OPIM 3221 **Name: Daniel Lesh**

Assignment #2 - Logical Design (100 points)

Problem 1 -

Using the following relational database, **write out each relationship** between the tables below including primary and foreign key information. Make sure to include relationship type and cardinality for full credit. (Hint: There are 5 relationships you must list)

Grading Rubric: **(Total 40 points)**

- 8 points for correctly identifying each relationship from the tables
  - 2 points for listing the cardinality and modality of each relationship indicating the PK and FK along with names of entities involved

Employee#	Name	Position	Year Hired	Supervisor Number	Department Name

OFFICE STAFF

Department Name	Unit Number	Building_Loc	Size

DEPARTMENT

SalespersonID	Name	Office Number	Telephone#	Department Name	BackupID

SALESPERSON

Buyer Number	Buyer Name	Age	Address	City	State

BUYER

Lead Name	Type	DateofContact

LEADS

Department Name	Buyer Number	SalespersonID	Sale_Date	Price_sold	Type_of_Loan

CAR PURCHASE

- The Office Staff table has a 1 – M unary relationship with itself using the Employee# as the primary key and Supervisor Number as the foreign key. Exactly one Employee can supervise one to many Employees.
- The Department table has a 1 – M binary relationship with the Office Staff table. The Department Name is the primary key on the 1 side (Department table) and the foreign key on the many side (Office Staff table). The Employee# is the primary key in the Office Staff table. Exactly one Department has one to many Office Staff assigned to it.
- The Department table has a 1 – M binary relationship with the Salesperson Table. Department name is the primary key on the 1 side (Department table) and the foreign key on the many side (Salesperson table). SalespersonID is the primary key in the Salesperson table. Exactly one Department has one to many Salespersons assigned to it.
- The Salesperson table has a 1 – 1 unary relationship with itself using the SalespersonID as the primary key and BackupID as the foreign key. Exactly one salesperson backs up exactly one other salesperson.
- The Salesperson table, Department table, and the Buyer table have a M – M ternary relationship with each other creating the Associative table of Car Purchase. Department Name, Buyer Number, and SalespersonID are all foreign keys in the Department, Buyer, and Salesperson tables. Together with Sale_Date they are also the primary key of the Car Purchase table. One to many Departments can sell one to many cars. Exactly one buyer can purchase one to many cars. Exactly one salesperson can sell one to many cars.

Problem 2 -

Using the following Relational Diagram, convert this business environment into a well-structured database by drawing out all corresponding relational tables. **Make sure to indicate all primary and foreign key relationships**. Use proper notation for all values and make sure to include each table and field as shown for full credit.

Grading Rubric: **(Total 60 points)**

- 1 point for each correctly identified table name and fields listed
- 2 points for each correctly identified PK and FKs

Store_ID	Address	City	State	Zip Code

LOCATIONS

Employee_ID	Name	Position	Wage Rate	Start Date	Store_ID

EMPLOYEES

Supplier_ID	Company Name	Address	Phone #	Shipping Rates

SUPPLIERS

Customer_ID	Name	Phone_Number	Email	Loyalty_Program#

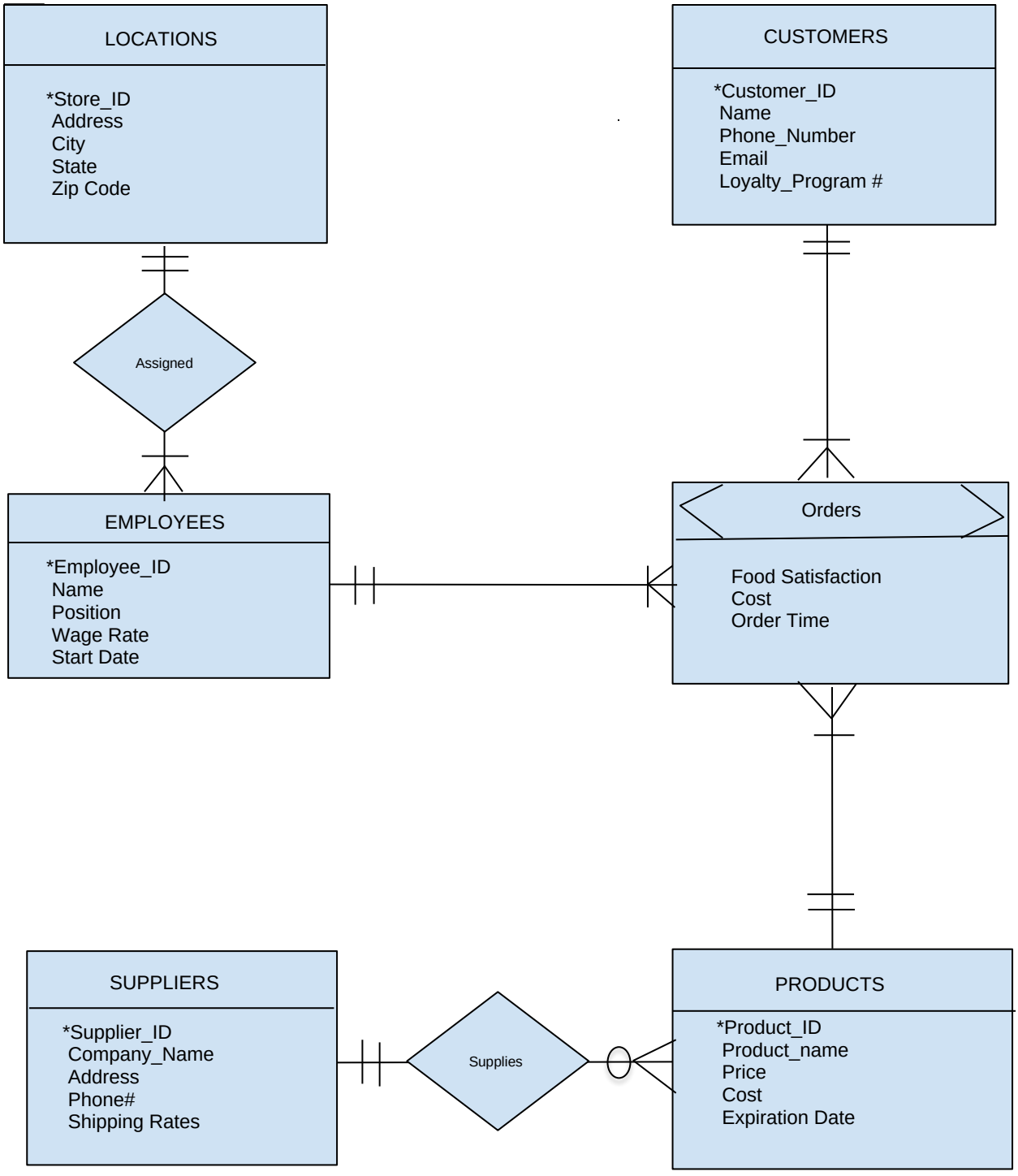
CUSTOMERS

Product_ID	Product_name	Price	Cost	Expiration Date	Supplier_ID

PRODUCTS

Product_ID	Customer_ID	Employee_ID	Order Time	Food Satisfaction	Cost

ORDERS


LOCATIONS
*Store_ID
Address
City
State
Zip Code
CUSTOMERS
*Customer_ID
Name
Phone_Number
Email
Loyalty_Program #
Assigned
EMPLOYEES
*Employee_ID
Name
Position
Wage Rate
Start Date
Orders
Food Satisfaction
Cost
Order Time
SUPPLIERS
*Supplier_ID
Company_Name
Address
Phone#
Shipping Rates
Supplies
PRODUCTS
*Product_ID
Product_name
Price
Cost
Expiration Date