DENORMALIZED DATASET

SALES ORDER TABLE

Order_Number	Quantity	Product_Price	Total_Price	Product_Id	Product_Name	Customer_Name	Contact_Number	City	State	Country	Status	Order_Date	Enterprise Name
ODN1	8,2	1099, 699	10,190.00	PD1,PD4	Charger,Keyboard	Manav, Manav	4642322436	Hyderbad	Telangana	India	Shipped	29-01-2023	TechHub Emporium
ODN2	9,3	1899, 1899	22,788.00	PD2,PD3	Mouse, Earphone	Kunal, Kunal	2909626533	Hubli	Karnataka	India	Cancelled	31-01-2023	CircuitMinds Electronics
ODN3	11	699	7,689.00	PD4	keyboard	Omkar dhale	6257345868	Mumbai	Maharashtra	India	Cancelled	01-02-2023	DigitalVista Tech Depot
ODN4	13,3	499, 1899	12,184.00	PD5,PD2	harddisk,Mouse	Vivek , Vivek	5530302685	Nashik	Maharashtra	India	Shipped	06-02-2023	ElectronElite Gadgets
ODN5	8	299	2,392.00	PD6	data cable	Pavan	6671792532	Bangalore	Karnataka	India	Shipped	07-02-2023	QuantumQuest Electronics
ODN6	10,12	299, 1099	16,178.00	PD7, PD1	laptop stand, Charger	Tanya,Tanya	8326362743	Dharward	Karnataka	India	On hold	09-02-2023	PowerPulse Tech Solutions

RULES :-

1) Every columns need to have a single value. ☑

2) Each row should be unique. Either through a single or multiple columns. Not mandatory to have primary key. ☑

SALES ORDER TABLE

Order_Number	Quantity	Product_Price	Total_Price	Product_Id	Product_Name	Customer_Name	Contact_Number	City	State	Country	Status	Order_Date	Payment_Method	Enterprise Name
ODN1	8	1,099.00	8,792.00	PD1	Charger	Manav	4642322436	Hyderbad	Telangana	India	Shipped	29-01-2023	UPI	TechHub Emporium
ODN1	2	699.00	1,398.00	PD4	Keyboard	Manav	4642322436	Hyderbad	Telangana	India	Shipped	30-01-2023	UPI	TechHub Emporium
ODN2	9	1,899.00	17,091.00	PD2	Mouse	Kunal	2909626533	Hubli	Karnataka	India	Cancelled	31-01-2023	Google Pay	CircuitMinds Electronics
ODN2	3	1,899.00	5,697.00	PD3	Earphone	Kunal	2909626533	Hubli	Karnataka	India	Cancelled	31-01-2023	Google Pay	CircuitMinds Electronics
ODN3	11	699.00	7,689.00	PD4	keyboard	Omkar dhale	6257345868	Mumbai	Maharashtra	India	Cancelled	01-02-2023	Amazon Pay	DigitalVista Tech Depot
ODN4	13	499.00	6,487.00	PD5	harddisk	Vivek	5530302685	Nashik	Maharashtra	India	Shipped	06-02-2023	UPI	ElectronElite Gadgets
ODN4	3	1,899.00	5,697.00	PD2	Mouse	Vivek	5530302685	Nashik	Maharashtra	India	Shipped	06-02-2023	UPI	ElectronElite Gadgets
ODN5	8	299.00	2,392.00	PD6	data cable	Pavan	6671792532	Bangalore	Karnataka	India	Shipped	07-02-2023	Phonepe	QuantumQuest Electronics
ODN6	10	299.00	2,990.00	PD7	laptop stand	Tanya	8326362743	Dharward	Karnataka	India	On hold	09-02-2023	cash	PowerPulse Tech Solutions
ODN6	12	1,099.00	13,188.00	PD1	Charger	Tanya	8326362743	Dharward	Karnataka	India	On hold	09-02-2023	cash	PowerPulse Tech Solutions

CONVERTING INTO 2NF (NORMAL FORM)

RULES :-
1) Must be in 1 NF. ☑
2) All non key columns must be fully dependent on candidate key. i.e if a non-key column is partially dependent on candidate key. Then split them into separate tables. ☑
3) after making seprate tables. Every tables must have primary key column and build the relationship between each tables using foreign key ☑

SALES ORDERS INFO TABLE

Order_Id	Order_Number	Quantity	Product_Price	Total_Price	Enterprise_Name	Payment_Method	Order_Date	Status	Product_ID	Customer_ID
1	ODN1	8	1,099.00	8,792.00	TechHub Emporium	UPI	29-01-2023	Shipped	PD1	CID1
2	ODN1	2	699.00	1,398.00	TechHub Emporium	UPI	30-01-2023	Shipped	PD4	CID1
3	ODN2	9	1,899.00	17,091.00	CircuitMinds Electronics	Google Pay	31-01-2023	Cancelled	PD2	CID2
4	ODN2	3	1,899.00	5,697.00	CircuitMinds Electronics	Google Pay	31-01-2023	Cancelled	PD3	CID2
5	ODN3	11	699.00	7,689.00	DigitalVista Tech Depot	Amazon Pay	01-02-2023	Cancelled	PD4	CID3
6	ODN4	13	499.00	6,487.00	ElectronElite Gadgets	UPI	06-02-2023	Shipped	PD5	CID4
7	ODN4	3	1,899.00	5,697.00	ElectronElite Gadgets	UPI	06-02-2023	Shipped	PD2	CID4
8	ODN5	8	299.00	2,392.00	QuantumQuest Electronics	Phonepe	07-02-2023	Shipped	PD6	CID5
9	ODN6	10	299.00	2,990.00	PowerPulse Tech Solutions	cash	09-02-2023	On hold	PD7	CID6
10	ODN6	12	1,099.00	13,188.00	PowerPulse Tech Solutions	cash	09-02-2023	On hold	PD1	CID6

PRIMARY KEY ... **FOREIEGN KEY** **FOREIEGN KEY**

CUSTOMER INFO TABLE

Customer_Id	Customer_Name	Contact_Number	City	State	Country
CID1	Manav	4642322436	Hyderbad	Telangana	India
CID2	Kunal	2909626533	Hubli	Karnataka	India
CID3	Omkar dhale	6257345868	Mumbai	Maharashtra	India
CID4	Vivek	5530302685	Nashik	Maharashtra	India
CID5	Pavan	6671792532	Bangalore	Karnataka	India
CID6	Tanya	8326362743	Dharward	Karnataka	India

PRIMARY KEY

PRODUCT INFO TABLE

Product_Id	Product_Name	Product_Price
PD1	Charger	1,099.00
PD2	Mouse	1,899.00
PD3	Earphone	1,899.00
PD4	Keyboard	699.00
PD5	harddisk	499.00
PD6	data cable	299.00
PD7	laptop stand	299.00

PRIMARY KEY

SECOND NORMAL FORM ENTITY RELATIONSHIP DIAGRAM

PRODUCT INFO

PRODUCT_ID (PK)
PRODUCT_NAME
PRODUCT_PRICE

SALES ORDER INFO

ORDER_ID (PK)
ORDER_NUMBER
QUANTITY
PRODUCT_PRICE
TOTAL_PRICE
ENTERPRISE_NAME
ORDER_DATE
PAYMENT_METHOD
STATUS
PRODUCT_ID (FK)
CUSTOMER_ID (FK)

CUSTOMER INFO

CUSTOMER_ID (PK)
CUSTOMER_NAME
CONTACT_NUMBER
CITY
STATE
COUNTRY
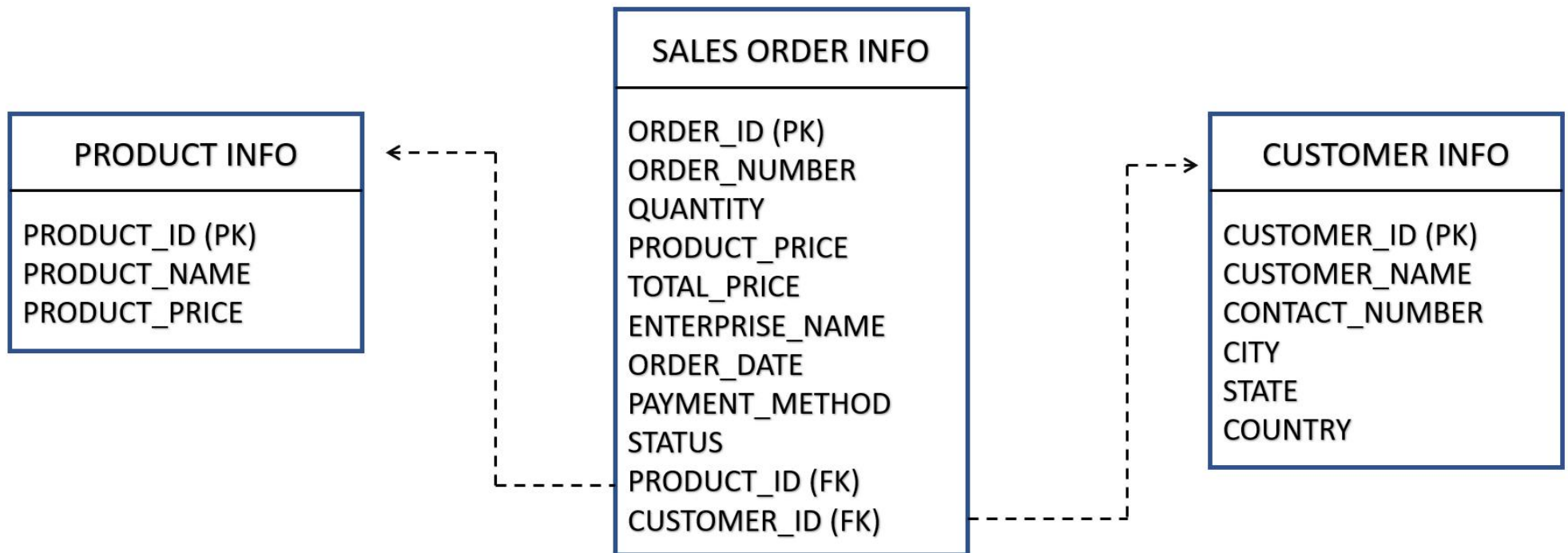
CONVERTING INTO 3 NF (NORMAL FORM)

RULES :-
1) Must be in 2 NF. ☑
2) Avoid Transitive dependencies. ☑

SALES ORDERS INFO TABLE

Order_Id	Order_Number	Quantity	Product_Price	Total_Price	Order_Date	Payment_Method	Status	Product_ID	Customer_ID	Enterprise_Id
1	ODN1	8	1,099.00	8,792.00	29-01-2023	UPI	Shipped	PD1	CID1	E1
2	ODN1	2	699.00	1,398.00	30-01-2023	UPI	Shipped	PD4	CID1	E1
3	ODN2	9	1,899.00	17,091.00	31-01-2023	Google Pay	Cancelled	PD2	CID2	E2
4	ODN2	3	1,899.00	5,697.00	31-01-2023	Google Pay	Cancelled	PD3	CID2	E2
5	ODN3	11	699.00	7,689.00	01-02-2023	Amazon Pay	Cancelled	PD4	CID3	E3
6	ODN4	13	499.00	6,487.00	06-02-2023	UPI	Shipped	PD5	CID4	E4
7	ODN4	3	1,899.00	5,697.00	06-02-2023	UPI	Shipped	PD2	CID4	E4
8	ODN5	8	299.00	2,392.00	07-02-2023	Phonepe	Shipped	PD6	CID5	E5
9	ODN6	10	299.00	2,990.00	09-02-2023	cash	On hold	PD7	CID6	E6
10	ODN6	12	1,099.00	13,188.00	09-02-2023	cash	On hold	PD1	CID6	E6
PRIMARY KEY								FOREIEGN KEY	FOREIEGN KEY	FOREIEGN KEY

PRODUCT INFO TABLE

Product_Id	Product_Name	Product_Price
PD1	Charger	1,099.00
PD2	Mouse	1,899.00
PD3	Earphone	1,899.00
PD4	Keyboard	699.00
PD5	harddisk	499.00
PD6	data cable	299.00
PD7	laptop stand	299.00
PRIMARY KEY		

CUSTOMER INFO TABLE

Customer_Id	Customer_Name	Contact_Number	City	State	Country
CID1	Manav	4642322436	Hyderbad	Telangana	India
CID2	Kunal	2909626533	Hubli	Karnataka	India
CID3	Omkar dhale	6257345868	Mumbai	Maharashtra	India
CID4	Vivek	5530302685	Nashik	Maharashtra	India
CID5	Pavan	6671792532	Bangalore	Karnataka	India
CID6	Tanya	8326362743	Dharward	Karnataka	India
PRIMARY KEY					

ENTERPRISE INFO TABLE

Enterprise_Id	Enterprise_Name
E1	TechHub Emporium
E2	CircuitMinds Electronics
E3	DigitalVista Tech Depot
E4	ElectronElite Gadgets
E5	QuantumQuest Electronics
E6	PowerPulse Tech Solutions
PRIMARY KEY	

THIRD NORMAL FORM ENTITY RELATIONSHIP DIAGRAM

PRODUCT INFO

PRODUCT_ID (PK)
PRODUCT_NAME
PRODUCT_PRICE

CUSTOMER INFO

CUSTOMER_ID (PK)
CUSTOMER_NAME
CONTACT_NUMBER
CITY
STATE
COUNTRY

SALES ORDER INFO

ORDER_ID (PK)
ORDER_NUMBER
QUANTITY
PRODUCT_PRICE
TOTAL_PRICE
ORDER_DATE
PAYMENT_METHOD
STATUS
PRODUCT_ID (FK)
CUSTOMER_ID (FK)
ENTERPRISE_ID (FK)

ENTERPRISE INFO

ENTERPRISE_ID (PK)
ENTERPRISE_NAME