Contributors to this project:

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20191566103

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20191566151
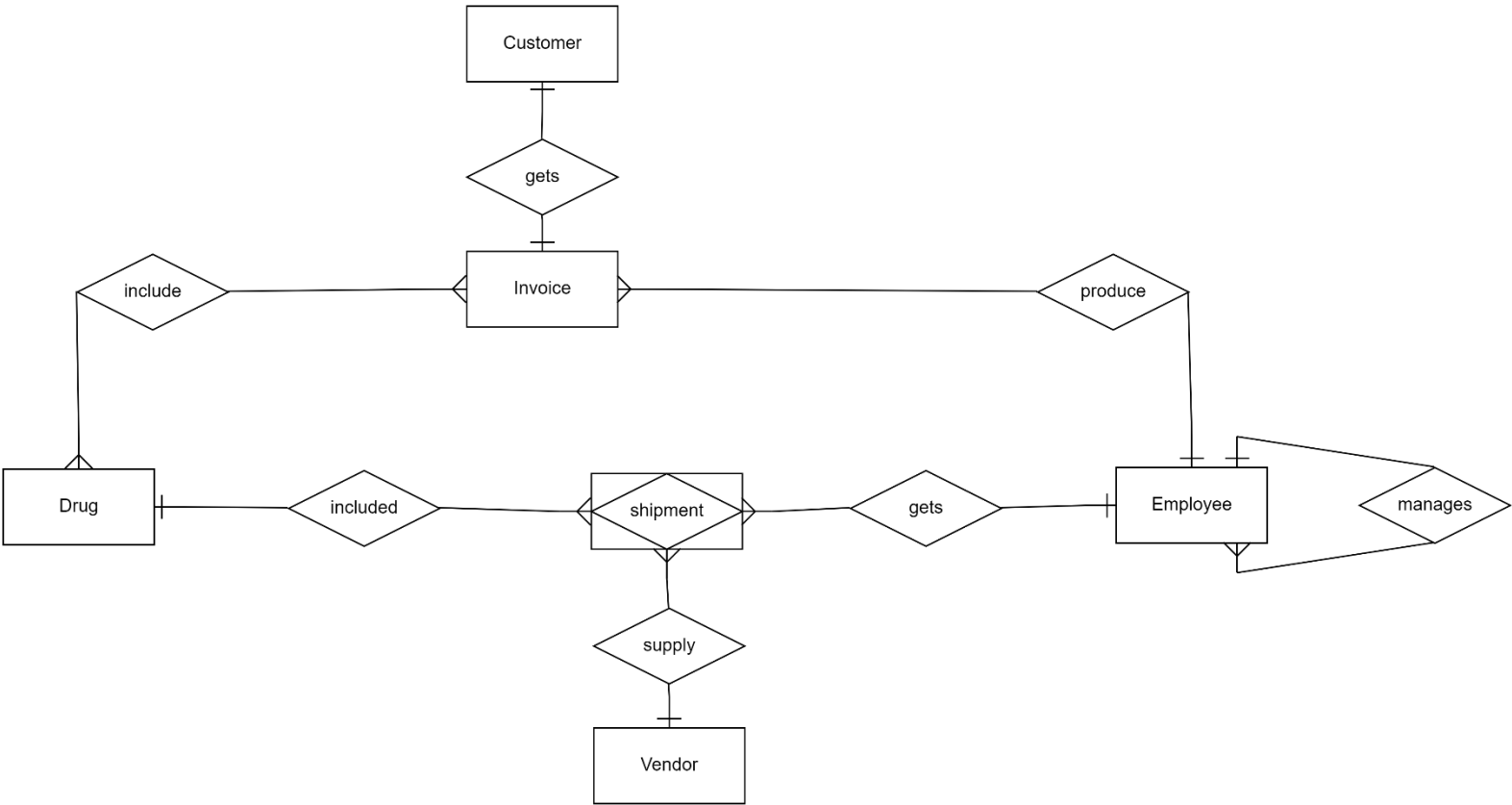
4- Ziad Elsayed Mohamed Elsayed
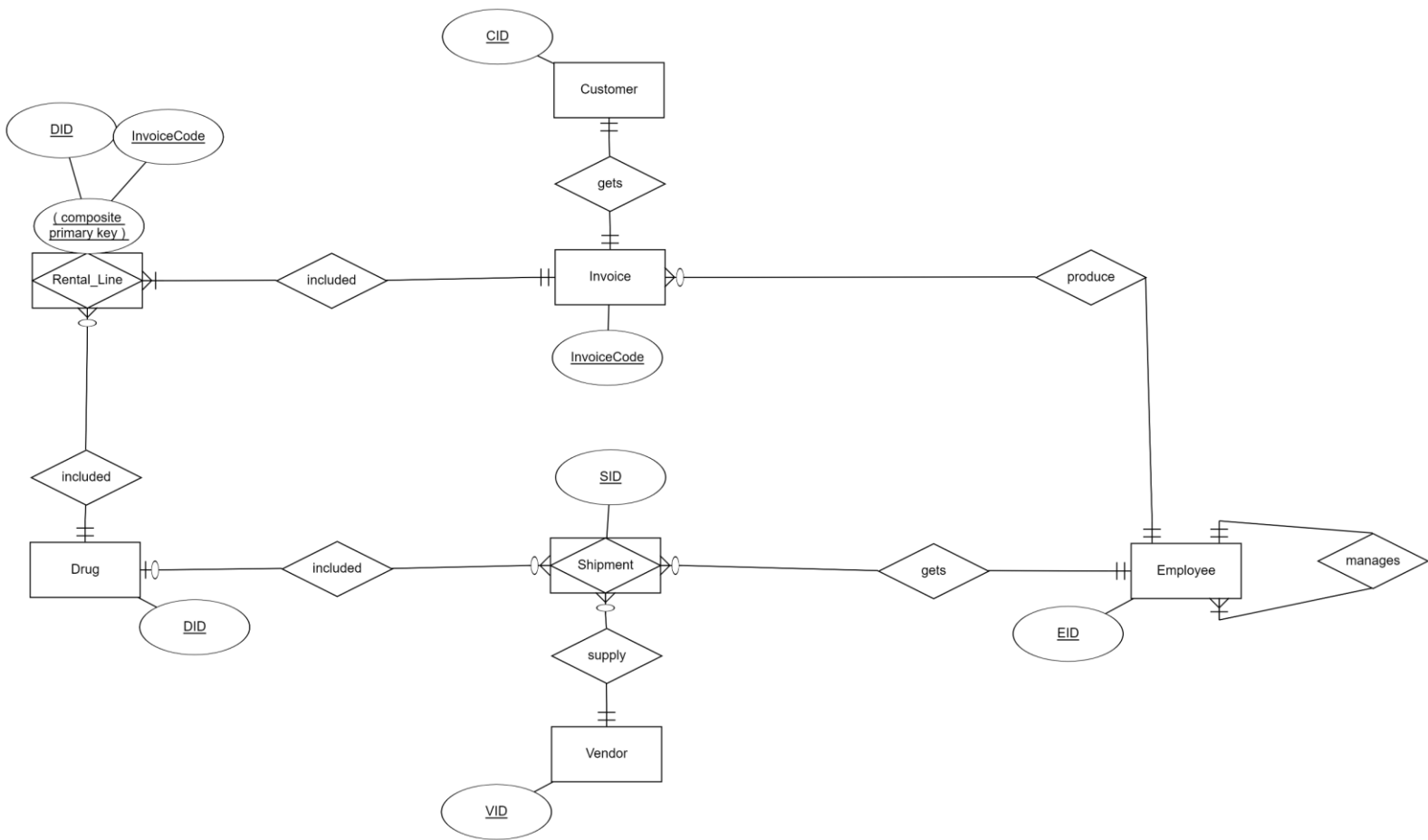
20191566119

5- Abdelrahman Hossam Ali

20191480280

Business Rules:

- **Costumer** must get one **invoice**
- **Invoice** must be gotten by one **Costumer**
- **Invoice** must be produced by one **Employee**
- **Employee** may produce one or more **invoice**
- **Employee** must be managed by one **Employee**
- **Employee** must manage one or more **Employee**
- **Employee** may get one or more **Shipment**
- **Shipment** must be gotten by one **Employee**
- **Shipment** may include one or more **drug**
- **Drug** may be included in one or more **Shipment**
- **Vendor** may supply one or more **shipment**
- **Shipment** must be supplied by one **vendor**
- **Drug** may be included in one or more **rental line**
- **Rental line** must include one **drug**
- **Rental line** must be included in one **invoice**
- **Invoice** must include one or more **rental line**

Conceptual Data Model:

```
                          ┌──────────────┐
                          │   Customer   │
                          └──────┬───────┘
                                 │
                             ╱───┴───╲
                            ╱  gets   ╲
                            ╲         ╱
                             ╲───┬───╱
                                 │
  ╱─────────╲           ┌────────┴────────┐           ╱─────────╲
 ╱  include  ╲──────────│     Invoice     │───────────╲  produce ╲
 ╲           ╱          └─────────────────┘           ╲          ╱
  ╲─────────╱                                          ╲────┬────╱
       │                                                    │
┌──────┴───┐    ╱─────────╲   ╱─────────╲   ╱────────╲  ┌───┴──────┐   ╱─────────╲
│   Drug   │────╲ included ╲──╲ shipment ╲──╲  gets   ╲─│ Employee │───╲ manages  ╲
└──────────┘    ╲          ╱  ╲          ╱  ╲         ╱ └──────────┘   ╲          ╱
                 ╲─────────╱   ╲────┬────╱   ╲────────╱                 ╲─────────╱
                                    │
                                ╱───┴───╲
                               ╱ supply  ╲
                               ╲         ╱
                                ╲───┬───╱
                                    │
                              ┌─────┴─────┐
                              │  Vendor   │
                              └───────────┘
```

Key-Based Data Model:

Fully Attributed Data Model:

Customer

PK	CID
	CustomerName
	Address
	PhoneNo.

Invoice

PK	InvoiceCode
	InvoiceDate

Employee

PK	EID
	Salary
	Address.
	PhoneNo.
	ShiftStart
	ShiftEnd

Drug

PK	DID
	Price
	Usage
	DosageForm
	TradeName
	ExpiryDate
	SideEffects
	PatchNo.

Rental_Line

PK, FK	DID
PK, FK	InvoiceCode

Shipment

PK	SID
FK	EID
FK	VID
FK	DID
	ShipmentDate
	Quantity

Vendor

PK	VID
	VendorName
	ReleaseDate
	Address