# Normalization – Online Order Placing

| Customer Order Bill | | | | |
|---|---|---|---|---|
| Customer ID | 1001 | | Order Id | 1001 |
| Customer Name | SunBeam Infotech | | Order Date | 16-Apr-2018 |
| Customer Address | Plot R/2 | | Delivery Date | 20-Apr-2018 |
| | Marketyard Road | | | |
| | Pune | | | |
| | 411037 | | | |
| Phone | 020-24260308 | | | |
| | | | | |
| **Product Id** | **Product Name** | **Quantity** | **Product Rate** | **Product Total** |
| 101 | Notebook | 4 | 20 | 80 |
| 102 | Pencil | 10 | 2 | 20 |
| 103 | File | 2 | 25 | 50 |
| | | | **Bill Total** | **150** |

| Paper Work | | |
|---|---|---|
| 1. | CID | Int, compulsory |
| 2. | CNAME | alphabets, compulsory |
| 3. | CADDR | e.g. pin – 6 digits, colmulsory |
| 4. | CPHONE | 16 digits |
| 5. | OID | Int |
| 6. | ODATE | Date and time |
| 7. | ODELDATE | Date |
| 8. | PID | Int |
| 9. | PNAME | Chars |
| 10. | PRATE | Fractional values |
| 11. | PQTY | Int (cannot be –ve) |
| 12. | PTOTAL | ... |
| 13. | FTOTAL | ... |

| CUSTOMER_PLACE_ORDER | | |
|---|---|---|
| 1. | CID | INT |
| 2. | CNAME | VARCHAR(40) |
| 3. | CAREA | VARCHAR(20) |
| 4. | CSTREET | VARCHAR(20) |
| 5. | CCITY | VARCHAR(20) |
| 6. | CPIN | CHAR(6) |
| 7. | CPHONE | VARCHAR(14) |
| 8. | OID | INT |
| 9. | ODATE | DATETIME |
| 10. | ODELDATE | DATE |
| 11. | PID | INT |
| 12. | PNAME | VARCHAR(40) |
| 13. | PRATE | DECIMAL(7,2) |
| 14. | PQTY | INT |
| 15. | PTOTAL | DECIMAL(7,2) |
| 16. | FTOTAL | DECIMAL(7,2) |

| CUSTOMER_PLACE_ORDER --> UNF | | |
|---|---|---|
| 1. | CID | INT |
| 2. | CNAME | VARCHAR(40) |
| 3. | CAREA | VARCHAR(20) |
| 4. | CSTREET | VARCHAR(20) |
| 5. | CCITY | VARCHAR(20) |
| 6. | CPIN | CHAR(6) |
| 7. | CPHONE | VARCHAR(14) |
| 8. | OID | INT --> PK |
| 9. | ODATE | DATETIME |
| 10. | ODELDATE | DATE |
| 11. | PID | INT |
| 12. | PNAME | VARCHAR(40) |
| 13. | PRATE | DECIMAL(7,2) |
| 14. | PQTY | INT |

| Order Id | Product Id | Product Name | Quantity | Product Rate | Product Total |
|---|---|---|---|---|---|
| 1001 | 101 | Notebook | 4 | 20 | 80 |
| 1001 | 102 | Pencil | 10 | 2 | 20 |
| 1001 | 103 | File | 2 | 25 | 50 |

| ORDERED_PRODUCTS | | |
|---|---|---|
| 1. | PID | INT --> PK |
| 2. | PNAME | VARCHAR(40) |
| 3. | PRATE | DECIMAL(7,2) |
| 4. | PQTY | INT |

| ORDERED_PRODUCTS <-- 1-NF | | |
|---|---|---|
| 1. | OID | INT --> CPK |
| 2. | PID | INT --> CPK |
| 3. | PNAME | VARCHAR(40) |
| 4. | PRATE | DECIMAL(7,2) |
| 5. | PQTY | INT |

| CUSTOMER_ORDERS <-- 1-NF | | |
|---|---|---|
| 1. | CID | INT |
| 2. | CNAME | VARCHAR(40) |
| 3. | CAREA | VARCHAR(20) |
| 4. | CSTREET | VARCHAR(20) |
| 5. | CCITY | VARCHAR(20) |
| 6. | CPIN | CHAR(6) |
| 7. | CPHONE | VARCHAR(14) |
| 8. | OID | INT --> PK |
| 9. | ODATE | DATETIME |
| 10. | ODELDATE | DATE |

| ORDER_DETAILS <-- 2-NF | | |
|---|---|---|
| 1. | OID | INT <-- CPK |
| 2. | PID | INT <-- CPK |
| 3. | PQTY | INT |

| PRODUCTS <-- 2-NF | | |
|---|---|---|
| 1. | PID | INT <-- PK |
| 2. | PNAME | VARCHAR(40) |
| 3. | PRATE | DECIMAL(7,2) |

| CUSTOMER_ORDERS <-- 2-NF | | |
|---|---|---|
| 1. | CID | INT |
| 2. | CNAME | VARCHAR(40) |
| 3. | CAREA | VARCHAR(20) |
| 4. | CSTREET | VARCHAR(20) |
| 5. | CCITY | VARCHAR(20) |
| 6. | CPIN | CHAR(6) |
| 7. | CPHONE | VARCHAR(14) |
| 8. | OID | INT <-- PK |
| 9. | ODATE | DATETIME |
| 10. | ODELDATE | DATE |

## CUSTOMERS

| | | | |
|---|---|---|---|
| 1. | CID | INT | PK |
| 2. | CNAME | VARCHAR(40) | |
| 3. | CAREA | VARCHAR(20) | |
| 4. | CSTREET | VARCHAR(20) | |
| 5. | CCITY | VARCHAR(20) | |
| 6. | CPIN | CHAR(6) | |
| 7. | CPHONE | VARCHAR(14) | |

## ORDERS

| | | | |
|---|---|---|---|
| 1. | CID | INT | FK |
| 2. | OID | INT | PK |
| 3. | ODATE | DATETIME | |
| 4. | ODELDATE | DATE | |

## ORDER_DETAILS

| | | | |
|---|---|---|---|
| 1. | OID | INT | FK |
| 2. | PID | INT | FK |
| 3. | PQTY | INT | |

## PRODUCTS

| | | | |
|---|---|---|---|
| 1. | PID | INT | PK |
| 2. | PNAME | VARCHAR(40) | |
| 3. | PRATE | DECIMAL(7,2) | |

**ER-DIAGRAM**

| CUSTOMERS | ORDERS | ORD_DETAILS | PRODCTS |
|---|---|---|---|
| CID | OID | OID | PID |
| CNAME | CID | PID | PNAME |
| CAREA | ODATE | PQTY | PRATE |
| CSTREET | ODELDATE | | |
| CCITY | | | |
| CPIN | | | |
| CPHONE | | | |
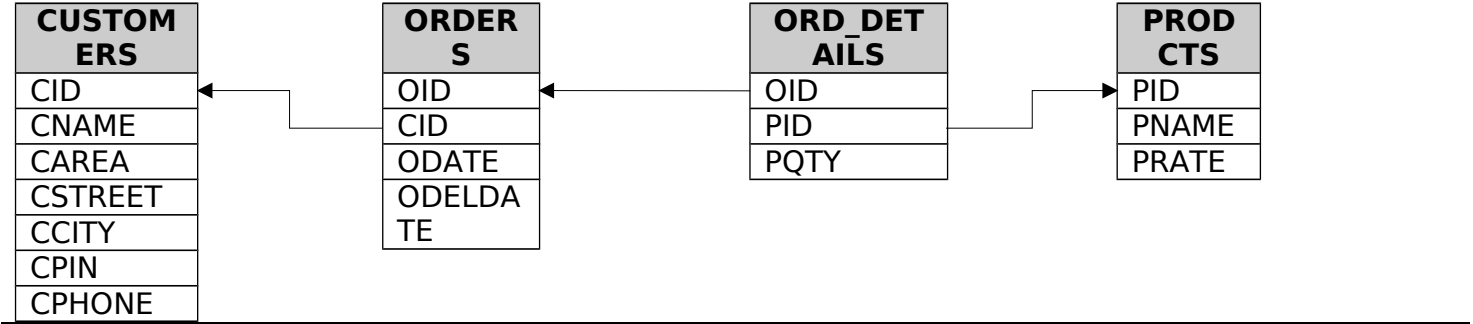
## CUSTOMERS

| 1. | CID | INT | PK |
|----|-----|-----|-----|
| 2. | CNAME | VARCHAR(40) | |
| 3. | CAREA | VARCHAR(20) | |
| 4. | CSTREET | VARCHAR(20) | |
| 5. | CPIN | CHAR(6) | FK |
| 6. | CPHONE | VARCHAR(14) | |

## PINS

| 1. | PIN | CHAR(6) | PK |
|----|-----|-----|-----|
| 2. | CITY | VARCHAR(20) | |

## ORDERS

| 1. | CID | INT | FK |
|----|-----|-----|-----|
| 2. | OID | INT | PK |
| 3. | ODATE | DATETIME | |
| 4. | ODELDATE | DATE | |

## ORDER_DETAILS

| 1. | OID | INT | CPK \| FK |
|----|-----|-----|-----|
| 2. | PID | INT | CPK \| FK |
| 3. | PQTY | INT | |

## PRODUCTS

| 1. | PID | INT | PK |
|----|-----|-----|-----|
| 2. | PNAME | VARCHAR(40) | |
| 3. | PRATE | DECIMAL(7,2) | |

## ER-DIAGRAM