

Nasdaq Stock exchange SQL DDL Project

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SQL Basics

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Data Analyst Course

About this project

In this project I will demonstrate a basic Data Base of a stock market, in particular the Nasdaq exchange market (biggest exchange market for high-tech companies).

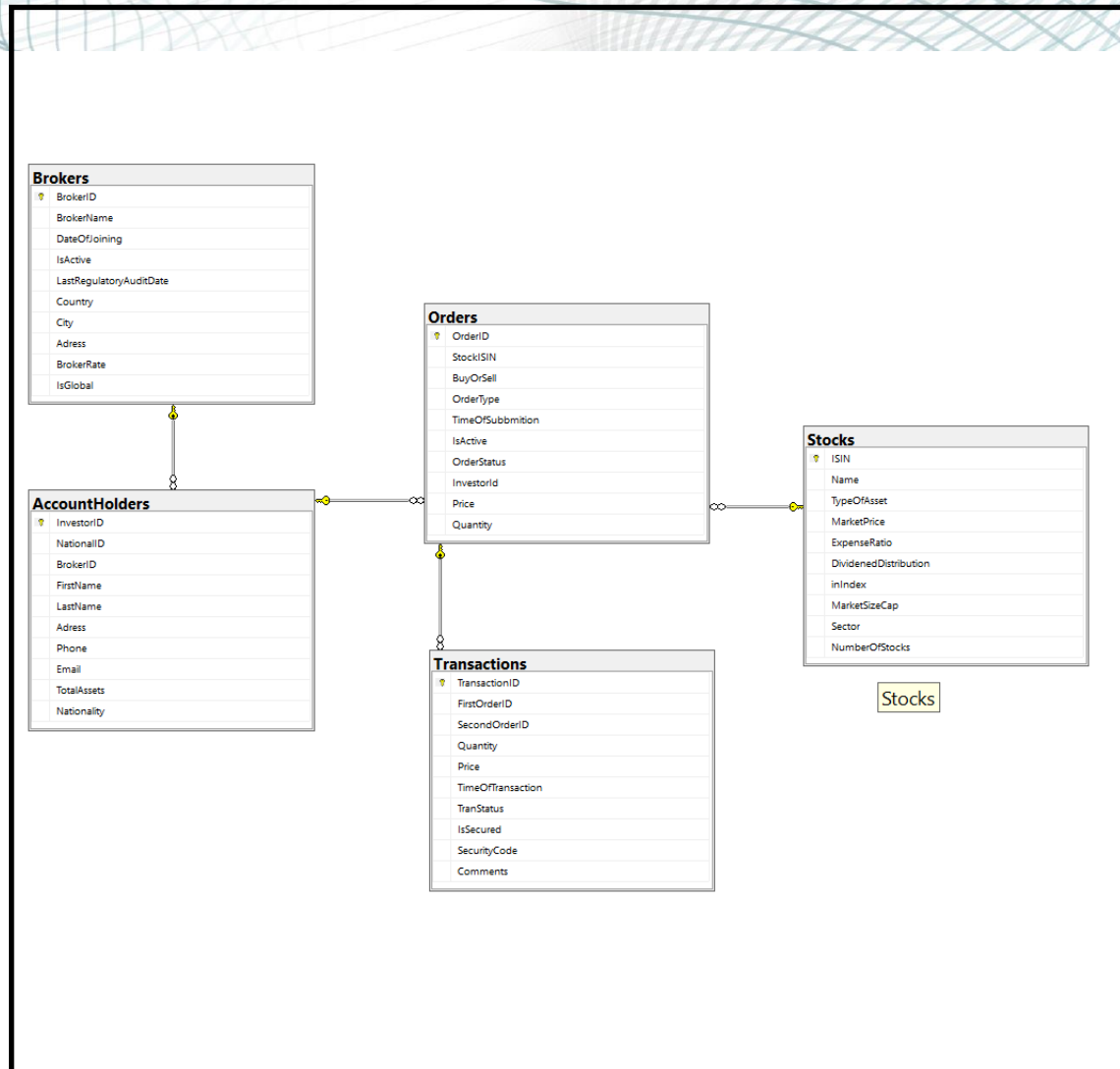
Every stock market has registered **Brokers** that mediate buy/sell orders from between their clients, **Account Holders**, and the market, the stock exchange. Once there are two matching active 'buy' and 'sell' orders that match, a **Transaction** is committed and the money in one account is exchanged for the stock in another.

The data base is created with SQL syntax using DDL and will contain five primary tables as follows:

Brokers, Account Holders, Stocks, Orders and Transactions.



Entity Relationship Diagram



Tables Description

Brokers table

Contains all the details of enlisted Brokers who have the permission to mediate buy/sell orders from customers to the stock exchange program.

Brokers			
Column Name	Column Type	Constraint	Comments
BrokerID	int	PK	Identity (1,1)
BrokerName	varchar(30)	not null,	
DateOfJoining	DATE		
IsActive	Bit	not null	
LastRegulatoryAuditDate	DATE	not null	
Country	VARCHAR(30)		
City	VARCHAR(18)		
Adress	nvarchar (60)		
BrokerRate	smallint		
isGlobal	bit		

Account-Holders

Contains a detailed list of all those who holds an investment account including the identity of their broker.

Account-Holders			
Column Name	Column Type	Constraint	Comments
InvestorID	int	PK	Identity (1,1)
NationalId	int	not null,	
Broker	int	FK from Brokers(BrokerID)	
First Name	VARCHAR(30)	not null	
Last Name	VARCHAR(30)	not null	
Adress	VARCHAR(30)	Default null	
Phone	NVARCHAR(11)	not null unique,	
Email	VARCHAR(35)	not null check((email like '%@%.%'))	
Total Assets	money		
Nationality	VARCHAR(10)	not null, check (NumberOfStocks >0)	

Stocks

A detailed table of all Marketable securities that can be bought, sold, or traded on the stock exchange.

Stocks			
Column Name	Column Type	Constraint	Comments
ISIN	int	PK	Identity (1,1)
Name	varchar(30)	not null,	
TypeOfAsset	varchar(18)	not null, check(TypeOfAsset in (Stock, Bond,ETF, MTF))	
MarketPrice	Money	not null	
ExpenseRatio	real	Default 0	
DividenedDistribution	VARCHAR(18)	check(DividenedDistribution in(Yearly, Quaterly, Monthly)), Default null	
Index	VARCHAR(18)	Default null	
MarketSizeCap	VARCHAR(10)	check(MarketSizeCap in (Large,Medium, Small, Blended))	
Sector	VARCHAR(18)	Default null	
NumberOfStocks	INT	not null, check (NumberOfStocks >0)	

Orders

Contains all the details of 'Buy' and 'Sell' orders that account holders transmit to the stock market such as what stock to buy or sell, at what price,

Orders			
Column Name	Column Type	Constraint	Comments
OrderID	int	PK	Identity (1,1)
StockISIN	int	FK from Stocks(ISIN)	
BuyOrSell	Varchar(4)	not null	
OrderType	VARCHAR(20)	check(OrderType in(Limit, StopLimit, Market, Short)), not null	
TimeOfSubbmition	datetime		
IsActive	Varchar(2)	not null, check(isActive in ('Y', 'N'))	
OrderStatus	VARCHAR(18)	check(OrderStatus in (Pending, Done, Cancelled, Updated))	
InvestorID	int	FK from Account-Holders(InvestorId)	
Price	money	not null	
Quantity	int	not null	

Transactions

A table that contains the details about every time a 'buy' order matched a 'Sell' order leading to the execution of the transaction.

Transactions			
Column Name	Column Type	Constraint	Comments
TransactionID	int	PK	Identity (1,1)
FirstOrderID	int	FK from orders(OrderID)	
SecondOrderID	int	FK from orders(OrderID)	
Quantity	int	not null	
Price	money	not null	
InvestorID1	int	FK from Account-Holders(InvestorId)	
InvestorID2	int	FK from Account-Holders(InvestorId)	
TransactionDate	VARCHAR(1)	Default null	
Status	VARCHAR(18)	check(Status in (Preforming, Done, Cancelled))	
IsSecured	VARCHAR(1)	check(IsSecured in ('Y', 'N'))	