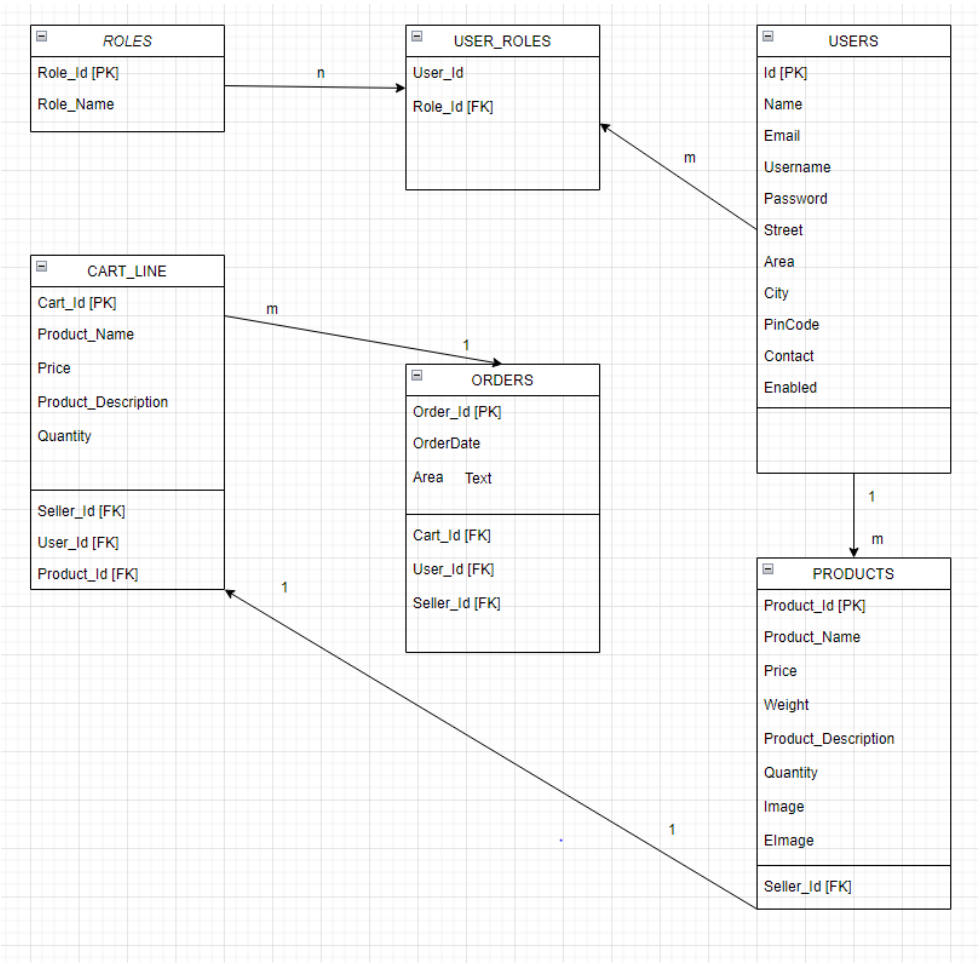
NORMALISATION AND DB SCRIPTS



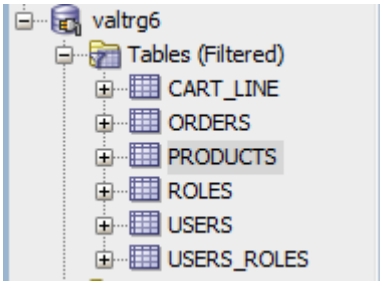
DATABASE DESIGN

NORMALISATION:

A large database defined as a single relation may result in data duplication. This repetition of data may result in:

- Making relations very large.
- It isn't easy to maintain and update data as it would involve searching many records in relation.
- Wastage and poor utilization of disk space and resources.
- The likelihood of errors and inconsistencies increases.

So to handle these problems, we should analyze and decompose the relations with redundant data into smaller, simpler, and well-structured relations that are satisfy desirable properties. Normalization is a process of decomposing the relations into relations with fewer attributes.



First Normal Form (1NF)

- A relation will be 1NF if it contains an atomic value.
- It states that an attribute of a table cannot hold multiple values. It must hold only single-valued attribute.
- First normal form disallows the multi-valued attribute, composite attribute, and their combinations.

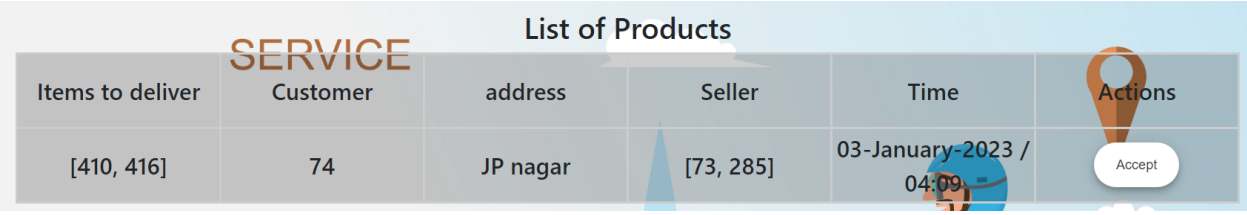
USAGE OF 1 NF:-

Customer purchasing same product adding to cart has been one set follow towards 1NF being atomic.[Quantity update on purchasing same product]

	ID	ADMIN_IDS	PRICE	PRODUCT_NAME	QUANTITY	USERID	PRODID
1	412	73	450	Garam Masala	1	83	304
2	413	73	100	GinglyPowder	1	83	322
3	414	73	25	ChilliPowder	1	83	402
4	410	73	25	ChilliPowder	1	74	402
5	416	285	25	CorianderPowder	2	74	318

Second Normal Form (2NF)

- In the 2NF, relational must be in 1NF.
- In the second normal form, all non-key attributes are fully functional dependent on the primary key.



USAGE OF 2 NF:-

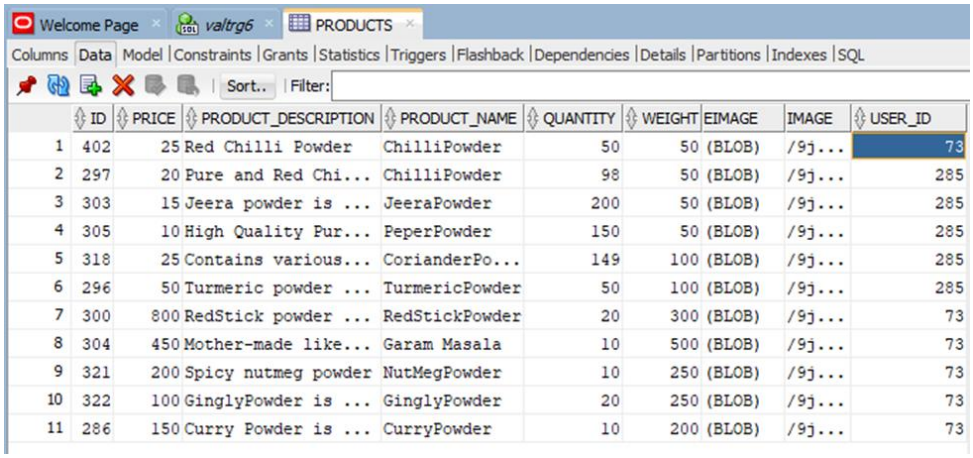
In the above stated usage of normalization form, here 410 and 416 are cart_id's ,73 & 285 are id's with role ADMIN dependent on ORDER ROW with id 420.

Third Normal Form (3NF)

- A relation will be in 3NF if it is in 2NF and not contain any transitive partial dependency.
- 3NF is used to reduce the data duplication. It is also used to achieve the data integrity.

USAGE OF 3 NF:-

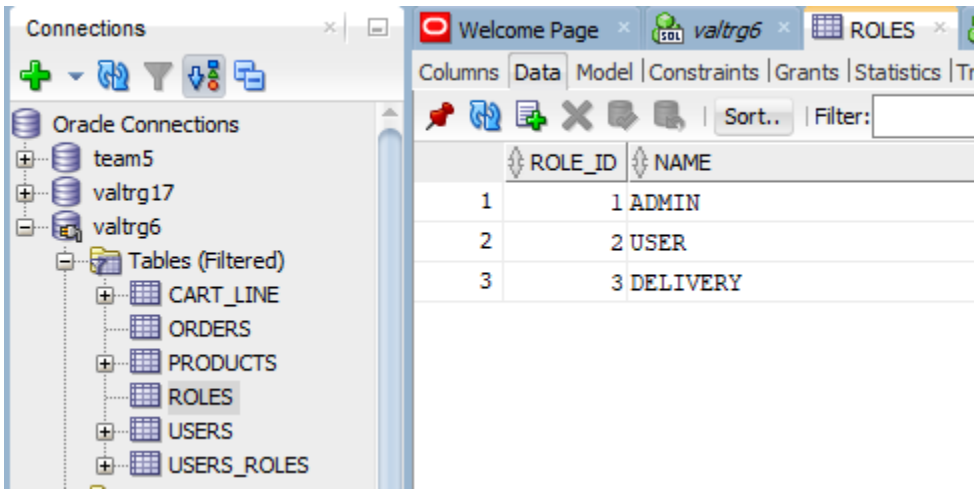
User_id acts as referential integrity in products table.



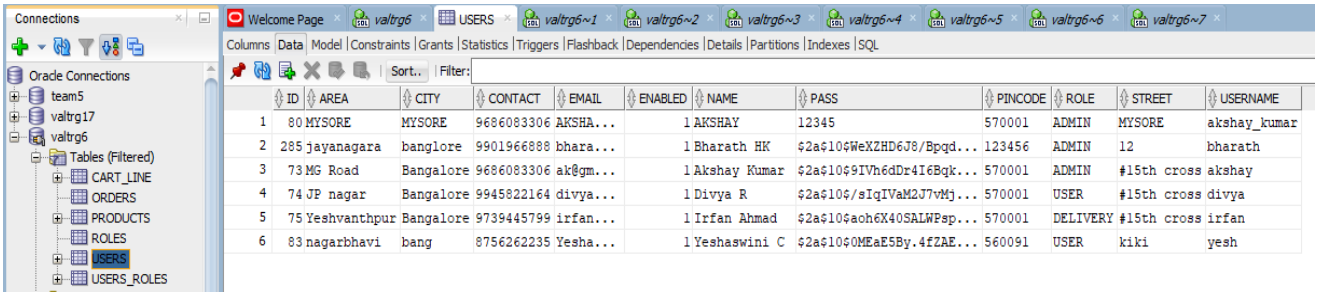
	ID	PRICE	PRODUCT_DESCRIPTION	PRODUCT_NAME	QUANTITY	WEIGHT	EIMAGE	IMAGE	USER_ID
1	402	25	Red Chilli Powder	ChilliPowder	50	50	(BLOB)	/9j...	73
2	297	20	Pure and Red Chi...	ChilliPowder	98	50	(BLOB)	/9j...	285
3	303	15	Jeera powder is ...	JeeraPowder	200	50	(BLOB)	/9j...	285
4	305	10	High Quality Pur...	PeperPowder	150	50	(BLOB)	/9j...	285
5	318	25	Contains various...	CorianderPo...	149	100	(BLOB)	/9j...	285
6	296	50	Turmeric powder ...	TurmericPowder	50	100	(BLOB)	/9j...	285
7	300	800	RedStick powder ...	RedStickPowder	20	300	(BLOB)	/9j...	73
8	304	450	Mother-made like...	Garam Masala	10	500	(BLOB)	/9j...	73
9	321	200	Spicy nutmeg powder	NutMegPowder	10	250	(BLOB)	/9j...	73
10	322	100	GinglyPowder is ...	GinglyPowder	20	250	(BLOB)	/9j...	73
11	286	150	Curry Powder is ...	CurryPowder	10	200	(BLOB)	/9j...	73

DB_SCRIPTS

```
--------------------------------------------------------

-- DDL for Table ROLES

--------------------------------------------------------

 CREATE TABLE "VALTRG6"."ROLES"

  (

                                                "ROLE_ID" NUMBER (10,0),

                                               "NAME" VARCHAR2(255 CHAR)

  )


--------------------------------------------------------

-- Constraints for Table ROLES

--------------------------------------------------------


 ALTER TABLE "VALTRG6"."ROLES" MODIFY ("ROLE_ID" NOT NULL ENABLE);

 ALTER TABLE "VALTRG6"."ROLES" ADD PRIMARY KEY ("ROLE_ID")
```



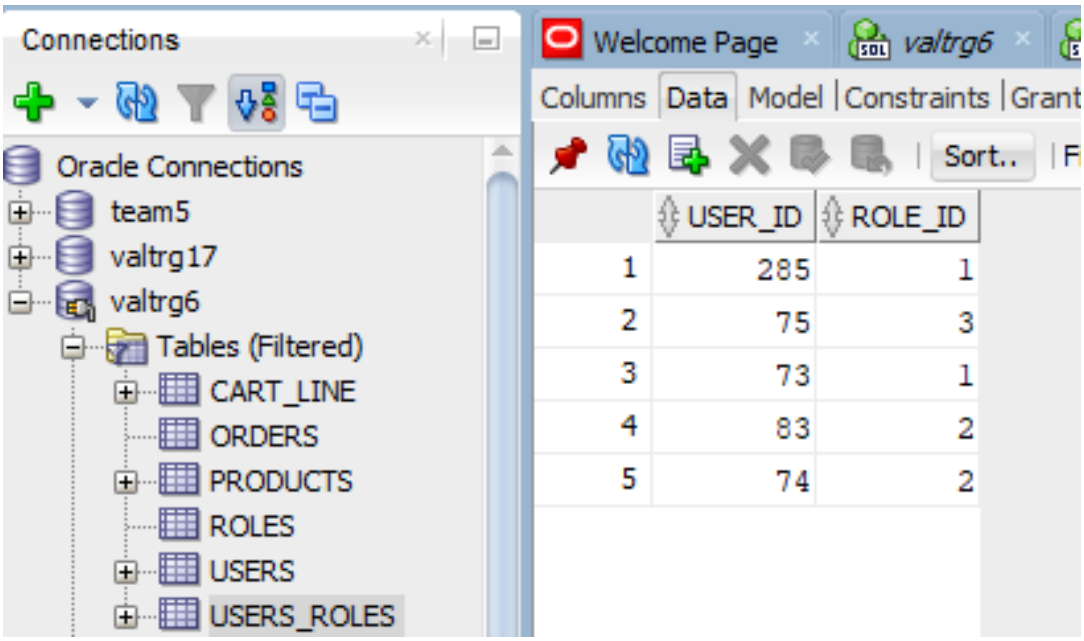
```
--------------------------------------------------------
--  DDL for Table USERS
--------------------------------------------------------

  CREATE TABLE "VALTRG6"."USERS"
   (    "ID" NUMBER(10,0),
        "AREA" VARCHAR2(255 CHAR),
        "CITY" VARCHAR2(255 CHAR),
        "CONTACT" VARCHAR2(255 CHAR),
        "EMAIL" VARCHAR2(255 CHAR),
        "ENABLED" NUMBER(1,0),
        "NAME" VARCHAR2(255 CHAR),
        "PASS" VARCHAR2(255 CHAR),
        "PINCODE" VARCHAR2(255 CHAR),
        "ROLE" VARCHAR2(255 CHAR),
        "STREET" VARCHAR2(255 CHAR),
        "USERNAME" VARCHAR2(255 CHAR)
   )
--------------------------------------------------------
--  Constraints for Table USERS
--------------------------------------------------------

  ALTER TABLE "VALTRG6"."USERS" MODIFY ("ID" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."USERS" MODIFY ("ENABLED" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."USERS" ADD PRIMARY KEY ("ID")
```



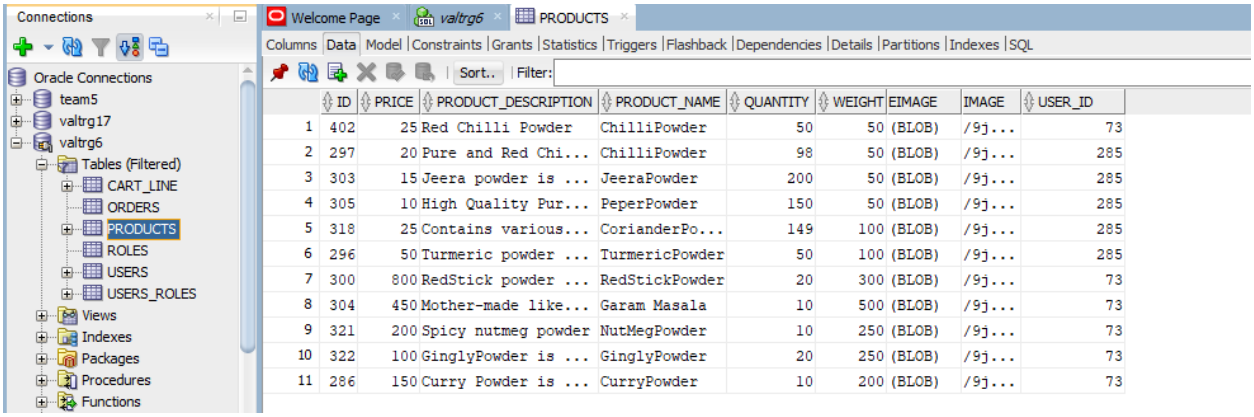
```
CREATE TABLE `USERS_ROLES` (
  `USER_ID` INT(11) NOT NULL,
  `ROLE_ID` INT(11) NOT NULL,
  KEY `USER_FK_IDX` (`USER_ID`),
  KEY `ROLE_FK_IDX` (`ROLE_ID`),
  CONSTRAINT `ROLE_FK` FOREIGN KEY (`ROLE_ID`) REFERENCES `ROLES` (`ROLE_ID`),
  CONSTRAINT `USER_FK` FOREIGN KEY (`USER_ID`) REFERENCES `USERS` (`USER_ID`)
);
```

Inserting Meta-data:-

```
INSERT INTO `ROLES` (`NAME`) VALUES ('USER');
INSERT INTO `ROLES` (`NAME`) VALUES ('ADMIN');
INSERT INTO `ROLES` (`NAME`) VALUES ('DELIVERY');
```

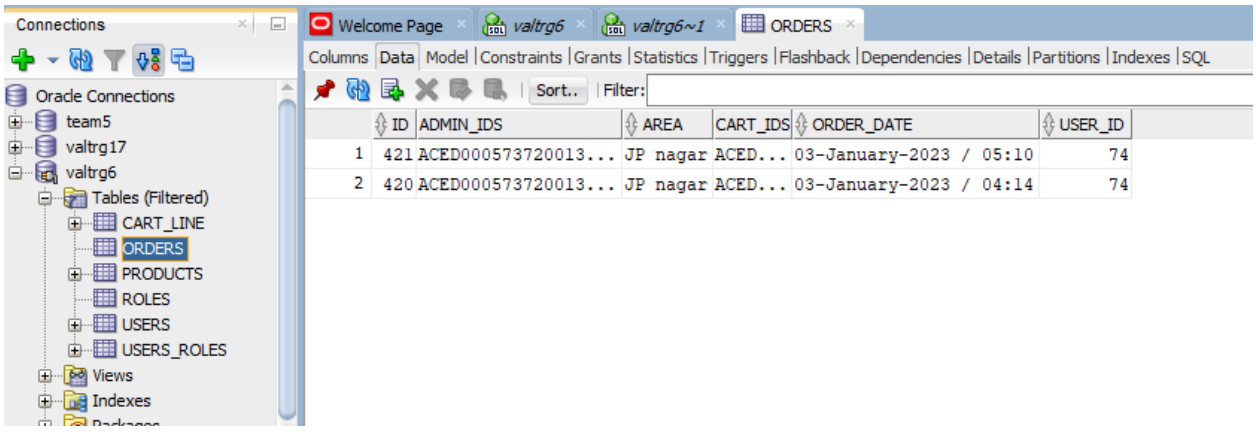


```
--------------------------------------------------------
--  DDL for Table PRODUCTS
--------------------------------------------------------
CREATE TABLE "VALTRG6"."PRODUCTS"
(
                        "ID" NUMBER(10,0),
                       "PRICE" NUMBER(20,0),
                       "PRODUCT_DESCRIPTION" VARCHAR2(50 BYTE),
                       "PRODUCT_NAME" VARCHAR2(20 BYTE),
                       "QUANTITY" NUMBER(20,0),
                        "WEIGHT" NUMBER(20,0),
                        "EIMAGE" BLOB,
                        "IMAGE" CLOB,
                         "USER_ID" NUMBER(10,0)
)
--------------------------------------------------------
-- Constraints for Table PRODUCTS
--------------------------------------------------------
ALTER TABLE "VALTRG6"."PRODUCTS" MODIFY ("ID" NOT NULL ENABLE);
ALTER TABLE "VALTRG6"."PRODUCTS" ADD CONSTRAINT "PRODUCTS_PK" PRIMARY KEY ("ID")
```

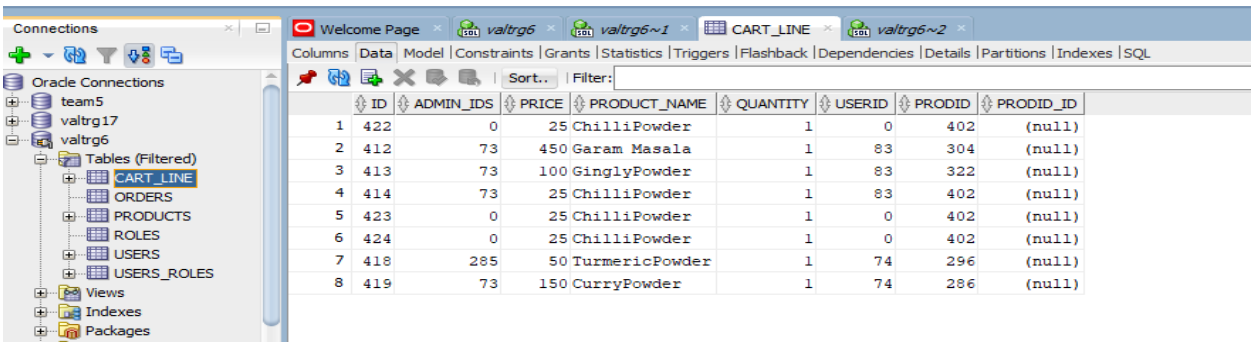


	ID	PRICE	PRODUCT_DESCRIPTION	PRODUCT_NAME	QUANTITY	WEIGHT	EIMAGE	IMAGE	USER_ID
1	402	25	Red Chilli Powder	ChilliPowder	50	50	(BLOB)	/9j...	73
2	297	20	Pure and Red Chi...	ChilliPowder	98	50	(BLOB)	/9j...	285
3	303	15	Jeera powder is ...	JeeraPowder	200	50	(BLOB)	/9j...	285
4	305	10	High Quality Pur...	PeperPowder	150	50	(BLOB)	/9j...	285
5	318	25	Contains various...	CorianderPo...	149	100	(BLOB)	/9j...	285
6	296	50	Turmeric powder ...	TurmericPowder	50	100	(BLOB)	/9j...	285
7	300	800	RedStick powder ...	RedStickPowder	20	300	(BLOB)	/9j...	73
8	304	450	Mother-made like...	Garam Masala	10	500	(BLOB)	/9j...	73
9	321	200	Spicy nutmeg powder	NutMegPowder	10	250	(BLOB)	/9j...	73
10	322	100	GinglyPowder is ...	GinglyPowder	20	250	(BLOB)	/9j...	73
11	286	150	Curry Powder is ...	CurryPowder	10	200	(BLOB)	/9j...	73

```
--------------------------------------------------------
--  DDL for Table ORDERS
--------------------------------------------------------

  CREATE TABLE "VALTRG6"."ORDERS"
   (    "ID" NUMBER(10,0),
        "ADMIN_IDS" RAW(255),
        "AREA" VARCHAR2(255 CHAR),
        "CART_IDS" RAW(255),
        "ORDER_DATE" VARCHAR2(255 CHAR),
        "USER_ID" NUMBER(10,0)
   )
--------------------------------------------------------
--  Constraints for Table ORDERS
--------------------------------------------------------

  ALTER TABLE "VALTRG6"."ORDERS" MODIFY ("ID" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."ORDERS" MODIFY ("USER_ID" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."ORDERS" ADD PRIMARY KEY ("ID")
```



```
--------------------------------------------------------
--  DDL for Table CART_LINE
--------------------------------------------------------

  CREATE TABLE "VALTRG6"."CART_LINE"
   (    "ID" NUMBER(10,0),
        "ADMIN_IDS" NUMBER(10,0),
        "PRICE" FLOAT(126),
        "PRODUCT_NAME" VARCHAR2(255 CHAR),
        "QUANTITY" NUMBER(10,0),
        "USERID" NUMBER(10,0),
        "PRODID" NUMBER(10,0),
        "PRODID_ID" NUMBER(10,0)
   )
--------------------------------------------------------
--  Constraints for Table CART_LINE
--------------------------------------------------------

  ALTER TABLE "VALTRG6"."CART_LINE" MODIFY ("ID" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."CART_LINE" MODIFY ("ADMIN_IDS" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."CART_LINE" MODIFY ("PRICE" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."CART_LINE" MODIFY ("QUANTITY" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."CART_LINE" MODIFY ("USERID" NOT NULL ENABLE);
  ALTER TABLE "VALTRG6"."CART_LINE" ADD PRIMARY KEY ("ID")
```



	ID	ADMIN_IDS	PRICE	PRODUCT_NAME	QUANTITY	USERID	PRODID	PRODID_ID
1	422	0	25	ChilliPowder	1	0	402	(null)
2	412	73	450	Garam Masala	1	83	304	(null)
3	413	73	100	GinglyPowder	1	83	322	(null)
4	414	73	25	ChilliPowder	1	83	402	(null)
5	423	0	25	ChilliPowder	1	0	402	(null)
6	424	0	25	ChilliPowder	1	0	402	(null)
7	418	285	50	TurmericPowder	1	74	296	(null)
8	419	73	150	CurryPowder	1	74	286	(null)