Etapa 2

SQL, tabelas e tipos de dados

// Banco de dados

A linguagem SQL

SQL (Structured Query Language): É a linguagem de banco de dados usada para consulta e manipulação de dados.

Clientes					
Id	**Nome**	**Sobrenome**	**Email**	**AceitaComunicados**	**DataCadastro**
1	Leonardo	Buta	email@gmail.com	1	29/04/2022
2	Peter	Anderson	email@gmail.com	0	29/04/2022
3	Taylor	Adams	email@gmail.com	1	29/04/2022

Enderecos					
Id	**Rua**	**Bairro**	**Cidade**	**Estado**	**IdCliente**
1	Rua 1	Bairro 1	Cidade 1	Estado 1	1

A linguagem SQL
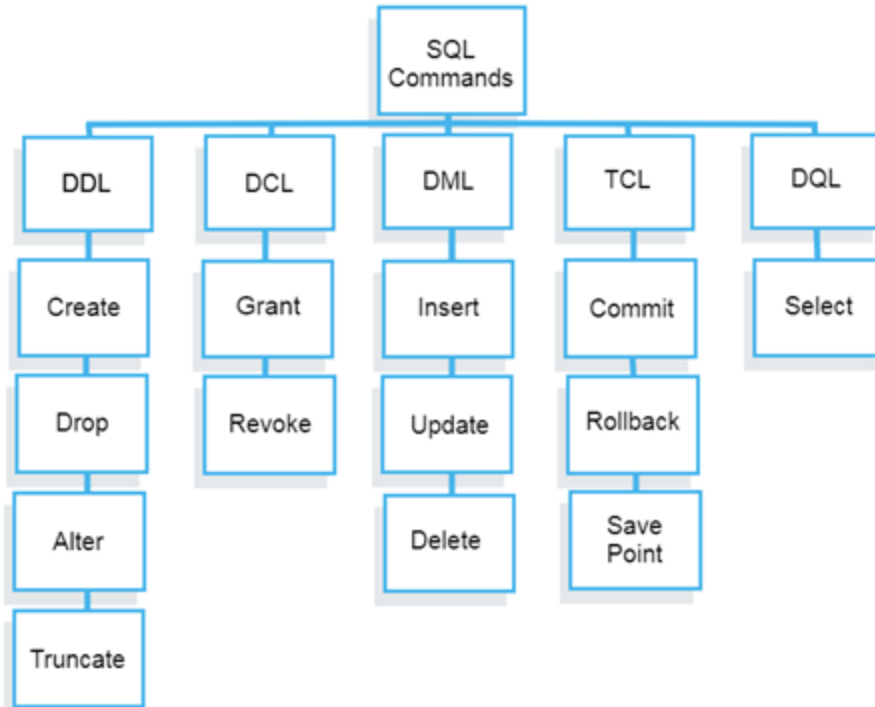
DDL – Data Definition Language
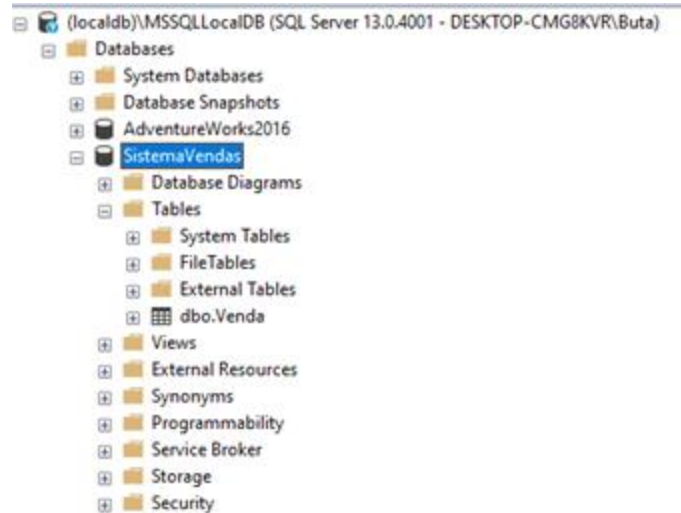
DCL – Data Control Language

DML – Data Manipulation Language

TCL – Transaction Control Language

DQL – Data Query Language

Entendendo alguns conceitos!

Database: É uma coleção de dados estruturados, agrupados de forma concisa. É composto de tabelas, procedures, views, etc.

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Criação de tabela

```sql
-- Criação da tabela
CREATE TABLE Clientes (
    Id int IDENTITY(1,1) NOT NULL,
    Nome varchar(255) NULL,
    Sobrenome varchar(255) NULL,
    Email varchar(255) NULL,
    AceitaComunicados bit NULL,
    DataCadastro datetime2(7) NULL
)
```

Tipos de dados

String Data Types

Data type	Description	Max size	Storage
char(n)	Fixed width character string	8,000 characters	Defined width
varchar(n)	Variable width character string	8,000 characters	2 bytes + number of chars
varchar(max)	Variable width character string	1,073,741,824 characters	2 bytes + number of chars
text	Variable width character string	2GB of text data	4 bytes + number of chars
nchar	Fixed width Unicode string	4,000 characters	Defined width x 2
nvarchar	Variable width Unicode string	4,000 characters	
nvarchar(max)	Variable width Unicode string	536,870,912 characters	
ntext	Variable width Unicode string	2GB of text data	
binary(n)	Fixed width binary string	8,000 bytes	
varbinary	Variable width binary string	8,000 bytes	
varbinary(max)	Variable width binary string	2GB	
image	Variable width binary string	2GB	

https://www.w3schools.com/sql/sql_datatypes.asp

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Tipos de dados

Numeric Data Types

Data type	Description	Storage
bit	Integer that can be 0, 1, or NULL	
tinyint	Allows whole numbers from 0 to 255	1 byte
smallint	Allows whole numbers between -32,768 and 32,767	2 bytes
int	Allows whole numbers between -2,147,483,648 and 2,147,483,647	4 bytes
bigint	Allows whole numbers between -9,223,372,036,854,775,808 and 9,223,372,036,854,775,807	8 bytes
decimal(p,s)	Fixed precision and scale numbers. Allows numbers from $-10^{38} +1$ to $10^{38} -1$. The p parameter indicates the maximum total number of digits that can be stored (both to the left and to the right of the decimal point). p must be a value from 1 to 38. Default is 18. The s parameter indicates the maximum number of digits stored to the right of the decimal point. s must be a value from 0 to p. Default value is 0	5-17 bytes

https://www.w3schools.com/sql/sql_datatypes.asp

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Tipos de dados

numeric(p,s)	Fixed precision and scale numbers.	5-17 bytes
	Allows numbers from -10^38 +1 to 10^38 −1.	
	The p parameter indicates the maximum total number of digits that can be stored (both to the left and to the right of the decimal point). p must be a value from 1 to 38. Default is 18.	
	The s parameter indicates the maximum number of digits stored to the right of the decimal point. s must be a value from 0 to p. Default value is 0	
smallmoney	Monetary data from -214,748.3648 to 214,748.3647	4 bytes
money	Monetary data from -922,337,203,685,477.5808 to 922,337,203,685,477.5807	8 bytes
float(n)	Floating precision number data from -1.79E + 308 to 1.79E + 308.	4 or 8 bytes
	The n parameter indicates whether the field should hold 4 or 8 bytes. float(24) holds a 4-byte field and float(53) holds an 8-byte field. Default value of n is 53.	
real	Floating precision number data from -3.40E + 38 to 3.40E + 38	4 bytes

https://www.w3schools.com/sql/sql_datatypes.asp

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Tipos de dados

Date and Time Data Types

Data type	Description	Storage
datetime	From January 1, 1753 to December 31, 9999 with an accuracy of 3.33 milliseconds	8 bytes
datetime2	From January 1, 0001 to December 31, 9999 with an accuracy of 100 nanoseconds	6-8 bytes
smalldatetime	From January 1, 1900 to June 6, 2079 with an accuracy of 1 minute	4 bytes
date	Store a date only. From January 1, 0001 to December 31, 9999	3 bytes
time	Store a time only to an accuracy of 100 nanoseconds	3-5 bytes
datetimeoffset	The same as datetime2 with the addition of a time zone offset	8-10 bytes
timestamp	Stores a unique number that gets updated every time a row gets created or modified. The timestamp value is based upon an internal clock and does not correspond to real time. Each table may have only one timestamp variable	

https://www.w3schools.com/sql/sql_datatypes.asp

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Links

https://www.guru99.com/sql-commands-dbms-query.html

https://www.w3schools.com/sql/sql_datatypes.asp

Percurso

Etapa 1 ~~Introdução banco de dados~~

Etapa 2 ~~SQL, tabelas e tipos de dados~~

Etapa 3 Manipulando dados