1. visual [Lucid chart](#)

Diagram 1: Order Management ER Diagram

- CUSTOMER
  - zip_code
  - cust_no (key)
  - c_name
    - c_name_f
    - c_name_l
- CUSTOMER —1— ORDERED —n— ORDER
- ORDER
  - actual_ship
  - estimate_ship (derived)
  - order_no (key)
  - receipt_date
  - amount
- ORDER —n— TAKEN —1— EMPLOYEE
- EMPLOYEE
  - zip_code
  - employee_no (key)
  - e_name
    - e_name_f
    - e_name_l
- ORDER —1— QUANTITY —n— PART
- PART
  - price
  - part_no (key)
  - stock_quantity
  - p_name

2. [Lucid chart](#)

Diagram 2: Movie ER Diagram

- EMPLOYEE
  - name
  - e_num
  - DOB (key)
- EMPLOYEE —n— ACTED_IN —n— MOVIE (role)
- EMPLOYEE —n— DIRECTED —n— MOVIE
- PROD_COMPANY
  - name (key)
  - address
- PROD_COMPANY —1— PRODUCED —n— MOVIE
- MOVIE
  - length_min
  - plot_outline
  - genre (multivalued)
  - title (key)
  - release_year (key)
- MOVIE —1— SAYS —n— QUOTE
- QUOTE
  - quote (key)
  - actor_num (key)

3.
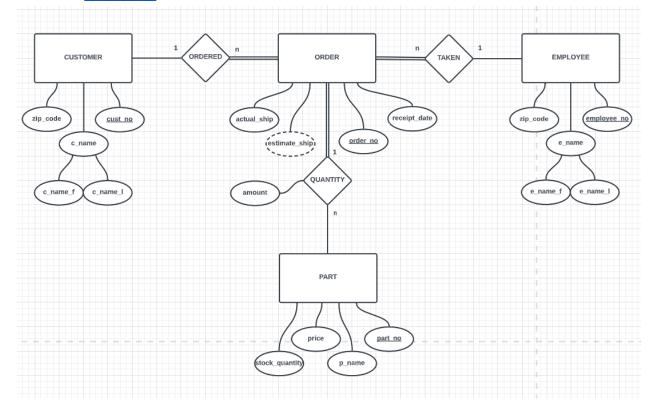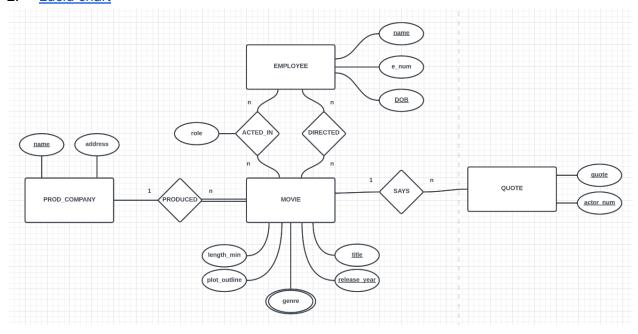   a. The strong entities are the ACCOUNT, LOAN, BANK, and CUSTOMER
   b. BANK_BRANCH is a weak entity. Its partial key is Branch_no and its identifying relationship is the BRANCHES relationship with BANK.
   c. The key attributes are Ssn-CUSTOMER, Loan_no-LOAN, Acct_no-ACCOUNT, and Code-BANK
   d. There are 5 relationships:
       i. BRANCHES is a 1 to many relationship. Both BANK and BANK_BRANCH have total participation.
       ii. ACCTS is a 1 to many relationship. BANK_BRANCH has partial participation while ACCOUNT has total participation.
       iii. LOANS is a 1 to many relationship. BANK_BRANCH has partial participation while LOAN has total participation.
       iv. A_C is a many to many relationship. ACCOUNT has total participation while CUSTOMER has partial participation.
       v. L_C is a many to many relationship. LOAN has total participation while CUSTOMER has partial participation.
   e. This constraint does not appear in the diagram. If this was shown in the diagram, the connection between LOAN and LOANS would specify a min of 0 and a max of 1,000. Similarly, the connection between CUSTOMER and A_C would specify a min of 1 and a max of infinity. Also the connection between CUSTOMER and L_C would specify a min of 0 and a max of 2.