




Our First Steps into SQL Databases

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Professor Philips
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Introduction

- No prior SQL experience
- We utilized Visual Studio 2019 & Visual Studio Code
- SQL stands for Structured Query Language

Agenda

Setting Up Your IDE

Queries & Commands

Live Demo

Things We Learned

Things We Would Do Differently



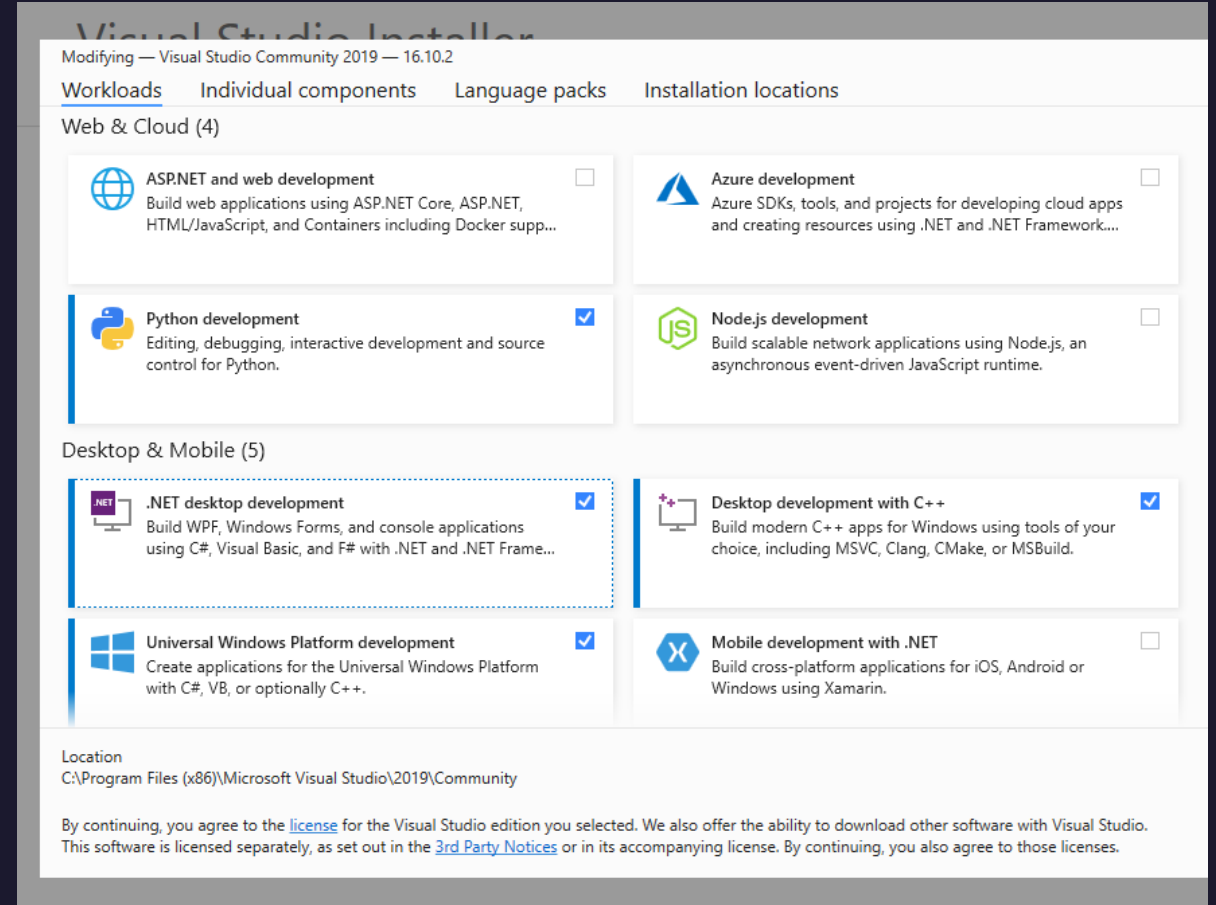
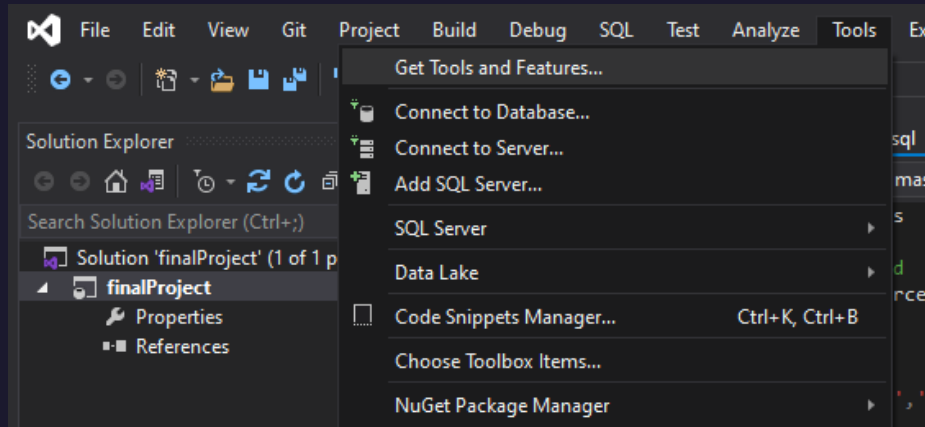
Configuring Your IDE

- Visual Studio 2019

- “Get Tools and Features”
- “.NET desktop development”
- “Data storage and processing”

- Visual Studio Code

- We used Deno for syntax help

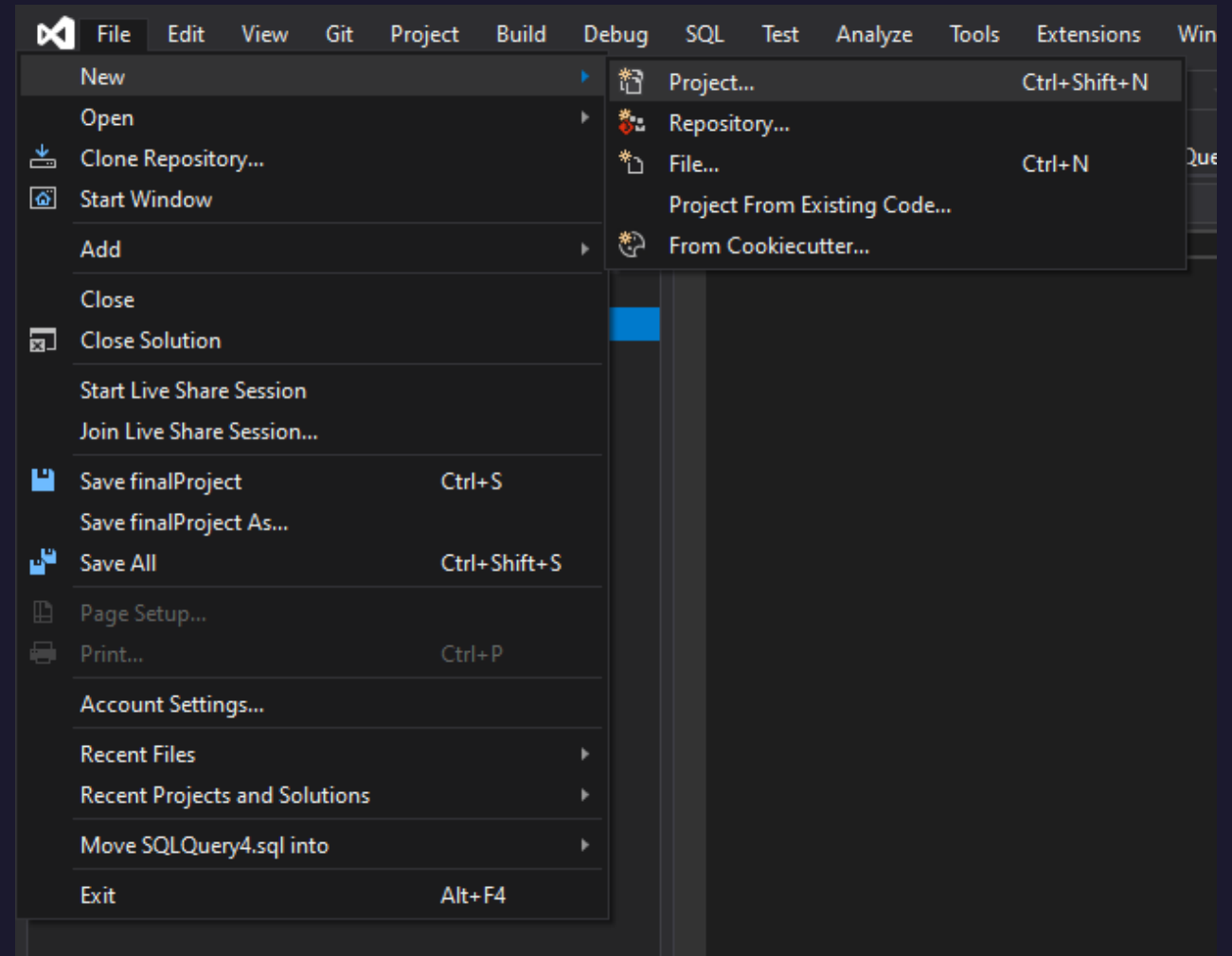
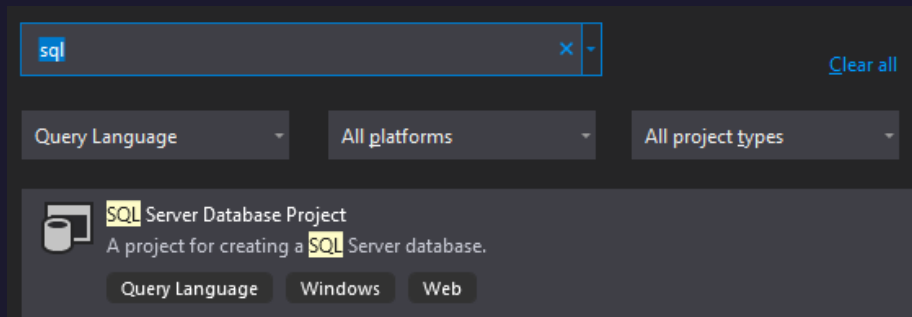
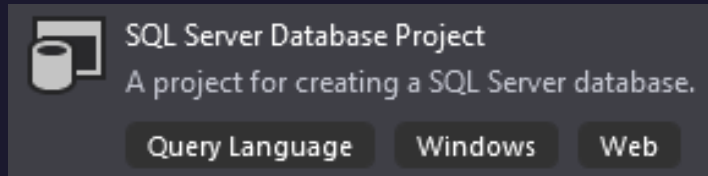


Other Toolsets (6)

- **Data storage and processing** (checked)
Connect, develop, and test data solutions with SQL Server, Azure Data Lake, or Hadoop.

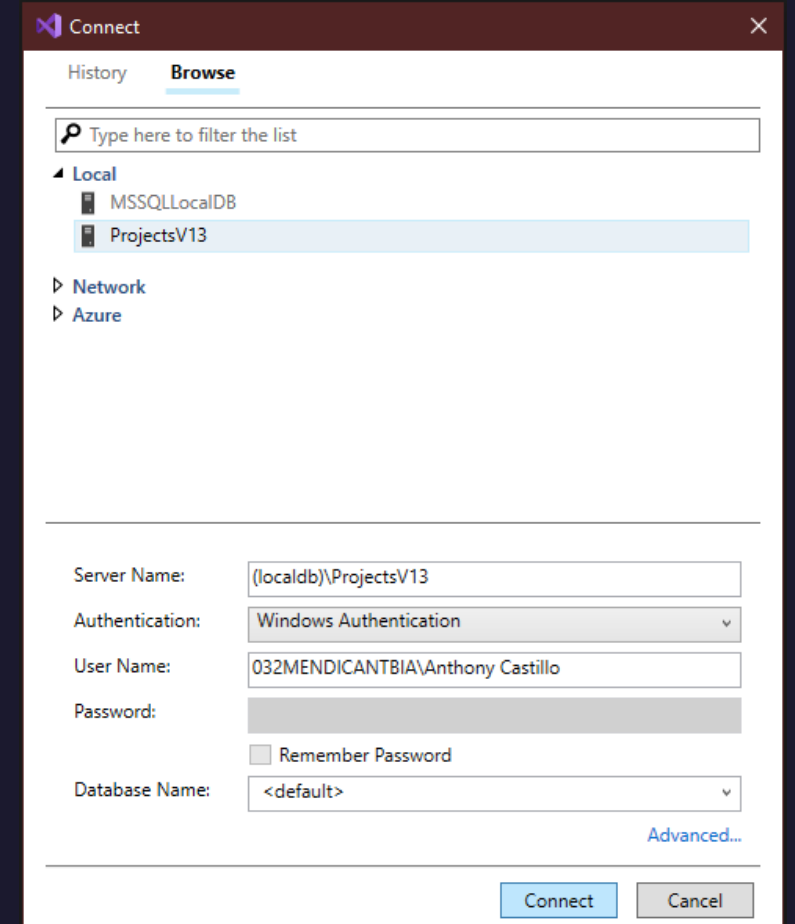
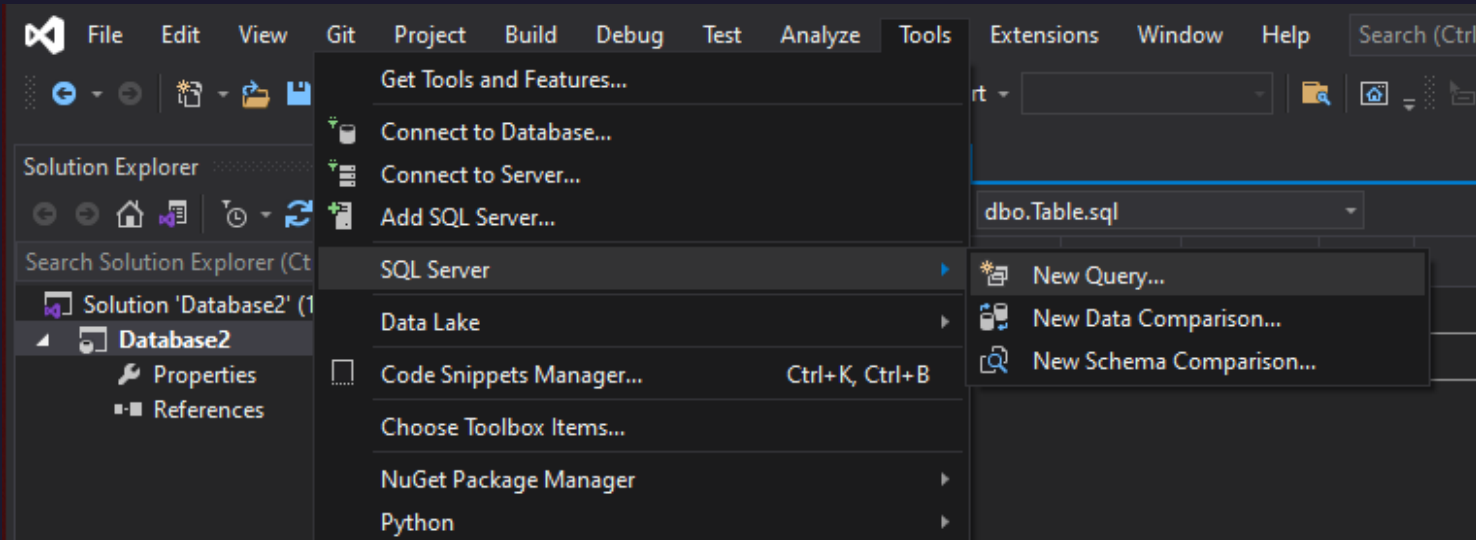
Database Server Initialization

- Create a New Project using the “SQL Server Database Project” extension



What are Queries?

- Programming Methods used to request, input, or edit data in a database table.
- “Tools” -> “SQL Server” -> “New Query...”
- Under the Local tab, connect to your desired server



Basic Functions

- CREATE TABLE table ([columns] parameters, etc.)

- Initializes a table
- IDENTITY (I,I)

- DROP TABLE table

```
❏ DROP TABLE characters
```

- Deletes a table

- INSERT INTO table ([columns]) VALUES (data)

- Puts data into a table

```
❏ INSERT INTO characters
(
  --Columns to be edited
  [Name],[Age],[Source],[chrCategory],[Traits],[Voice/Actor],[Place of Brith],[chrNotes]
)
VALUES
--Data to put in rows
('Obi-Wan Kenobi','59','Star Wars','Hero','rebellious, loyal, wise','Alec Guinness','Stewjon','notes')
```

```
❏ CREATE TABLE characters
❏ (--Making columns for data to be filled under
  -- "IDENTITY(1,1)" takes care of the column (auto-incrementing)
  [Id] INT NOT NULL PRIMARY KEY IDENTITY(1,1),
  [Name] NVARCHAR(50) NOT NULL,
  [Age] NVARCHAR(50) NOT NULL,
  [Source] NVARCHAR(50) NOT NULL,
  [chrCategory] NVARCHAR(50) NOT NULL,
  [Traits] NVARCHAR(50) NOT NULL,
  [Voice/Actor] NVARCHAR(50) NOT NULL,
  [Place of Brith] NVARCHAR(50) NOT NULL,
  [chrNotes] NVARCHAR(MAX) NOT NULL
)
```

```
❏ INSERT INTO characters
(
  --Columns to be edited
  [Name],[Age],[Source],[chrCategory],[Traits],[Voice/Actor],[Place of Brith],[chrNotes]
)
VALUES
--Data to put in rows
('Lenneth Valkyrie','23','Valkyrie Profile','Protagonist','','Megan Hollingshead','Asgard',''),
('Megaman Volnutt','14','Megaman Legends','Protagonist','','Corey Sevier','Elysium',''),
('Tron Bonne','14','Megaman Legends','Antagonist','','Carolyn Larson','Unknown',''),
('Megaman Juno','Unknown','Megaman Legends','Antagonist','','Jeff Mallery','Unknown',''),
('Cipher (Demonlord)','Unknown','Ace Combat','Protagonist','','Silent','Unknown',''),
('Solo Wing Pixy (Larry Foulk)','28','Ace Combat','Protagonist','','Yuri Lowenthal','South Belka',''),
('Brahms','Unknown','Valkyrie Profile','Antagonist','','Ken Gates','Unknown',''),
('Mobius 1','Unknown','Ace Combat','Protagonist','','Silent','Unknown',''),
('Altair ibn-la'ahad','24','Assassin's Creed','Protagonist','','Philip Shahbaz','Masyaf',''),
('Shay Cormac','21','Assassin's Creed','Protagonist','','Steven Plovesan','New York, British America',''),
('Hercules','Unknown','Hercules: The Legendary Journeys','Protagonist','','Kevin Sorbo','Thebes','')
```

Manipulating Data Tables

- `UPDATE table SET [column1] = value WHERE [column2] = "specific value"`
 - Edits specific columns with specific data
- `ALTER TABLE table DROP COLUMN [column1]`
 - Deletes a column from a table
- `DELETE FROM table WHERE (id = 13)`
 - Deletes a row

```
--Must have one update command for each datapoint being edited
❏ UPDATE characters
  SET --The column being affected
    [Traits] = 'Heroic, Loyal'
    --the row affected (can use any datapoint relevant to the row you want)
  WHERE [Name] = 'Obi-Wan Kenobi'

❏ UPDATE characters
  SET --The column being affected
    [Traits] = 'Stubborn, Grows'
    --the row affected (can use any datapoint relevant to the row you want)
  WHERE [id] = 10
```

```
ALTER TABLE characters DROP COLUMN [Traits], [chrNotes]
```

```
DELETE FROM characters WHERE (id =13)
```


The Select Function

- `SELECT * FROM table`
 - The asterisk denotes a wildcard selecting all rows from the requested table
- Followed by “ORDER BY column”
 - Optional to sort the output data

```
select * from characters  
order by age
```

	Id	Name	Age	Source	chrCategory	Traits	Voice/Actor	Place of Brith	chrNotes
1	3	Megaman Volnutt	14	Megaman Legends	Protagonist		Corey Sevier	Elysium	
2	4	Tron Bonne	14	Megaman Legends	Antagonist		Caroly Lars...	Unknown	
3	11	Shay Cormac	21	Assassin_s Creed	Protagonist		Steven Pio...	New York, ...	
4	2	Lenneth Valkyrie	23	Valkyrie Profile	Protagonist		Megan Hol...	Asgard	
5	10	Altair ibn-la?ahad	24	Assassin_s Creed	Protagonist	Stubborn, Grows	Philip Sha...	Masyaf	
6	7	Solo Wing Pixy (Larry Foulk)	28	Ace Combat	Protagonist		Yuri Lowe...	South Belka	
7	1	Obi-Wan Kenobi	59	Star Wars	Hero	Heroic, Loyal	Alec Guinn...	Stewjon	notes
8	8	Brahms	U...	Valkyrie Profile	Antagonist		Ken Gates	Unknown	
9	9	Mobius 1	U...	Ace Combat	Protagonist		Silent	Unknown	
10	5	Megaman Juno	U...	Megaman Legends	Antagonist		Jeff Mallory	Unknown	
11	6	Cipher (Demonlord)	U...	Ace Combat	Protagonist		Silent	Unknown	
12	12	Hercules	U...	Hercules: The Le...	Protagonist		Kevin Sorbo	Thebes	

Live Demo

What We Learned

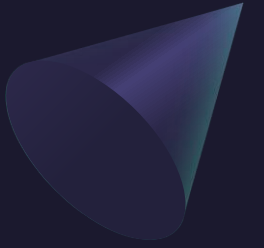
SETTING UP A DATABASE

- Getting the right extension
- Initializing a Database
- Connecting to a (local) Database

DATABASE MANAGEMENT

- Queries
- Creating a tables
- Editing the tables
- Selecting specific data from tables
- Updating specific data in tables
- Deleting tables

What We'd Do Differently



HOST A PUBLICLY ACCESSIBLE DATA SERVER

- Host an internet accessible Data server
- Privately curated
- Publicly accessible data
- Specialized Permissions

ADVANCED DATABASE SERVER FUNCTIONS

- Make tables reference one another
 - Cross table
- Editing Security and Permissions

BETTER TIME MANAGEMENT

- More time for research
- More time for ideas
- More complex outcome





Summary

We configured our IDEs, setup a data server, and went over some of the fundamental functions of SQL, presented a live demo, and concluded.

In the 21st
Century, the
database is the
marketplace.

Stan Rapp



Thank You

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