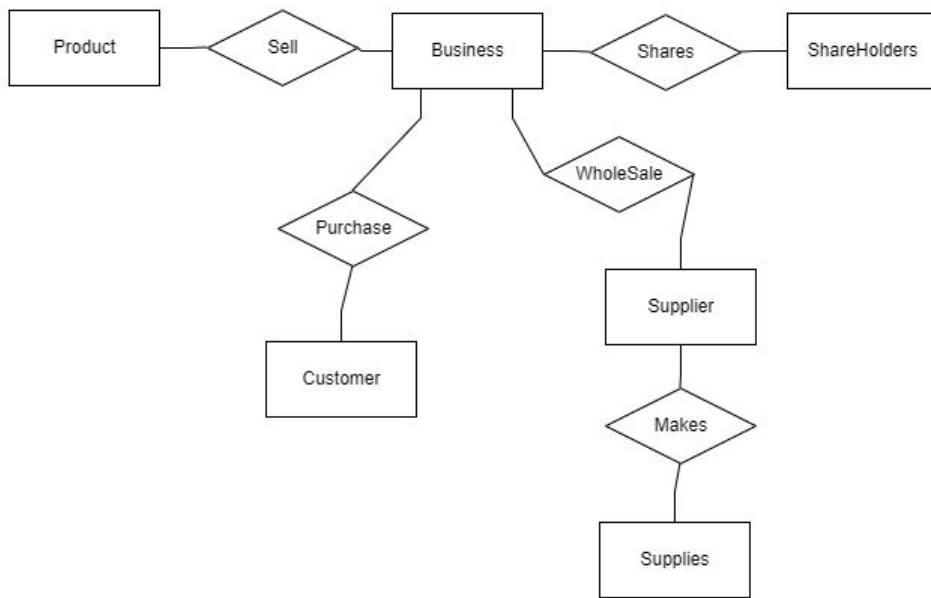


Project Phase 2: Design

[10 points] The three sections from phase 1.

1. Our database is based on business operations on a day-to-day basis. These operations must be kept tracked of every day to ensure that a business runs smoothly.



2. This database attempts to connect all parts of a business network and operations. A business would be able to use this information to identify transactions and use the day-to-day information to create an analytical database to optimize profits.
3. Two end-user groups that can use this database would be those such as product managers and business owners. Product managers would see the data from each entity and then use that data accordingly to manage resources and employees. The business owner could use this information from a front-end perspective to observe his/her profits.

2. [20 points] A list of database requirements. Various examples of database requirements

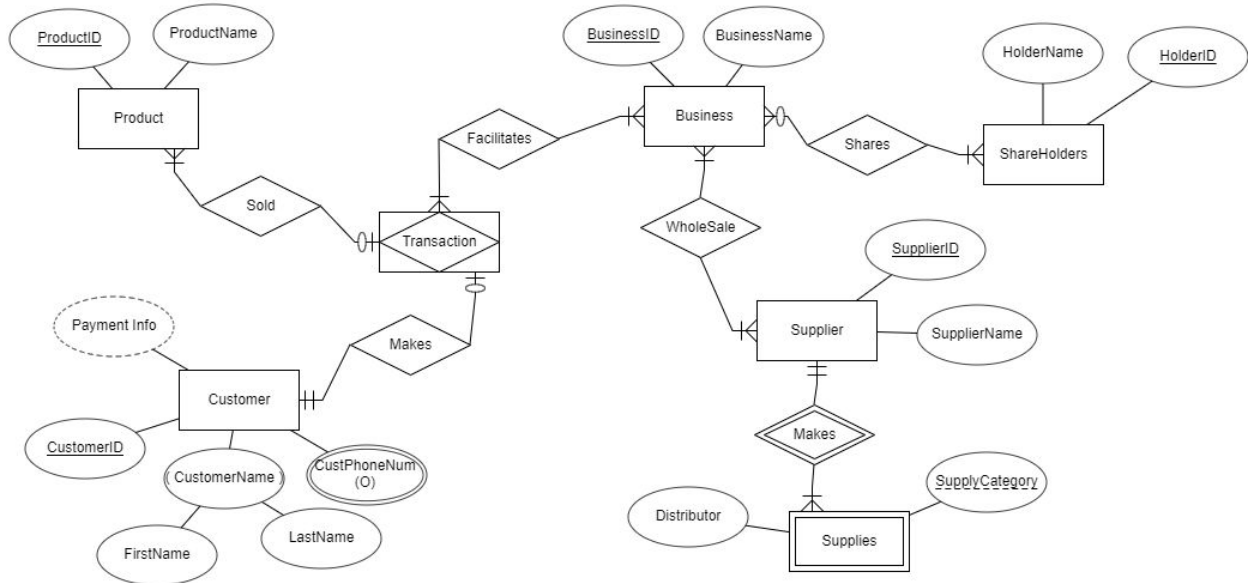
can be found in your text book. For example, see pages 30-31 and 35-36.

1. For each product, we keep track of a unique product ID (ProductID), and product name (ProductName).
2. For each business, we keep track of a unique business ID (BusinessID), and business name (BusinessName).
3. For each shareholder, we keep track of a unique shareholder ID (HolderID), and shareholder name (HolderName).
4. For each customer, we keep track of a unique customer ID (CustomerID), the customer's name (CustomerName) which is composed of a first and last name (FirstName) and (LastName), derived payment information (PaymentInfo), and an optional customer phone number (CustPhoneNumber).
5. For each supplier, we keep track of a unique supplier ID (SupplierID), and supplier name (SupplierName).
6. For each supply, we keep track of a partial key supply category (SupplyCategory), and distributor (Distributor).
7. Each product is sold in an optional number but possibly many transactions.
8. Each transaction sells at least one product but possibly many products.
9. Each customer makes an optional number but possibly many transaction.
10. Each transaction is made by one and only one customer.
11. Each business facilitates at least one but possibly many transactions.
12. Each transaction is facilitated by at least one but possibly many businesses.
13. Each business has shares with at least one but possibly many shareholders.
14. Each shareholder holds shares with an optional number but possibly many businesses.
15. Each business wholesales from at least one but possibly many suppliers.
16. Each supplier is the wholesale of at least one but possibly many businesses.
17. Each supplier makes at least one but possibly many supplies.
18. Each supply is made by one and only one supplier.

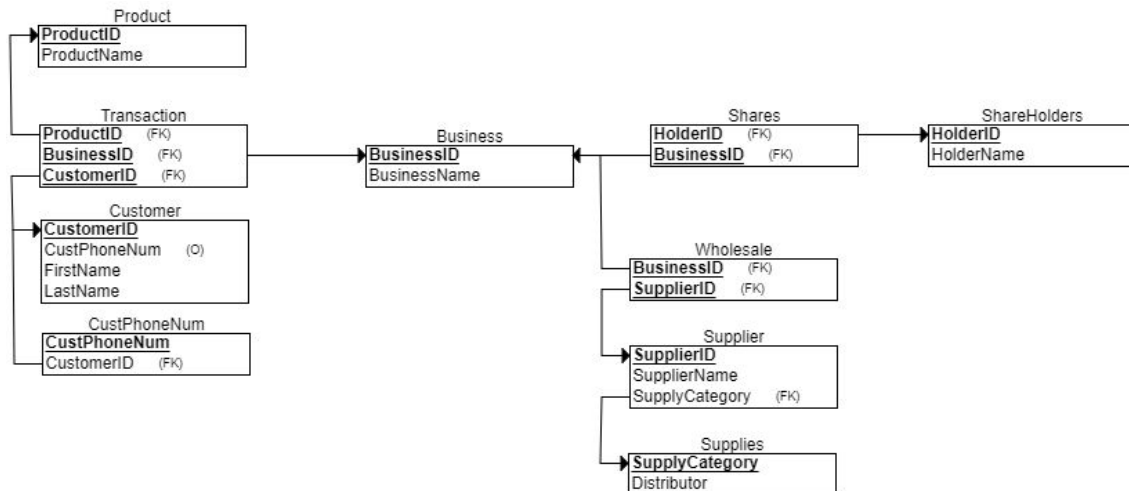
3. [20 points] An ERM diagram that represents all entities and their (named, bidirectional)

relationships. All attributes should be listed for each entity and all unique attributes identified using ERM notation. All attribute types including composite, multivalued, derived and optional attributes should be identified using ERM notation as applicable.

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Van Steinbrenner



4. [20 points] A Relational Data Model (RDM) that represents all the table structures mapped from your ERM. All columns should be listed for each relation and all primary keys, foreign keys and optional columns be identified using RDM notation. Use the diagramming tool ERD+ (<https://erdplus.com>) for drawing your RDM.



5. [10 points] A data dictionary that lists information on all the relations. For each relation list all the columns including its data type, domain and any constraints for the column.

Attributes	Data Type	Domain	Constraints
ProductID	int	0-9 digits	No Same ID #
BusinessID	int	0-9 digits	No Same ID #
CustomerID	int	0-9 digits	No Same ID #
HolderID	int	0-9 digits	No Same ID #
SupplierID	int	0-9 digits	No Same ID #
SupplierCategory	int	0-9 digits	No Same ID #
FirstName	String	< 15 chars	Only Alphabet Characters
LastName	String	< 20 chars	Only Alphabet Characters
CustPhoneNum	String	'-' and 0-9 digits	000-000-0000
BusinessName	String	< 80 chars	Only Alphabet Characters
SupplierName	String	< 80 chars	Only Alphabet Characters
HolderName	String	< 50 chars	Only Alphabet Characters
Distributor	String	< 80 chars	Only Alphabet Characters

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6. [10 points] Sample data for at least 3 rows of each table. This data should not violate entity integrity nor referential integrity.

Customer:

<u>CustomerID</u> (PK)	FirstName	LastName	<u>CustPhoneNum</u> (FK)
1	Fredrick	Thomas	(323) 554-7765
2	Abigail	Redwater	(323) 788-9901
3	Billy	Kilgore	(323) 554-5542

Product:

<u>ProductID</u> (PK)	ProductName
1	Hammer
2	Nail
3	Wrench

Business:

<u>BusinessID</u> (PK)	BusinessName
1	Terry's Tools
2	Cornell's Corks
3	Walter's Wines

Team Modest
Day-to-Day Business Transactions

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Jevin Dement
Chris Moore
Van Steinbrenner

Shareholder:

<u>HolderID</u> (PK)	HolderName
1	Ivan's Investments
2	Thomas Jane
3	Fred's Funding

Transaction:

<u>ProductID</u> (FK)	<u>BusinessID</u> (FK)	<u>CustomerID</u> (FK)
1	3	2
2	2	3
3	1	1

Shares:

<u>HolderID</u> (FK)	<u>BusinessID</u> (FK)
1	3
2	2
3	1

Team Modest
Day-to-Day Business Transactions

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Supplier:

<u>SupplierID</u> (PK)	SupplierName	<u>SupplierCategory</u> (FK)
1	Sally's Supplies	Food
2	Ernie's Essentials	Tools
3	Neil's Necessities	Electronics

Wholesale:

<u>BusinessID</u> (FK)	<u>SupplierID</u> (FK)
1	3
2	2
3	1

Supplies:

<u>SupplyCategory</u> (Partial Key)	Distributor
Food	Bob's Boys
Tools	Perry's People
Electronics	Momma's Movers