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Databases CSCI-446

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Assignment04

ER-Diagram description

Entities: Customer, Order, Stock, Exchange, Bank

Customer is an entity that will get the user’s ID and connect them to either a transaction (Order or Stock) or their bank account. CustomerID is the primary key to this entity. Stock entity will hold the customer’s stock information and has a 2 one to many connections and 1 one to one connection. The Order entity has all the information on the customer’s stock orders. This entity has 2 one to many cardinalities. Exchange will keep the customer’s stock exchange type (whether selling or buying) and the amount. The exchangeID is it’s primary key and date would be the foreign Key. The last entity is Bank, which is a one to many and a one to one.

Relationships: Transaction, Has, Holds, Has, Reference (5 in total)

Transaction is relationship that has 3-way connectivity. It is connected to 3 entities which are Customer(1,m), Order(1,m), and Stock(1,m). Reference relationship is what connects stock to order. Stock entity is one to one with reference and one to many with Order. Hold relationship connects Bank and exchange entities. Bank has a one to one relationship and Exchange has one to many. There are 2 Has relationships in this database. Has 1 connects Customer and Bank and both are a one to many connectors. Has 2 it the relationship that connects Exchange and Stock and both are also one to many.

Attributes: CustomerID, Date, Type, BroughtPrice, SalePrice, OrderID, Status, ShareAmount, Symbol, Price, Company, ExchangeID, Amount, AccountID, Yes/No, ExchangeDate.

CustomerID is a the primary key to Customer entity and it will be used to distinguish a single customer. Date is an attribute that is used multiple times that will relate to other relations. Type is an attribute found on order that refers to what type of order is this meaning whether it is limit or market. BroughtPrice is how much the stock was bought for. SalePrice was how much the stock was being sold for. OrderID is a primary that will be used to track the specific order. Status attributes tells what is occurring with the specified order. ShareAmount meaning how much stock. Symbol what symbol the stock is. Price is how much the stock is being sold for. The Company attribute tells from what brand it is from. ExchangeID is a primary key to find the specified exchange. Amount is how much exchange amount is this exchange. AccountID is a primary key for a specific bank account for the customer. Yes/No attribute is whether the customer has a bank account or not. ExchangeDate refers to the date of exchange.

**Relational Schema:**

Keys and relations:

**Customer(**CustomerID, Password, *Username***):** The primary Key is CustomerID and Username as the foreign key that ia relation to Order.

**Order(**OrderID, *Symbol, Username,* Type, Saleprice, Status, BoughtPrice**):** The primary key is OrderID and 2 foreign keys Symbol and Username that relate to the customer and stock.

**Exchange(**ExchangeID, *ExchangeDate,* Amount**):** The primary Key is ExchangeID and 1 foreign key that relates to Exchange itself.

**Bank(**AccountID, *ExchangeDate***):** Primary key is AccountID and ExchangeDate is the foreign key that relates to exchange

**Final Schema:**

**Stock (**Symbol,Price, Company­**)**

**Transaction (**Date, ShareAmount**)**

**Order (**OrderID, *Symbol, Username,* Type, Saleprice, Status, BoughtPrice**)**

**Customer (**CustomerID, Password, *Username***)**

**Has (**Yes/No, *AccountID***)**

**Bank (**AccountID, *ExchangeDate***)**

**Holds (**ShareAmount, price**)**

**Exchange (**ExchangeID, *ExchangeDate,* Amount**)**

**Has (***Symbol***)**