza Jednostki Wojskowej

Spis treści

1. Wstęp

Przedstawiona baza danych umożliwia proste zarządzanie jednostką wojskową. W bazie zawarte są wszystkie dane każdego żołnierza, sprzętu jaki jest na wyposażeniu jednostki, oraz informacje odnośnie stopni i specjalizacji.

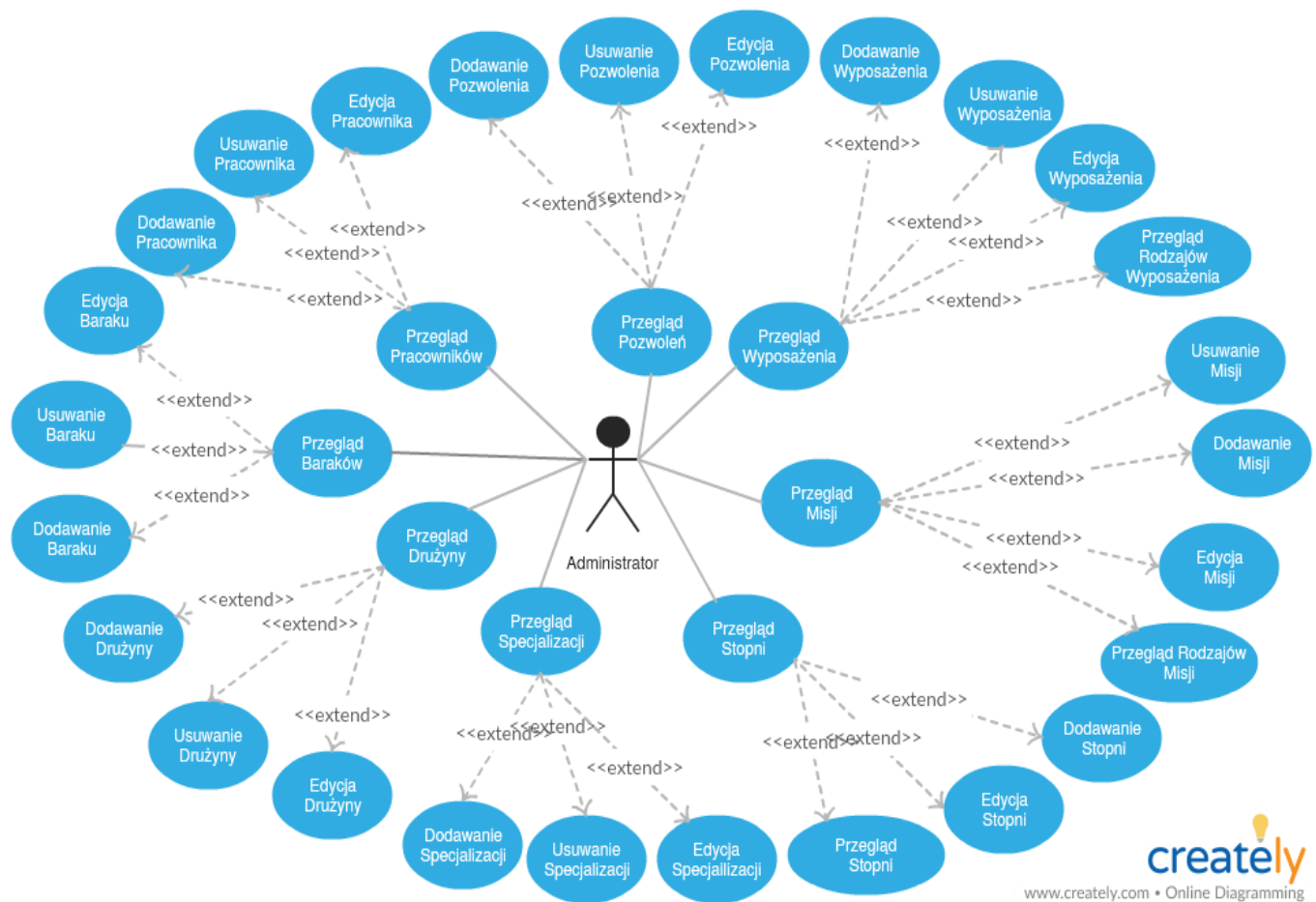# 2. Analiza wymagań systemu

2.1 Wymagania funkcjonalne

- Wybór, które dane powinny być wyświetlane,

- Wyświetlanie danych w czytelny sposób,

- Dodawanie danych do konkretnych tabel,

- Edycja danych,

- Usuwanie danych,

2.2 Wymagania niefunkcjonalne

- Wydajność,

- Niezawodność,

- Łatwość użycia,

2.3 Diagram przypadków użycia

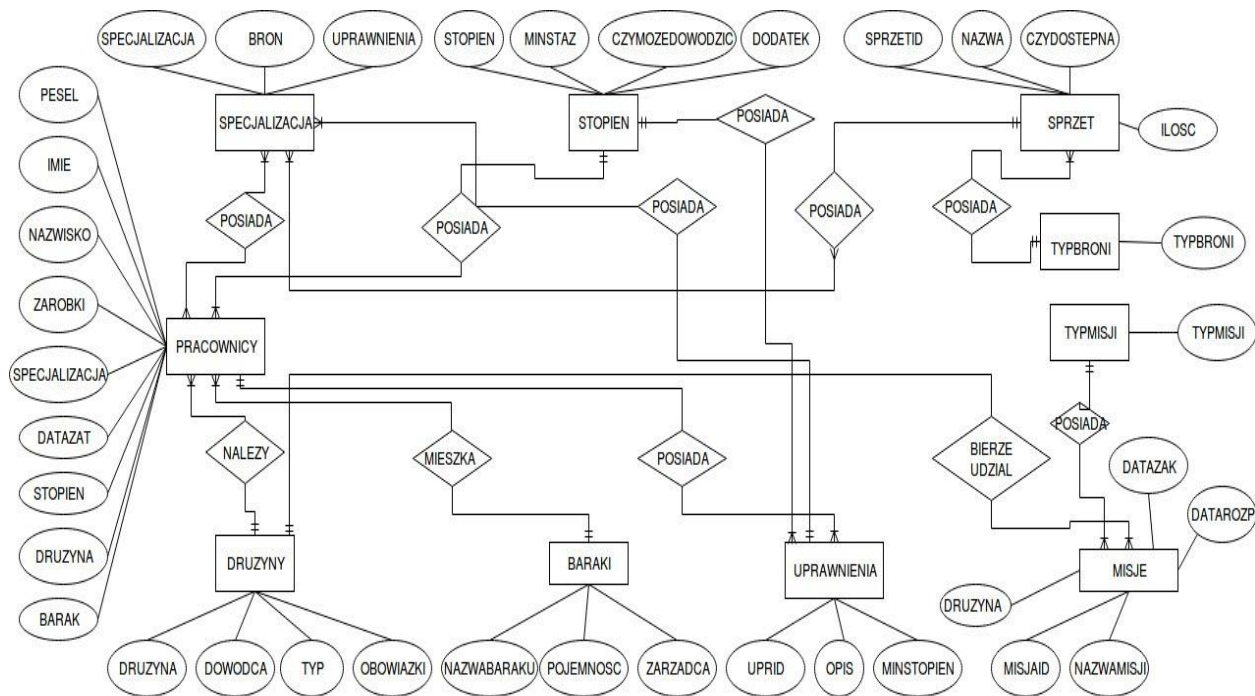## 3. Wykorzystane technologie

- Microsoft SQL Server

- Język C#

- WPF

- Entity Framework

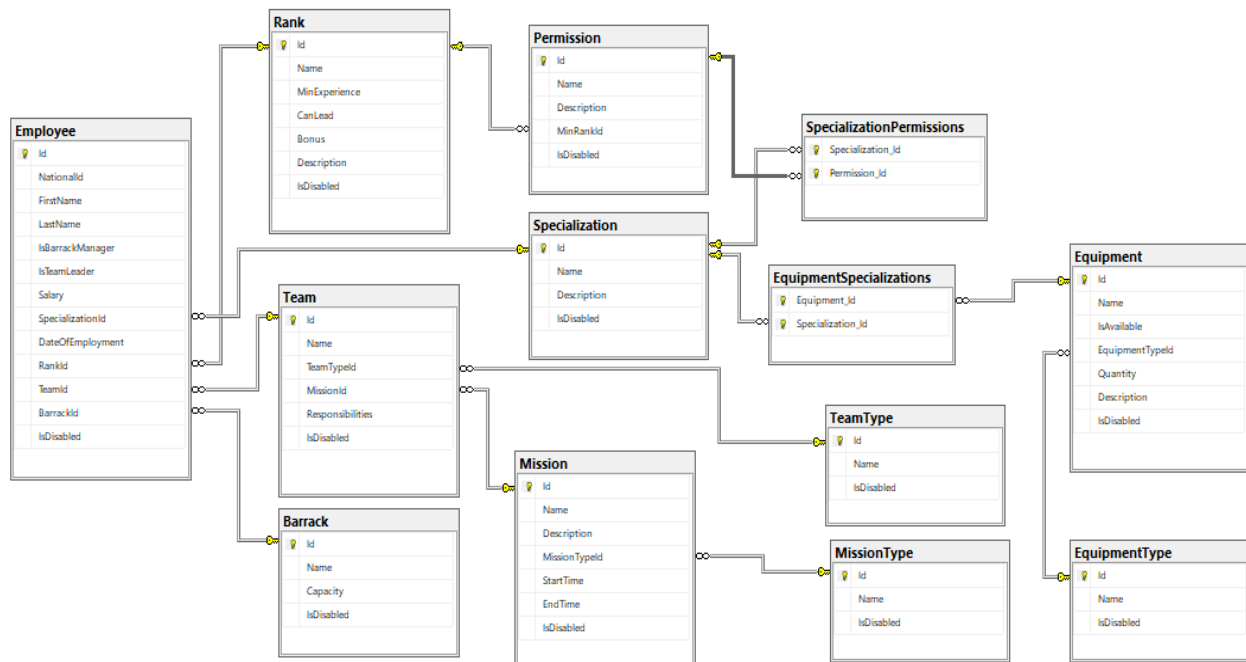- Caliburn Micro

4. Projekt aplikacji

4.1 Architektura aplikacji

- Models – przechowuje modele bazy danych,

- Views – przechowuje widoki aplikacji,

- ViewModels – odpowiada za logikę systemu

- Services – do obsługi bazy danych.

4.2 Projekt koncepcyjny bazy danych

4.3 Projekt schematu relacyjnego

4.4 Mapowanie klas na tabele bazodanowe

Code First poprzez Entity Framework.

5. Funkcjonalność aplikacji

- Przegląd, dodawanie, usuwanie i edycja pracowników,
- Przegląd, dodawanie, usuwanie i edycja baraków(koszar),
- Przegląd, dodawanie, usuwanie i edycja wyposażenia oraz jego typu,
- Przegląd, dodawanie, usuwanie i edycja misji oraz ich typów,
- Przegląd, dodawanie, usuwanie i edycja pozwoleń,
- Przegląd, dodawanie, usuwanie i edycja stopni,
- Przegląd, dodawanie, usuwanie i edycja specjalizacji,
- Przegląd, dodawanie, usuwanie i edycja drużyn oraz ich typów,
- Wykrywanie czy istnieje baza danych,
- Możliwość wygenerowania przykładowej bazy danych.

6. Interfejs użytkownika

7. Podsumowanie

Aplikacja spełnia wszystkie wymagane funkcjonalności. Prosty interfejs sprawia, że obsługa aplikacji jest łatwa. Wszystkie zmiany wprowadzane przez użytkownika w aplikacji są uaktualniane w bazie danych.

Dodatek A: Skrypty tworzące obiekty baz danych

```
CREATE DATABASE [ArmyBase]

GO

USE [ArmyBase]

GO

/****** Object:  Table [dbo].[__MigrationHistory]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[__MigrationHistory](

        [MigrationId] [nvarchar](150) NOT NULL,

        [ContextKey] [nvarchar](300) NOT NULL,

        [Model] [varbinary](max) NOT NULL,

        [ProductVersion] [nvarchar](32) NOT NULL,

 CONSTRAINT [PK_dbo.__MigrationHistory] PRIMARY KEY CLUSTERED

(

        [MigrationId] ASC,

        [ContextKey] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Barrack]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO
```

```
SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Barrack](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [Capacity] [int] NOT NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Barrack] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Employee]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Employee](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [NationalId] [int] NOT NULL,

        [FirstName] [nvarchar](max) NOT NULL,

        [LastName] [nvarchar](max) NOT NULL,

        [IsBarrackManager] [bit] NOT NULL,

        [IsTeamLeader] [bit] NOT NULL,
```

```
        [Salary] [float] NOT NULL,

        [SpecializationId] [int] NULL,

        [DateOfEmployment] [datetime] NOT NULL,

        [RankId] [int] NULL,

        [TeamId] [int] NULL,

        [BarrackId] [int] NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Employee] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Equipment]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Equipment](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [IsAvailable] [bit] NOT NULL,

        [EquipmentTypeId] [int] NOT NULL,

        [Quantity] [int] NOT NULL,

        [Description] [nvarchar](max) NULL,
```

```
        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Equipment] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[EquipmentSpecializations]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[EquipmentSpecializations](

        [Equipment_Id] [int] NOT NULL,

        [Specialization_Id] [int] NOT NULL,

 CONSTRAINT [PK_dbo.EquipmentSpecializations] PRIMARY KEY CLUSTERED

(

        [Equipment_Id] ASC,

        [Specialization_Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY]

GO

/****** Object:  Table [dbo].[EquipmentType]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON
```

```
GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[EquipmentType](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.EquipmentType] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Mission]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Mission](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [Description] [nvarchar](max) NULL,

        [MissionTypeId] [int] NOT NULL,

        [StartTime] [datetime] NOT NULL,

        [EndTime] [datetime] NULL,
```

```
        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Mission] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[MissionType]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[MissionType](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.MissionType] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Permission]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON
```

```
GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Permission](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [Description] [nvarchar](max) NULL,

        [MinRankId] [int] NOT NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Permission] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Rank]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Rank](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [MinExperience] [int] NOT NULL,

        [CanLead] [bit] NOT NULL,
```

```
        [Bonus] [int] NULL,

        [Description] [nvarchar](max) NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Rank] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Specialization]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Specialization](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [Description] [nvarchar](max) NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Specialization] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
```

15

```
GO

/****** Object:  Table [dbo].[SpecializationPermissions]    Script Date: 07.12.2018 00:31:00 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[SpecializationPermissions](

        [Specialization_Id] [int] NOT NULL,

        [Permission_Id] [int] NOT NULL,

 CONSTRAINT [PK_dbo.SpecializationPermissions] PRIMARY KEY CLUSTERED

(

        [Specialization_Id] ASC,

        [Permission_Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY]

GO

/****** Object:  Table [dbo].[Team]    Script Date: 07.12.2018 00:31:01 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[Team](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [TeamTypeId] [int] NOT NULL,
```

```
        [MissionId] [int] NULL,

        [Responsibilities] [nvarchar](max) NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.Team] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

/****** Object:  Table [dbo].[TeamType]    Script Date: 07.12.2018 00:31:01 ******/

SET ANSI_NULLS ON

GO

SET QUOTED_IDENTIFIER ON

GO

CREATE TABLE [dbo].[TeamType](

        [Id] [int] IDENTITY(1,1) NOT NULL,

        [Name] [nvarchar](max) NOT NULL,

        [IsDisabled] [bit] NOT NULL,

 CONSTRAINT [PK_dbo.TeamType] PRIMARY KEY CLUSTERED

(

        [Id] ASC

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]

) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO
```

17

```
ALTER TABLE [dbo].[Barrack] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Employee] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Equipment] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[EquipmentType] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Mission] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[MissionType] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Permission] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Rank] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Specialization] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Team] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[TeamType] ADD  DEFAULT ((0)) FOR [IsDisabled]

GO

ALTER TABLE [dbo].[Employee]  WITH CHECK ADD  CONSTRAINT
[FK_dbo.Employee_dbo.Barrack_BarrackId] FOREIGN KEY([BarrackId])

REFERENCES [dbo].[Barrack] ([Id])

GO
```

```
ALTER TABLE [dbo].[Employee] CHECK CONSTRAINT [FK_dbo.Employee_dbo.Barrack_BarrackId]

GO

ALTER TABLE [dbo].[Employee]  WITH CHECK ADD  CONSTRAINT [FK_dbo.Employee_dbo.Rank_RankId] FOREIGN KEY([RankId])

REFERENCES [dbo].[Rank] ([Id])

GO

ALTER TABLE [dbo].[Employee] CHECK CONSTRAINT [FK_dbo.Employee_dbo.Rank_RankId]

GO

ALTER TABLE [dbo].[Employee]  WITH CHECK ADD  CONSTRAINT [FK_dbo.Employee_dbo.Specialization_SpecializationId] FOREIGN KEY([SpecializationId])

REFERENCES [dbo].[Specialization] ([Id])

GO

ALTER TABLE [dbo].[Employee] CHECK CONSTRAINT [FK_dbo.Employee_dbo.Specialization_SpecializationId]

GO

ALTER TABLE [dbo].[Employee]  WITH CHECK ADD  CONSTRAINT [FK_dbo.Employee_dbo.Team_TeamId] FOREIGN KEY([TeamId])

REFERENCES [dbo].[Team] ([Id])

GO

ALTER TABLE [dbo].[Employee] CHECK CONSTRAINT [FK_dbo.Employee_dbo.Team_TeamId]

GO

ALTER TABLE [dbo].[Equipment]  WITH CHECK ADD  CONSTRAINT [FK_dbo.Equipment_dbo.EquipmentType_EquipmentTypeId] FOREIGN KEY([EquipmentTypeId])

REFERENCES [dbo].[EquipmentType] ([Id])

ON DELETE CASCADE

GO

ALTER TABLE [dbo].[Equipment] CHECK CONSTRAINT [FK_dbo.Equipment_dbo.EquipmentType_EquipmentTypeId]
```

GO

ALTER TABLE [dbo].[EquipmentSpecializations] WITH CHECK ADD CONSTRAINT
[FK_dbo.EquipmentSpecializations_dbo.Equipment_Equipment_Id] FOREIGN KEY([Equipment_Id])

REFERENCES [dbo].[Equipment] ([Id])

ON DELETE CASCADE

GO

ALTER TABLE [dbo].[EquipmentSpecializations] CHECK CONSTRAINT
[FK_dbo.EquipmentSpecializations_dbo.Equipment_Equipment_Id]

GO

ALTER TABLE [dbo].[EquipmentSpecializations] WITH CHECK ADD CONSTRAINT
[FK_dbo.EquipmentSpecializations_dbo.Specialization_Specialization_Id] FOREIGN
KEY([Specialization_Id])

REFERENCES [dbo].[Specialization] ([Id])

ON DELETE CASCADE

GO

ALTER TABLE [dbo].[EquipmentSpecializations] CHECK CONSTRAINT
[FK_dbo.EquipmentSpecializations_dbo.Specialization_Specialization_Id]

GO

ALTER TABLE [dbo].[Mission] WITH CHECK ADD CONSTRAINT
[FK_dbo.Mission_dbo.MissionType_MissionTypeId] FOREIGN KEY([MissionTypeId])

REFERENCES [dbo].[MissionType] ([Id])

ON DELETE CASCADE

GO

ALTER TABLE [dbo].[Mission] CHECK CONSTRAINT [FK_dbo.Mission_dbo.MissionType_MissionTypeId]

GO

ALTER TABLE [dbo].[Permission] WITH CHECK ADD CONSTRAINT
[FK_dbo.Permission_dbo.Rank_MinRankId] FOREIGN KEY([MinRankId])

REFERENCES [dbo].[Rank] ([Id])

```
ON DELETE CASCADE

GO

ALTER TABLE [dbo].[Permission] CHECK CONSTRAINT [FK_dbo.Permission_dbo.Rank_MinRankId]

GO

ALTER TABLE [dbo].[SpecializationPermissions]  WITH CHECK ADD  CONSTRAINT
[FK_dbo.SpecializationPermissions_dbo.Permission_Permission_Id] FOREIGN KEY([Permission_Id])

REFERENCES [dbo].[Permission] ([Id])

ON DELETE CASCADE

GO

ALTER TABLE [dbo].[SpecializationPermissions] CHECK CONSTRAINT
[FK_dbo.SpecializationPermissions_dbo.Permission_Permission_Id]

GO

ALTER TABLE [dbo].[SpecializationPermissions]  WITH CHECK ADD  CONSTRAINT
[FK_dbo.SpecializationPermissions_dbo.Specialization_Specialization_Id] FOREIGN
KEY([Specialization_Id])

REFERENCES [dbo].[Specialization] ([Id])

ON DELETE CASCADE

GO

ALTER TABLE [dbo].[SpecializationPermissions] CHECK CONSTRAINT
[FK_dbo.SpecializationPermissions_dbo.Specialization_Specialization_Id]

GO

ALTER TABLE [dbo].[Team]  WITH CHECK ADD  CONSTRAINT [FK_dbo.Team_dbo.Mission_MissionId]
FOREIGN KEY([MissionId])

REFERENCES [dbo].[Mission] ([Id])

GO

ALTER TABLE [dbo].[Team] CHECK CONSTRAINT [FK_dbo.Team_dbo.Mission_MissionId]

GO
```

```
ALTER TABLE [dbo].[Team]  WITH CHECK ADD  CONSTRAINT
[FK_dbo.Team_dbo.TeamType_TeamTypeId] FOREIGN KEY([TeamTypeId])

REFERENCES [dbo].[TeamType] ([Id])

ON DELETE CASCADE

GO

ALTER TABLE [dbo].[Team] CHECK CONSTRAINT [FK_dbo.Team_dbo.TeamType_TeamTypeId]

GO
```