# How to Setup Statistics Reporting for FRC Scouting 2017 on a Windows Laptop

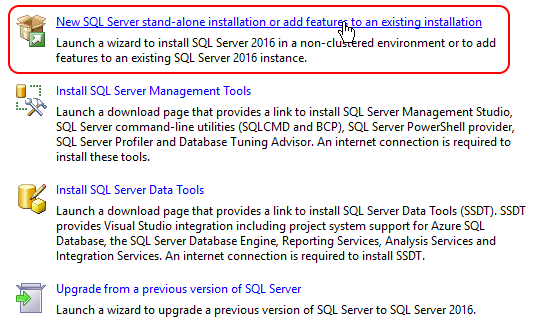
## Recommended prior to installation

1. Laptop with Windows 10, 64-bit
2. Microsoft Excel 2016

## Download and Install Software

1. Download Microsoft SQL Server Express 2017 from:  
   <https://www.microsoft.com/en-us/sql-server/sql-server-downloads>

Or <https://go.microsoft.com/fwlink/?linkid=853017>

1. When prompted, choose the Advanced Edition, and if you like, choose the offline location to be able to install later or on multiple computers.
2. In the SQL Server Installation dialog, choose the first option  
   
3. Accept all defaults
4. If not already installed on your laptop from a previous installation, also install SQL Server Management Tools
5. Once installation has finished, launch the SQL Server Management Studio in order to create the database and run additional scripts

## Run Script to Create Database

1. Assuming that you used the defaults when setting up SQL Server, and that your Data path is set to **C:\Program Files\Microsoft SQL Server\MSSQL13.SQLEXPRESS\MSSQL\DATA\**  
     
   execute the following SQL Script in a new query window:

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| USE [master]  GO  CREATE DATABASE [FRCScouting2019]  CONTAINMENT = NONE  ON PRIMARY  ( NAME = N'FRCScouting2019', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.SQLEXPRESS\MSSQL\DATA\FRCScouting2019.mdf' , SIZE = 8192KB , MAXSIZE = UNLIMITED, FILEGROWTH = 65536KB )  LOG ON  ( NAME = N'FRCScouting2019\_log', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.SQLEXPRESS\MSSQL\DATA\FRCScouting2019\_log.ldf' , SIZE = 8192KB , MAXSIZE = 2048GB , FILEGROWTH = 65536KB )  GO  ALTER DATABASE [FRCScouting2019] SET COMPATIBILITY\_LEVEL = 130  GO  IF (1 = FULLTEXTSERVICEPROPERTY('IsFullTextInstalled'))  begin  EXEC [FRCScouting2019].[dbo].[sp\_fulltext\_database] @action = 'enable'  end  GO  ALTER DATABASE [FRCScouting2019] SET ANSI\_NULL\_DEFAULT OFF  GO  ALTER DATABASE [FRCScouting2019] SET ANSI\_NULLS OFF  GO  ALTER DATABASE [FRCScouting2019] SET ANSI\_PADDING OFF  GO  ALTER DATABASE [FRCScouting2019] SET ANSI\_WARNINGS OFF  GO  ALTER DATABASE [FRCScouting2019] SET ARITHABORT OFF  GO  ALTER DATABASE [FRCScouting2019] SET AUTO\_CLOSE OFF  GO  ALTER DATABASE [FRCScouting2019] SET AUTO\_SHRINK OFF  GO  ALTER DATABASE [FRCScouting2019] SET AUTO\_UPDATE\_STATISTICS ON  GO  ALTER DATABASE [FRCScouting2019] SET CURSOR\_CLOSE\_ON\_COMMIT OFF  GO  ALTER DATABASE [FRCScouting2019] SET CURSOR\_DEFAULT GLOBAL  GO  ALTER DATABASE [FRCScouting2019] SET CONCAT\_NULL\_YIELDS\_NULL OFF  GO  ALTER DATABASE [FRCScouting2019] SET NUMERIC\_ROUNDABORT OFF  GO  ALTER DATABASE [FRCScouting2019] SET QUOTED\_IDENTIFIER OFF  GO  ALTER DATABASE [FRCScouting2019] SET RECURSIVE\_TRIGGERS OFF  GO  ALTER DATABASE [FRCScouting2019] SET DISABLE\_BROKER  GO  ALTER DATABASE [FRCScouting2019] SET AUTO\_UPDATE\_STATISTICS\_ASYNC OFF  GO  ALTER DATABASE [FRCScouting2019] SET DATE\_CORRELATION\_OPTIMIZATION OFF  GO  ALTER DATABASE [FRCScouting2019] SET TRUSTWORTHY OFF  GO  ALTER DATABASE [FRCScouting2019] SET ALLOW\_SNAPSHOT\_ISOLATION OFF  GO  ALTER DATABASE [FRCScouting2019] SET PARAMETERIZATION SIMPLE  GO  ALTER DATABASE [FRCScouting2019] SET READ\_COMMITTED\_SNAPSHOT OFF  GO  ALTER DATABASE [FRCScouting2019] SET HONOR\_BROKER\_PRIORITY OFF  GO  ALTER DATABASE [FRCScouting2019] SET RECOVERY SIMPLE  GO  ALTER DATABASE [FRCScouting2019] SET MULTI\_USER  GO  ALTER DATABASE [FRCScouting2019] SET PAGE\_VERIFY CHECKSUM  GO  ALTER DATABASE [FRCScouting2019] SET DB\_CHAINING OFF  GO  ALTER DATABASE [FRCScouting2019] SET FILESTREAM( NON\_TRANSACTED\_ACCESS = OFF )  GO  ALTER DATABASE [FRCScouting2019] SET TARGET\_RECOVERY\_TIME = 60 SECONDS  GO  ALTER DATABASE [FRCScouting2019] SET DELAYED\_DURABILITY = DISABLED  GO  ALTER DATABASE [FRCScouting2019] SET QUERY\_STORE = OFF  GO  USE [FRCScouting2019]  GO  ALTER DATABASE SCOPED CONFIGURATION SET MAXDOP = 0;  GO  ALTER DATABASE SCOPED CONFIGURATION FOR SECONDARY SET MAXDOP = PRIMARY;  GO  ALTER DATABASE SCOPED CONFIGURATION SET LEGACY\_CARDINALITY\_ESTIMATION = OFF;  GO  ALTER DATABASE SCOPED CONFIGURATION FOR SECONDARY SET LEGACY\_CARDINALITY\_ESTIMATION = PRIMARY;  GO  ALTER DATABASE SCOPED CONFIGURATION SET PARAMETER\_SNIFFING = ON;  GO  ALTER DATABASE SCOPED CONFIGURATION FOR SECONDARY SET PARAMETER\_SNIFFING = PRIMARY;  GO  ALTER DATABASE SCOPED CONFIGURATION SET QUERY\_OPTIMIZER\_HOTFIXES = OFF;  GO  ALTER DATABASE SCOPED CONFIGURATION FOR SECONDARY SET QUERY\_OPTIMIZER\_HOTFIXES = PRIMARY;  GO  ALTER DATABASE [FRCScouting2019] SET READ\_WRITE  GO |

1. Next create the table that will store the Scouting data using the following script:

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| USE [FRCScouting2019]  GO  /\*\*\*\*\*\* Object: Table [dbo].[FRCScoutingTeam3932] Script Date: 3/10/2019 8:19:13 AM \*\*\*\*\*\*/  SET ANSI\_NULLS ON  GO  SET QUOTED\_IDENTIFIER ON  GO  CREATE TABLE [dbo].[FRCScoutingTeam3932] (  [DeviceID] [varchar](100) NOT NULL,  [ID] [uniqueidentifier] NOT NULL,  [Team] [int] NOT NULL,  [Ally1] [int] NOT NULL,  [Ally2] [int] NOT NULL,  [Game] [int] NOT NULL,  [AutoDescendPlatform] [int] NULL,  [AutoPlaceHatch] [int] NULL,  [AutoPlaceCargo] [int] NULL,  [TelePlaceHatchLow] [int] NULL,  [TelePlaceHatchMed] [int] NULL,  [TelePlaceHatchHigh] [int] NULL,  [TelePlaceCargoLow] [int] NULL,  [TelePlaceCargoMed] [int] NULL,  [TelePlaceCargoHigh] [int] NULL,  [TeleHabHeight] [int] NULL,  [TeleDefensePlayed] [int] NULL,  [Alliance] [varchar](100) NULL,  [Station] [int] NULL,  [CreatedAt] [datetime] NULL,  CONSTRAINT [PK\_FRCScoutingTeam3932] 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]  GO |

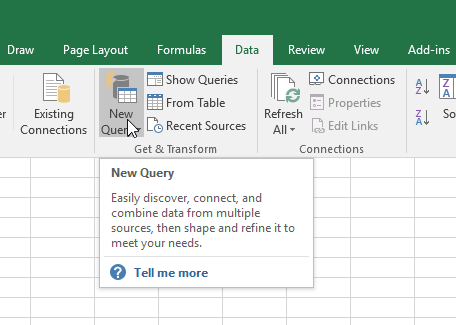
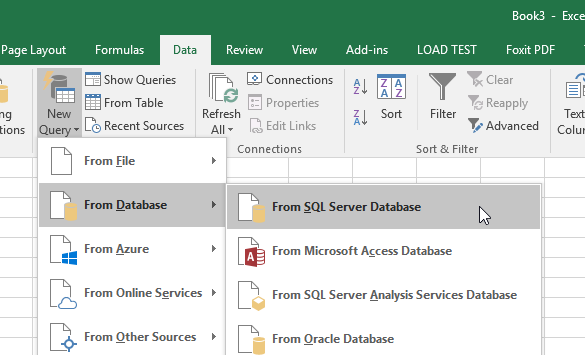
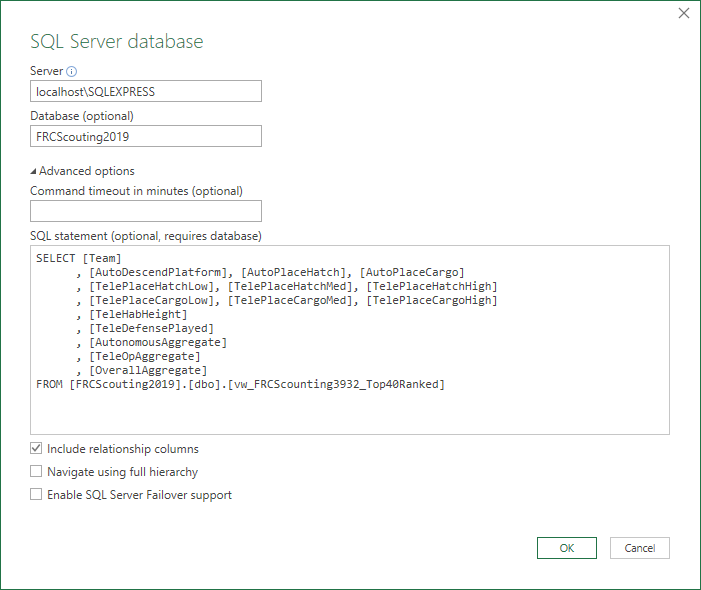
1. Also create a table that will be used to store the weights we choose to assign to different robot abilities

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| USE [FRCScouting2019]  GO  /\*\*\*\*\*\* Object: Table [dbo].[FRCScoutingTeam3932\_AttributeWeights] Script Date: 3/10/2019 10:28:22 AM \*\*\*\*\*\*/  SET ANSI\_NULLS ON  GO  SET QUOTED\_IDENTIFIER ON  GO  CREATE TABLE [dbo].[FRCScoutingTeam3932\_AttributeWeights](  [ID] [int] IDENTITY(1,1) NOT NULL,  [PointsAutoDescendPlatform1] [int] NULL,  [PointsAutoDescendPlatform2] [int] NULL,  [PointsAutoPlaceHatch] [int] NULL,  [PointsAutoPlaceCargo] [int] NULL,  [PointsTelePlaceHatchLow] [int] NULL,  [PointsTelePlaceHatchMed] [int] NULL,  [PointsTelePlaceHatchHigh] [int] NULL,  [PointsTelePlaceCargoLow] [int] NULL,  [PointsTelePlaceCargoMed] [int] NULL,  [PointsTelePlaceCargoHigh] [int] NULL,  [PointsTeleHabHeight1] [int] NULL,  [PointsTeleHabHeight2] [int] NULL,  [PointsTeleHabHeight3] [int] NULL,  [PointsTeleDefensePlayed] [int] NULL,  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]  GO  SET IDENTITY\_INSERT [dbo].[FRCScoutingTeam3932\_AttributeWeights] ON  INSERT [dbo].[FRCScoutingTeam3932\_AttributeWeights] ([ID], [PointsAutoDescendPlatform1], [PointsAutoDescendPlatform2], [PointsAutoPlaceHatch], [PointsAutoPlaceCargo], [PointsTelePlaceHatchLow], [PointsTelePlaceHatchMed], [PointsTelePlaceHatchHigh], [PointsTelePlaceCargoLow], [PointsTelePlaceCargoMed], [PointsTelePlaceCargoHigh], [PointsTeleHabHeight1], [PointsTeleHabHeight2], [PointsTeleHabHeight3], [PointsTeleDefensePlayed]) VALUES (1, 10, 20, 15, 15, 8, 10, 12, 10, 12, 15, 10, 20, 40, 5)  SET IDENTITY\_INSERT [dbo].[FRCScoutingTeam3932\_AttributeWeights] OFF |

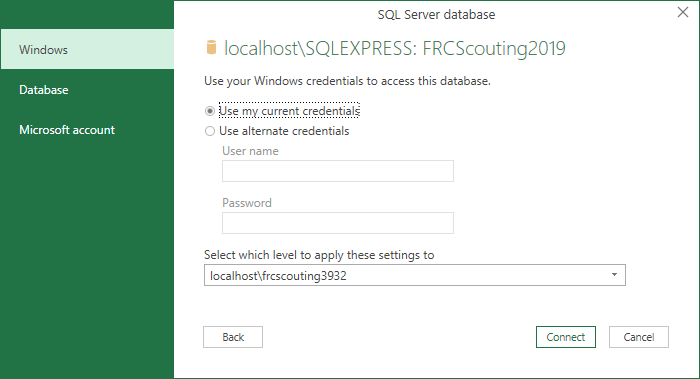
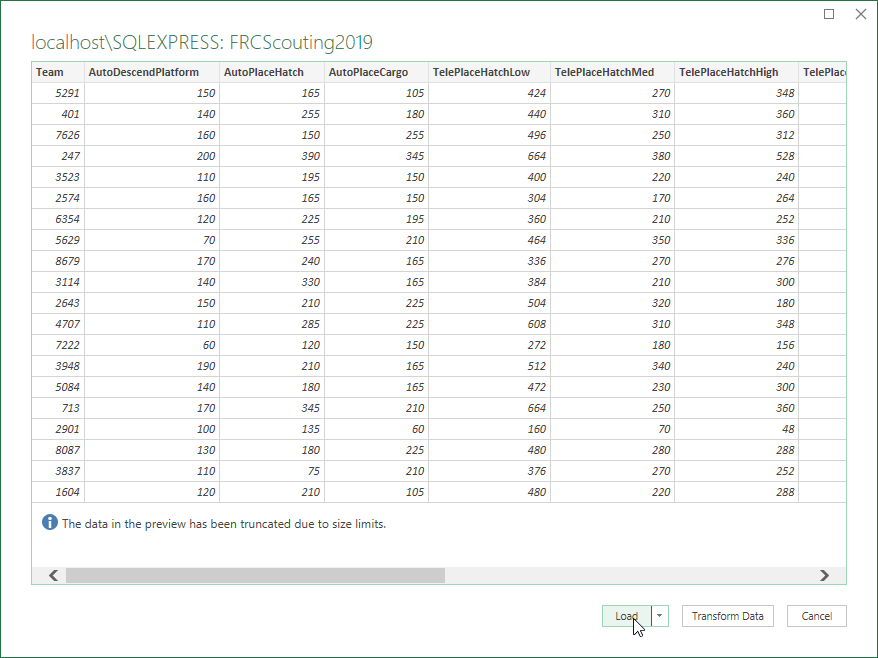
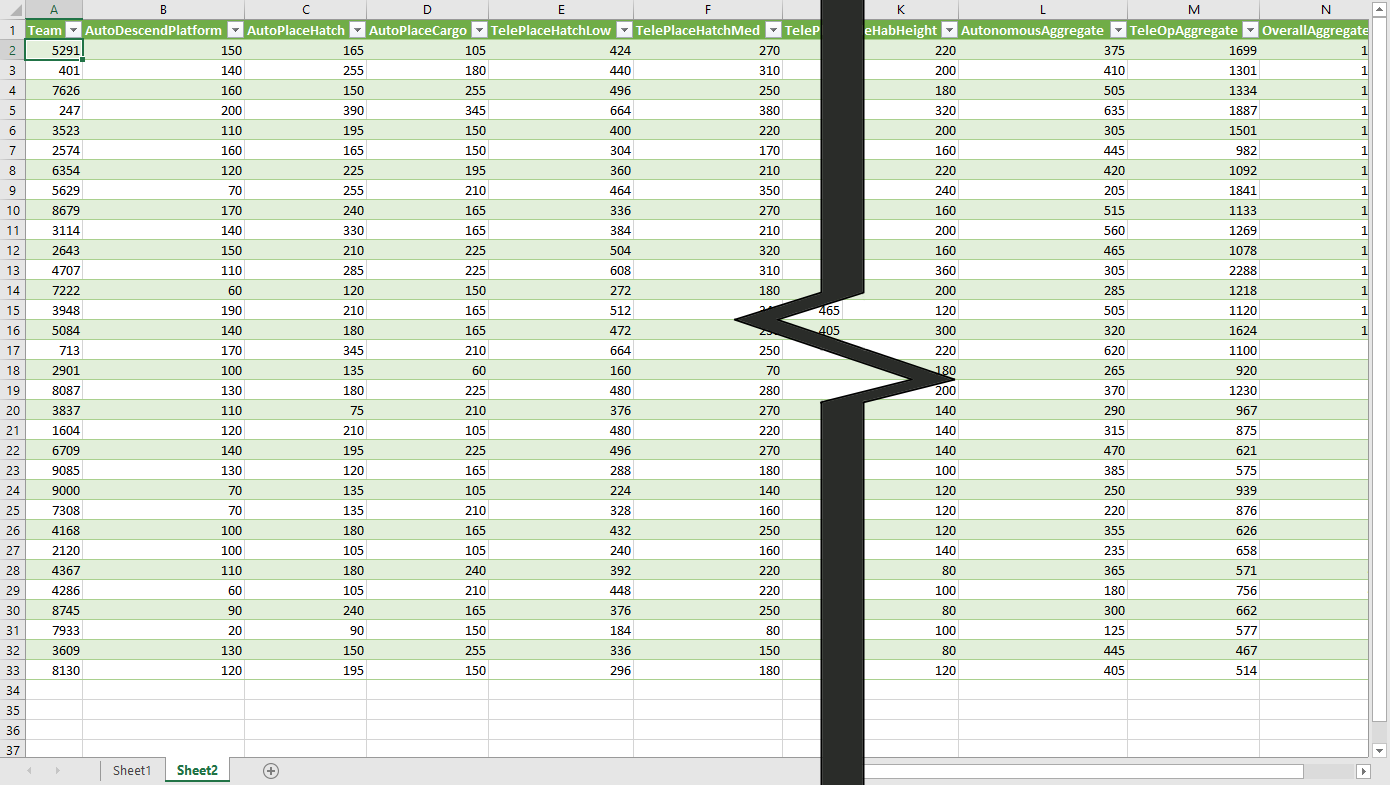
1. Create a view named vw\_FRCScouting3932\_GameTeam by running the following script

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| USE [FRCScouting2019]  GO  /\*\*\*\*\*\* Object: View [dbo].[vw\_FRCScounting2018\_GameTeam] Script Date: 3/10/2019 8:37:22 AM \*\*\*\*\*\*/  SET ANSI\_NULLS ON  GO  SET QUOTED\_IDENTIFIER ON  GO  CREATE VIEW [dbo].[vw\_FRCScounting3932\_GameTeam]  AS  WITH cteView AS (  SELECT  s.Game  , s.Team  , CAST(s.Game AS VARCHAR(10)) + '-' + CAST(s.Team AS VARCHAR(10)) AS [GameTeam]  , CASE  WHEN s.[AutoDescendPlatform] = 1 THEN p.[PointsAutoDescendPlatform1]  WHEN s.[AutoDescendPlatform] = 2 THEN p.[PointsAutoDescendPlatform2]  ELSE 0  END AS [AutoDescendPlatform]  , ISNULL(s.[AutoPlaceHatch], 0) \* p.[PointsAutoPlaceHatch] AS [AutoPlaceHatch]  , ISNULL(s.[AutoPlaceCargo], 0) \* p.[PointsAutoPlaceCargo] AS [AutoPlaceCargo]  , ISNULL(s.[TelePlaceHatchLow], 0) \* p.[PointsTelePlaceHatchLow] AS [TelePlaceHatchLow]  , ISNULL(s.[TelePlaceHatchMed], 0) \* p.[PointsTelePlaceHatchMed] AS [TelePlaceHatchMed]  , ISNULL(s.[TelePlaceHatchHigh], 0) \* p.[PointsTelePlaceHatchHigh] AS [TelePlaceHatchHigh]  , ISNULL(s.[TelePlaceCargoLow], 0) \* p.[PointsTelePlaceCargoLow] AS [TelePlaceCargoLow]  , ISNULL(s.[TelePlaceCargoMed], 0) \* p.[PointsTelePlaceCargoMed] AS [TelePlaceCargoMed]  , ISNULL(s.[TelePlaceCargoHigh], 0) \* p.[PointsTelePlaceCargoHigh] AS [TelePlaceCargoHigh]  , CASE  WHEN s.[TeleHabHeight] = 1 THEN p.[PointsTeleHabHeight1]  WHEN s.[TeleHabHeight] = 2 THEN p.[PointsTeleHabHeight2]  WHEN s.[TeleHabHeight] = 3 THEN p.[PointsTeleHabHeight3]  ELSE 0  END AS [TeleHabHeight]  , ISNULL(s.[TeleDefensePlayed], 0) \* p.[PointsTeleDefensePlayed] AS [TeleDefensePlayed]  FROM dbo.FRCScoutingTeam3932 AS s WITH (NOLOCK)  INNER JOIN FRCScoutingTeam3932\_AttributeWeights AS p WITH (NOLOCK) ON p.ID = (SELECT TOP 1 ID FROM FRCScoutingTeam3932\_AttributeWeights WITH (NOLOCK) ORDER BY ID DESC)  )  SELECT  cte.Team  , cte.[AutoDescendPlatform]  , cte.[AutoPlaceHatch]  , cte.[AutoPlaceCargo]  , cte.[TelePlaceHatchLow]  , cte.[TelePlaceHatchMed]  , cte.[TelePlaceHatchHigh]  , cte.[TelePlaceCargoLow]  , cte.[TelePlaceCargoMed]  , cte.[TelePlaceCargoHigh]  , cte.[TeleHabHeight]  , cte.[TeleDefensePlayed]  , (cte.[AutoDescendPlatform] + cte.[AutoPlaceHatch] + cte.[AutoPlaceCargo]) AS [AutonomousAggregate]  , (cte.[TelePlaceHatchLow] + cte.[TelePlaceHatchMed] + cte.[TelePlaceHatchHigh] + cte.[TelePlaceCargoLow] + cte.[TelePlaceCargoMed] + cte.[TelePlaceCargoHigh] + cte.[TeleHabHeight] + cte.[TeleDefensePlayed]) AS [TeleOpAggregate]  , (cte.[AutoDescendPlatform] + cte.[AutoPlaceHatch] + cte.[AutoPlaceCargo] + cte.[TelePlaceHatchLow] + cte.[TelePlaceHatchMed] + cte.[TelePlaceHatchHigh] + cte.[TelePlaceCargoLow] + cte.[TelePlaceCargoMed] + cte.[TelePlaceCargoHigh] + cte.[TeleHabHeight] + cte.[TeleDefensePlayed]) AS [OverallAggregate]  FROM cteView AS cte  GO |

## Use Excel to create the reports on the games

1. Open Excel 2016
2. Use the ribbon menu to add a new query to the data we have imported  
   
3. Choose SQL Server as your data source  
   
4. Expand the “Advanced Options” section and set the Server to “localhost\SQLEXPRESS” and the Database to “FRCScouting2019” (assuming that you used the recommended names for those entities)  
   
5. Copy and paste the following script into the “SQL statement (optional)” text area:

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| --- |
| SELECT [Team]  , [AutoDescendPlatform], [AutoPlaceHatch], [AutoPlaceCargo]  , [TelePlaceHatchLow], [TelePlaceHatchMed], [TelePlaceHatchHigh]  , [TelePlaceCargoLow], [TelePlaceCargoMed], [TelePlaceCargoHigh]  , [TeleHabHeight]  , [TeleDefensePlayed]  , [AutonomousAggregate]  , [TeleOpAggregate]  , [OverallAggregate]  FROM [FRCScouting2019].[dbo].[vw\_FRCScounting3932\_Top40Ranked] |

1. The first time you try connecting to the SQL Server, you will receive a security prompt. Assuming you setup the SQL Server with defaults (i.e. Windows login for the administrator), you may just click Connect   
   
2. Once you connect, a confirmation dialog showing the data returned by your query is displayed  
   
3. Press “Load” and the data will be loaded into a new sheet in your workbook  
   
4. Now, each of the columns can be used for filtering or sorting the data according to whatever criteria we may want to focus on.