

Example1:

## Sales Order

***Fiction Company  
202 N. Main  
Mahattan, KS 66502***

**CustomerNumber:** 1001  
**Customer Name:** ABC Company  
**Customer Address:** 100 Points  
Manhattan, KS 66502

**Sales Order Number:** 405  
**Sales Order Date:** 2/1/2000  
**Clerk Number:** 210  
**Clerk Name:** Martin Lawrence

Item Ordered	Description	Quantity	Unit Price	Total
800	widgit small	40	60.00	2,400.00
801	tingimajigger	20	20.00	400.00
805	thingibob	10	100.00	1,000.00
<b>Order Total</b>				<b>3,800.00</b>

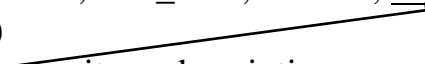
**Primary Key:** Sales Order Number

## Problem1 solution

Sales(cust\_num,cust\_name,cust\_address,sales\_num,sales\_date,  
clerk\_num,clerk\_name,item\_order,description,quantity,unit\_price,ordertotal)

### 1<sup>st</sup> NF

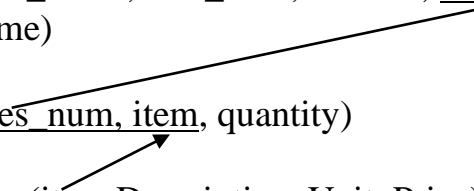
Sales (cust\_name, cust\_num, address, sales\_num, sales\_date, clerk\_num,  
clerk\_name)  
Item (sales\_num, item, description, quantity, unit\_price, Total)



```
graph LR; Item --> Sales
```

### 2<sup>st</sup> NF

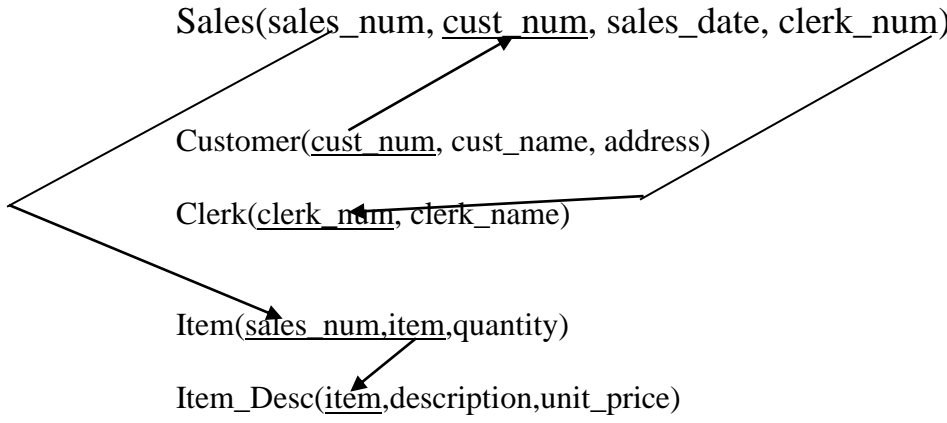
Sales (cust\_name, cust\_num, address, sales\_num, sales\_date, clerk\_num,  
clerk\_name)  
Item (sales\_num, item, quantity)  
Item\_Desc(item,Description, Unit\_Price)



```
graph LR; Item --> Sales; Item_Desc --> Item
```

### 3<sup>st</sup> NF

Sales(sales\_num, cust\_num, sales\_date, clerk\_num)  
Customer(cust\_num, cust\_name, address)  
Clerk(clerk\_num, clerk\_name)  
Item(sales\_num, item, quantity)  
Item\_Desc(item, description, unit\_price)



```
graph TD; Sales --> Item; Sales --> Customer; Sales --> Clerk; Item --> Item_Desc
```

Example2:

### Unnormalized Table

Dept #	Dept Name	Location	Mgr Name	Mgr ID No.	Tel Extn.	Cust #	Cust Name	Date of Complaint	Nature of Complaint
11232	Soap Division	Cincinnati	Mary Samuel	S11	7711	P10451	Robert Drumtree	12/01/1998	Poor Service
						P10480	Steven Parks	14/01/1998	Discourteous Attendant

```
graph TD; D1[Dept #] --> D2[Dept Name]; D1 --> L[Location]; D1 --> M1[Mgr Name]; D1 --> M2[Mgr ID No.]; D1 --> T[Tel Extn.]; D1 --> C1[Cust #]; D1 --> C2[Cust Name]; D1 --> D3[Date of Complaint]; D1 --> N[Nature of Complaint]; D2 --> L; D2 --> M1; D2 --> M2; D2 --> T; D2 --> C1; D2 --> C2; D2 --> D3; D2 --> N; L --> M1; L --> M2; L --> T; L --> C1; L --> C2; L --> D3; L --> N; M1 --> M2; M1 --> T; M1 --> C1; M1 --> C2; M1 --> D3; M1 --> N; M2 --> T; M2 --> C1; M2 --> C2; M2 --> D3; M2 --> N; T --> C1; T --> C2; T --> D3; T --> N; C1 --> C2; C1 --> D3; C1 --> N; C2 --> D3; C2 --> N; D3 --> N;
```

## Problem 2 solution

**Company**(dept\_num, dept\_name, location, mgr\_NAME, mgr\_ID, cust\_name, cust\_num\_date, nature, tel)

### 1<sup>st</sup> NF

**Company**(dept\_num, dept\_name, location, mgr\_NAME, mgr\_ID, tel)

**Customer**(dept\_num, cust\_name, cust\_num\_date, nature)

### 2<sup>st</sup> NF

**Company**(dept\_num, dept\_name, location, mgr\_NAME, mgr\_ID, tel)

**Customer**(dept\_num, cust\_num, date, nature)

**Customer\_Name**(cust\_num, cust\_name)

### 3<sup>st</sup> NF

**Company**(dept\_num, dept\_name, location, mgr\_ID, tel)

**Customer**(dept\_num, cust\_num, date, nature)

**Customer\_Name**(cust\_num, cust\_name)

**Manager**(mgr\_ID, mgr\_NAME)

