Lab 1: Solutions

Instructions:

At this initial stage, your task is communicating with the client.
You should ask for details about the operation of the business, and the interest of the database.
Whenever you have something unclear, you should first turn to the client for clarification.
When the client is not available, you can make a decision based on your understanding - and you should always confirm with the client later on before moving to the next step.
The following solutions are from many possible ones. You can compare yours with Case 1 and 2, should work on your own for Case 3, and make the necessary assumptions.

Case 1:

Before confirming with the client, possible entities and their attributes, identifiers are:

- Stores:*StoreID, StoreName, Location, Contact.
- Employees: *EmployeeID, SSN, name, gender, DoB, position, salary, AffiliateStore.
- Vendors: *VendorName, Address, ContactPerson.
- Products: *Name, Price, Quantity, Description.

The relationships among these entities are based on my assumptions - I'll discuss with the client later on and make necessary modifications.

- A store may have many employees, and one employee must work for one store.
- A store may sell many products, and each product can be sold at many stores.
- A product must belong to one and only one vendor, and a vendor may provide one or more products.
- An employee must be supervised by another employee, and an employee may supervise many other employees.

Case 2:

Solution:
Before confirming with the client, possible entities and their attributes, identifiers are:

- Stocks: *stock#, companyName, exchangeMarket, description
- Customers: *customerID, name, phone, email, address
- Portfolio: customerName, currentValue
- Logs: *stock#, *date, openPrice, closePrice
- Transactions: *TransactionID, customerID, Portfolio, stock#, quantity, price, date, time

The relationships among these entities are based on my assumptions - I'll discuss with the client later on and make necessary modifications.

- A customer must have one or more portfolios, and a portfolio must belong to one and only one customer.
- A portfolio may have one or more stocks, and a stock may belong to one or more portfolios.
- A stock must have one or more logs, and one log must belong to one and only one stock
- A customer may have one or more transactions, and each transaction must be done by one and only one customer
- A portfolio may be in one or more transactions, and each transaction must include one and only one portfolio
- A transaction must have a stock, and a stock may be in one or more transactions.

Case 3:

You should make your own assumptions, and create an ER model based on your assumptions.