ENSF 608- DATABASE LAB 1 Assignment

Task 1

1. Details:

- Top Level entity: Superstore
- Sub entities: Downtown branch, North Calgary, South Calgary
- Child entities and attributes: Departments, Customers, Employees, Infrastructure.

2.Entity 1: Downtown branch

- Child entity: Electronic department

  Attributes: Product ID, Description, price, Supplier, Available units.

- Child entity: Groceries department
  Attributes: Product ID, Description, price, Supplier, Available units.

- Child entity: Clothing department
  Attributes: Product ID, Description, price, Supplier, Available units.

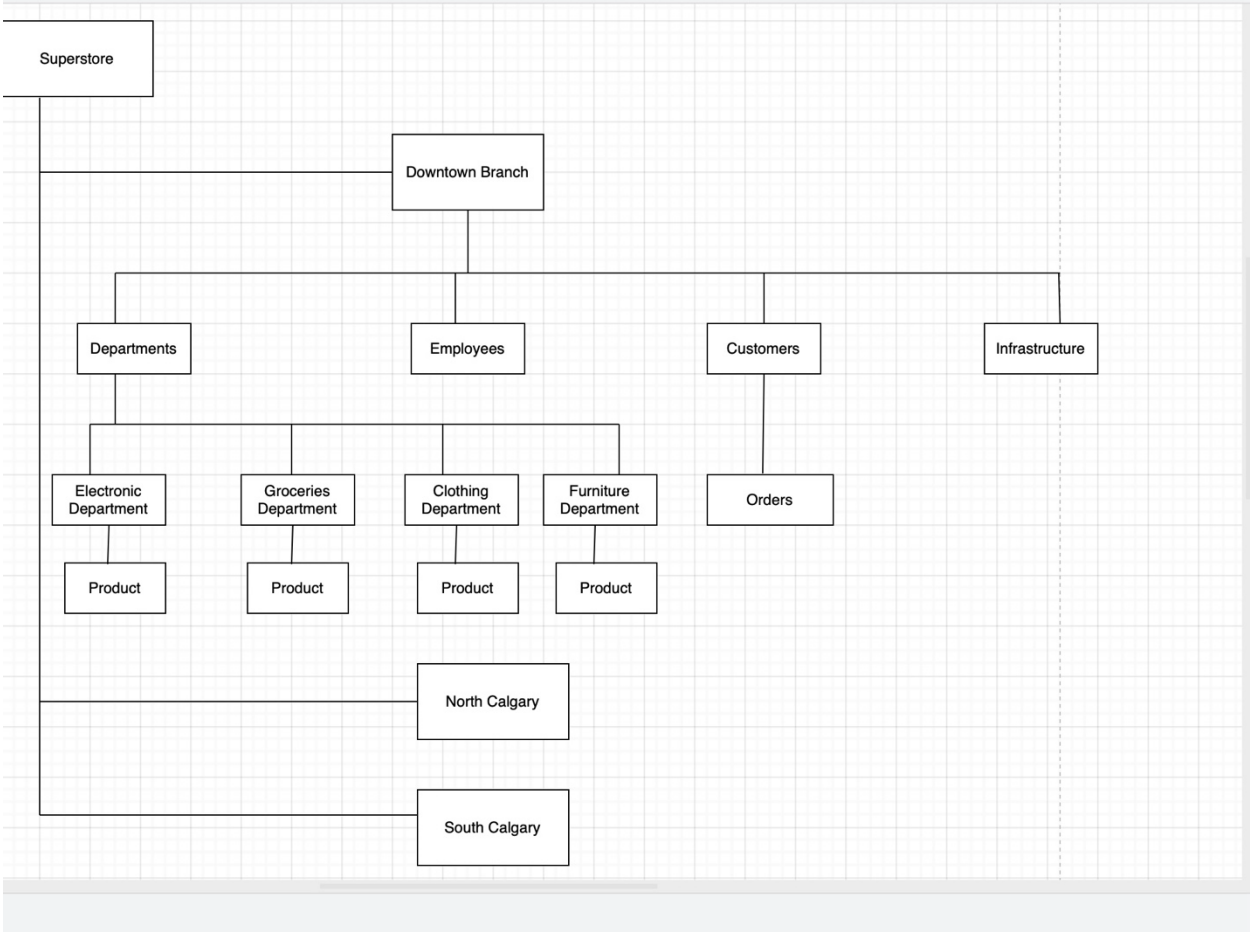
- Child entity: Furniture department
  Attributes: Product ID, Description, price, Supplier, Available units.

- Child entity: Employees
  Attributes: Employee ID, Name, Position, salary, Hiring date.

- Child entity: Customers
  Attributes: Customer ID, Name, Age, Contact Details, membership level.
  Child entity: Orders
  Attributes: Order ID, Date, price, Total amount, List of purchased items.

- Child entity: Infrastructure
  Attributes: Stored Goods, Checkout counters, Delivery trucks, in-store bakeries, Restaurants.

Task 2:


Superstore
Downtown Branch
Departments
Employees
Customers
Infrastructure
Electronic Department
Groceries Department
Clothing Department
Furniture Department
Orders
Product
Product
Product
Product
North Calgary
South Calgary

Task 3:

```
Plain Text
Superstore
|_Department
   |_Dept_Name: "Electronic"
      |_Details:(ID:1, Description:"TV", Price:"$500", Supplier:"LG",
      Avaliable_units: 50)
    |_Dept_Name: "Groceries"
      |_Details:(ID:2, Description:"Carrots", Price:"$500", Supplier:"Costco",
      Avaliable_units: 50)
    |_ |_Dept_Name: "Clothing"
      |_Details:(ID:3, Description:"women_cloth", Price:"$1500",
      Supplier:"Nike", Avaliable_units: 50)
    |_ |_Dept_Name: "Furniture"
      |_Details:(ID:4, Description:"Bed", Price:"$2500", Supplier:"Ikea",
      Avaliable_units: 50)

 |_Employees
    |_(ID:101, Name:"Heena", Position:"Software Developer", salary:"125000",
    Hiring Date:9/12/2023)

 |_Customers
    |_(ID:1, Name:"Heena", Age:25, contact details: "6477860017",
    Membership_level: "Gold"))
    |_Orders
      |_(ID:10, Date:"12//12/2025", Price: 1500, Total amount: "$125000",
      List_of_purchased_items: 25)

 |_Infrastructure
    |_(Stored_goods:"Flowers", Checkout counters:3, Delivery_truck:3,
    In-store_bakeries:5, Restaurants: 5))
```

Task 4:

1. I am taking example from furniture department. I have use only one item which is bed so
   Bed from furniture department whose details are:
   ID:4, price: 2500, supplier: IKEA, available units: 50
   Superstore-→ Downtown branch→ Furniture Department→Bed

2. As mentioned in task 3, Customer “Heena “purchased items of count 25 of worth amount &125000.
3. I have entered only one employee, so the details are: Employee name “Heena” working as software developer having salary $125000 and having hiring date: 9/12/2023.

Task 5

1. Hierarchical Model support only parent to child relationship which means child can have only one parent. As per the task and in general knowledge, superstore model needs to analysis data from multiple factors for e.g.: branch, department, etc. and hierarchical does not support multiple relationships or flexible querying. It is hard to retrieve data as it does have rigid structure. In superstore a single product can be sold to multiple customers, and a customer can buy many products to hierarchical model cannot easily represent many to many relationships.
2. If we are use this model, then we have to simplify the data and have to flatten it that way we can reduce the number of cross references which will reduce redundancy. We can also use pointers between entities to simulate cross-reference. which will help many to one relationship.
3. It’s easier to use relational database because it supports many to many relationships which is extremely useful for complex model. Relational database use SQL which is flexible and powerful for querying. It does avoid Redundancy by performing normalisation and enforce data integrity.