Assignment 2

COMP 353 – Databases
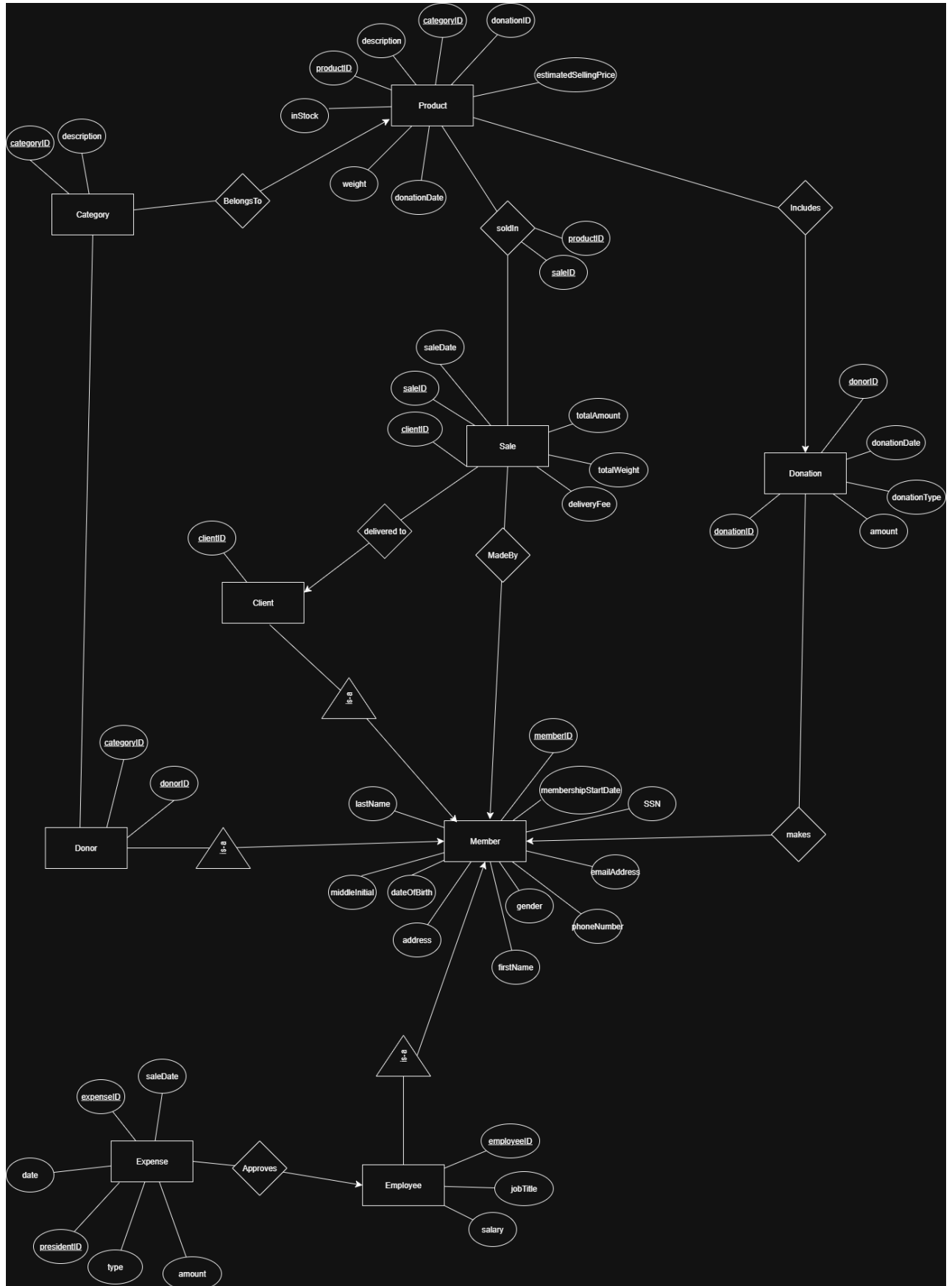
Dr. Khaled Jababo

Angel Asencios (40176253)

July 26th, 2025

Part I

a)

b) **Constraints Not Captured in ER:**

- Salary of 0 or NULL for volunteer.

- Default value of inStock = True for Products.

- Cannot sell a product unless inStock = True.

- Only a President can approve an Expense.

- Descriving delivery fee = 6.5 * totalWeight

- A Sale can only be delivered to a registered Member.

c)

Member(

   memberID PK,

   firstName,

   lastName,

   middleInitial,

   dateOfBirth,

   address,

   gender,

   phoneNumber,

   emailAddress,

   ssn,

   membershipStartDate,

   memberType

)

Employee(

   employeeID PK FK → Member(memberID),

   jobTitle,

salary

)

Category(

    categoryID PK,

    description

)

Donation(

    donationID PK,

    donorID FK → Member(memberID),

    donationDate,

    donationType,

    amount

)

Product(

    productID PK,

    description,

    categoryID FK → Category(categoryID),

    donationID FK → Donation(donationID),

    estimatedSellingPrice,

    donationDate,

    weight,

    inStock

)

DonorInterest(

   donorID FK → Member(memberID),

   categoryID FK → Category(categoryID),

   PRIMARY KEY (donorID, categoryID)

)

Sale(

   saleID PK,

   saleDate,

   totalAmount,

   totalWeight,

   deliveryFee,

   clientID FK → Member(memberID) -- Nullable

)

SalesItem(

   saleID FK → Sale(saleID),

   productID FK → Product(productID),

   PRIMARY KEY (saleID, productID)

)

Expense(

   expenseID PK,

   presidentID FK → Employee(employeeID),

   date,

   amount,

   type,

description

)

Client(

   clientID PK

 FK → Member(memberID)

)

d)

 Expense(

   expenseID PK,

   presidentID FK → Employee(employeeID),

   vicePresidentID FK → Employee(employeeID),

   date,

   amount,

   type,

   description

)

Part II

a)
```
SELECT
    M.memberID,
    M.firstName,
    M.lastName,
    M.middleInitial,
    M.dateOfBirth,
    M.address,
    M.gender,
    M.phoneNumber,
    M.emailAddress,
    M.ssn,
    E.jobTitle,
    M.membershipStartDate
FROM Member M
JOIN Employee E ON M.memberID = E.employeeID
JOIN Donation D ON M.memberID = D.donorID
WHERE E.jobTitle = 'Volunteer'
GROUP BY M.memberID, M.firstName, M.lastName, M.middleInitial, M.dateOfBirth,
    M.address, M.gender, M.phoneNumber, M.emailAddress, M.ssn,
    E.jobTitle, M.membershipStartDate
HAVING COUNT(D.donationID) >= 2;
```

b)
```
SELECT
    M.memberID,
    M.firstName,
    M.lastName,
    M.middleInitial,
    COUNT(DISTINCT P.categoryID) AS numCategories
FROM Member M
JOIN Donation D ON M.memberID = D.donorID
JOIN Product P ON D.donationID = P.donationID
GROUP BY M.memberID, M.firstName, M.lastName, M.middleInitial
HAVING COUNT(DISTINCT P.categoryID) >= 5
ORDER BY numCategories DESC, M.firstName ASC, M.lastName ASC;
```

c)

```
SELECT
    type,
    SUM(amount) AS totalAmount
FROM Expense
WHERE
    type IN ('rent', 'charity') AND
    date >= '2025-01-01' AND date <= '2025-06-30'
GROUP BY type;
```

d)

```
SELECT
    M.memberID,
    M.firstName,
    M.lastName,
    M.middleInitial,
    M.emailAddress,
    C.description AS categoryName
FROM Member M
JOIN DonorInterest DI ON M.memberID = DI.donorID
JOIN Category C ON DI.categoryID = C.categoryID
JOIN Product P ON P.categoryID = C.categoryID
WHERE P.donationDate BETWEEN '2025-06-01' AND '2025-06-07'
ORDER BY M.firstName ASC, M.lastName ASC, categoryName ASC;
```

e)

```
SELECT
    DATE_FORMAT(S.saleDate, '%Y-%m') AS saleMonth,
    COUNT(SI.productID) AS numProductsDelivered,
    ROUND(AVG(P.estimatedSellingPrice), 2) AS avgPrice,
    ROUND(AVG(P.weight), 2) AS avgWeight,
    ROUND(AVG(S.deliveryFee), 2) AS avgDeliveryFee
FROM Sale S
JOIN SalesItem SI ON S.saleID = SI.saleID
JOIN Product P ON SI.productID = P.productID
WHERE
```

```
    S.clientID IS NOT NULL AND
    S.saleDate BETWEEN '2025-01-01' AND '2025-12-31'
GROUP BY saleMonth
ORDER BY numProductsDelivered DESC;
```