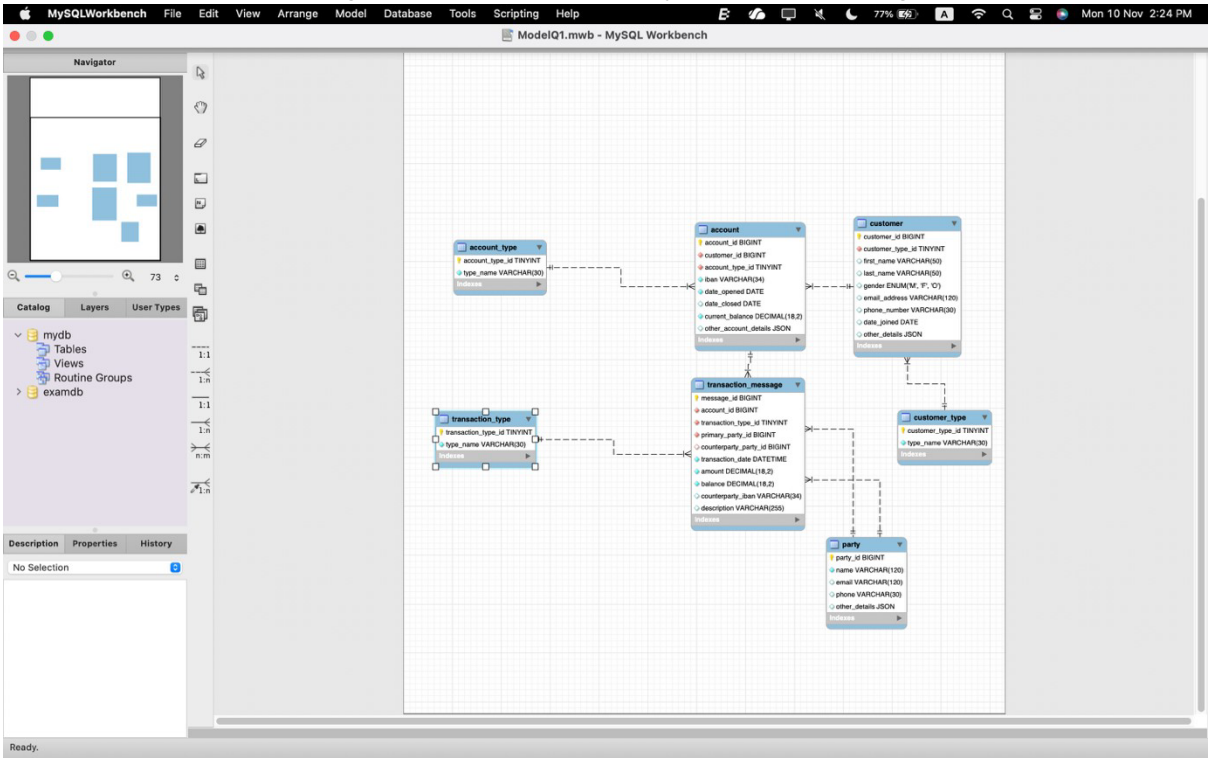
Assumption:

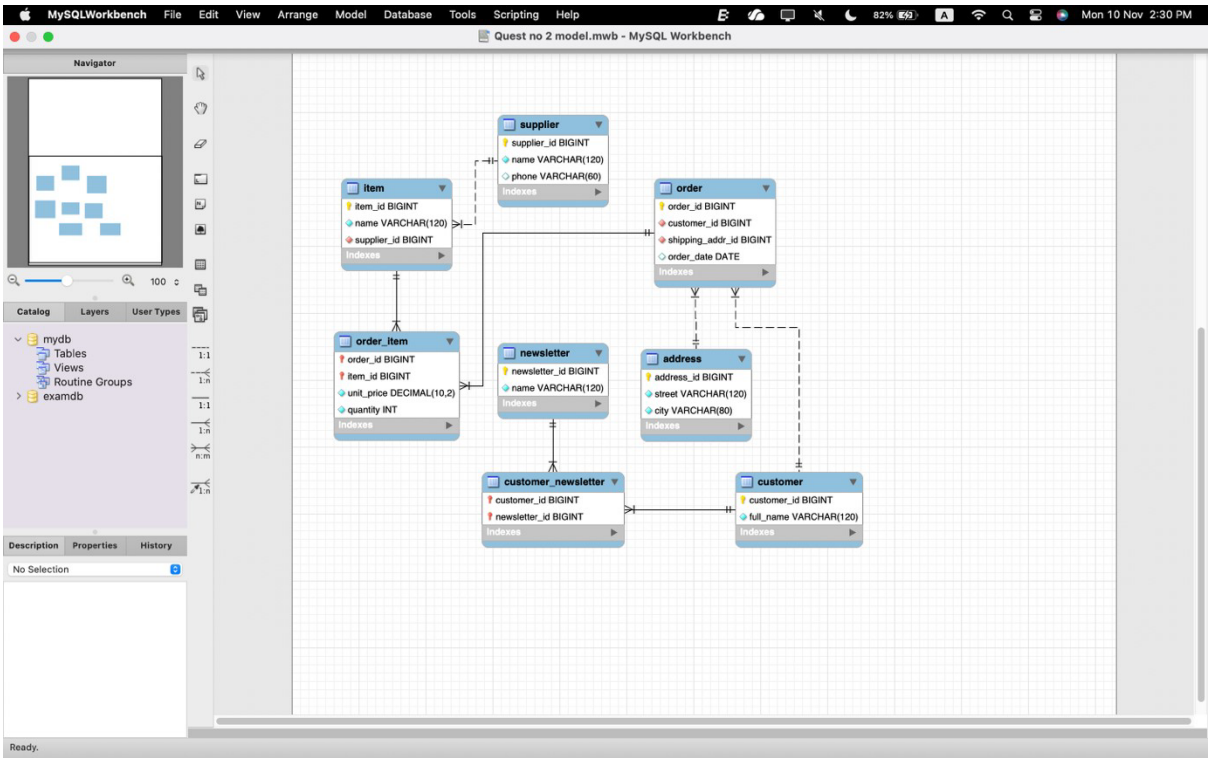
The ERD models a bank transaction management system in 3NF.

- Each Customer belongs to a CustomerType and may have many Accounts; each account has exactly one AccountType.
- Accounts may have multiple TransactionMessages, each referencing one TransactionType.
- Every transaction involves one mandatory primary party and may optionally include a counterparty.
- All non-key attributes depend only on their table's primary key; lookup tables remove repeating values.

  Therefore, the design eliminates redundancy and satisfies all given business rules.



Assummption:
The single wide report has repeating groups (multiple items per row, multiple newsletters per customer) and transitive dependencies (supplier phone depends on supplier, not on item/order). I decomposed into 3NF: customers, addresses, suppliers, items, newsletters, and orders with order lines. M:N relationships are resolved via `order_item` and `customer_newsletter`. All non-key attributes depend only on their table's PK; supplier phone sits on Supplier; shipping address sits on Address; prices at sale live on OrderItem. This eliminates redundancy and update anomalies.



**Assumption:**

The Art Gallery database is designed in Third Normal Form (3NF) to eliminate redundancy and maintain historical accuracy of artwork ownership.

- Artist, Painting, Customer, Owner, Ownership_History, and Exhibit are the core entities.
- Each Artist can create many Paintings, while every painting is created by exactly one artist.
- Customers purchase paintings, but because the gallery may buy back and resell works, ownership changes over time are stored in the Ownership_History table. Each record identifies which Owner (either the Gallery or a Customer) held a painting, the purchase date, the sale price, and optionally an end date when it was sold again.
- The Owner table generalizes ownership for both the gallery and its customers, allowing the same painting to cycle through multiple owners.
- The Exhibit table records the display of paintings, enabling multiple paintings (even by the same artist) to be shown simultaneously.
- All non-key attributes depend only on their table's primary key, and there are no repeating groups or transitive dependencies.