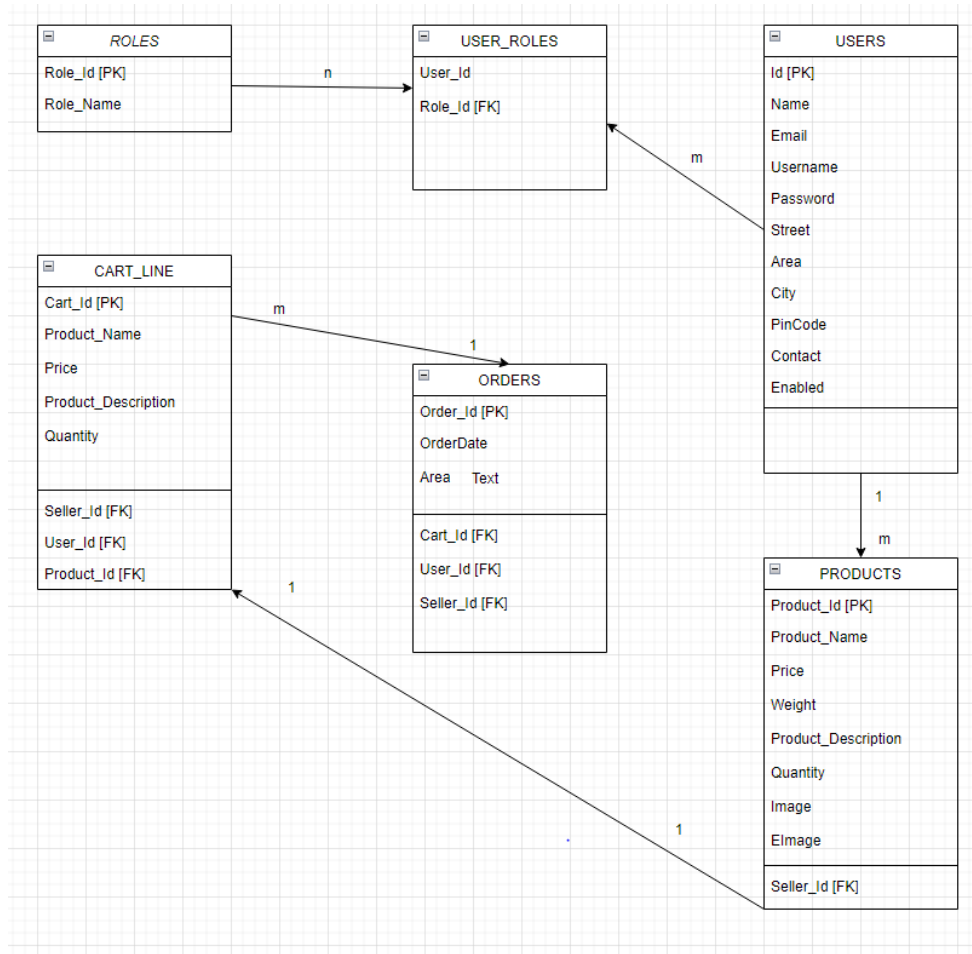


NORMALISATION AND DB SCRIPTS



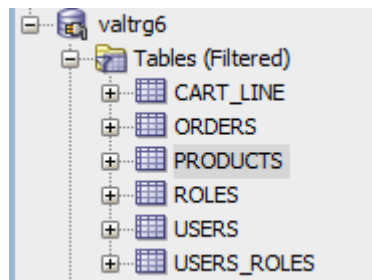
DATABASE DESIGN

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.

List of Products					
Items to deliver	SERVICE Customer	address	Seller	Time	Actions
[410, 416]	74	JP nagar	[73, 285]	03-January-2023 / 04:09	Accept

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),
```

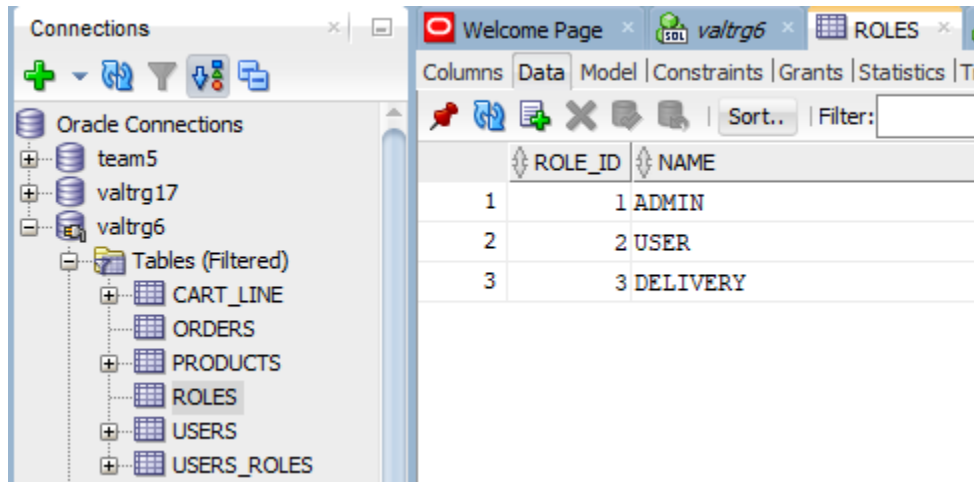
```
    "NAME" VARCHAR2(255 CHAR)
```

```
)
```

-- Constraints for Table ROLES

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

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



Columns	
ROLE_ID	NAME
1	ADMIN
2	USER
3	DELIVERY

```
(
    "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)
)
```

```
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")
```

ID	AREA	CITY	CONTACT	EMAIL	ENABLED	NAME	PASS	PINCODE	ROLE	STREET	USERNAME
1	80 MYSORE	MYSORE	9686083306	AKSHA...		1 AKSHAY	12345	570001	ADMIN	MYSORE	akshay_kumar
2	285 jayanagara	bangalore	9901966888	bhara...		1 Bharath HK	\$2a\$10qWeXZHD6J8/Bpqd...	123456	ADMIN	12	bharath
3	73 MG Road	Bangalore	9686083306	ak@gm...		1 Akshay Kumar	\$2a\$10q9IVh6dDr4i6Bqk...	570001	ADMIN	#15th cross	akshay
4	74 JP nagar	Bangalore	9945822164	divya...		1 Divya R	\$2a\$10q/sIqVam2J7vMj...	570001	USER	#15th cross	divya
5	75 Yeshvanthpur	Bangalore	9739445799	irfan...		1 Irfan Ahmad	\$2a\$10qach6X40SALWfSp...	570001	DELIVERY	#15th cross	irfan
6	83 nagarbhavi	bang	8756262235	Yesha...		1 Yeshaswini C	\$2a\$10q0MEaE5By.4fZEa...	560091	USER	kiki	yesh

```

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`)
);

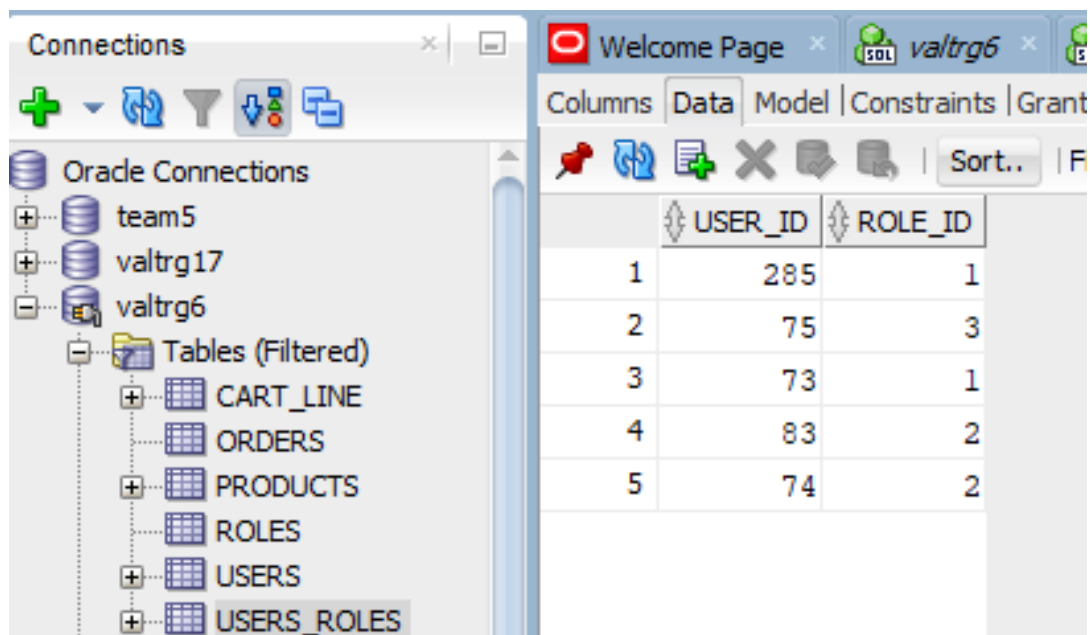
```

Inserting Meta-data:-

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

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

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



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists 'team5', 'valtrg17', and 'valtrg6'. Under 'valtrg6', a 'Tables (Filtered)' folder is expanded, showing tables: 'CART_LINE', 'ORDERS', 'PRODUCTS', 'ROLES', 'USERS', and 'USERS_ROLES'. On the right, a 'Welcome Page' tab is active, displaying a table with columns 'USER_ID' and 'ROLE_ID'. The table contains five rows of data.

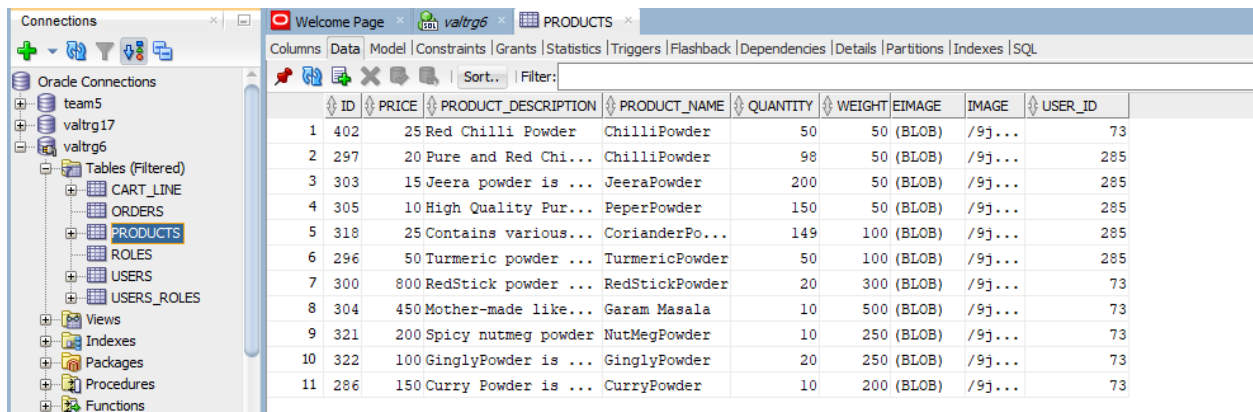
	USER_ID	ROLE_ID
1	285	1
2	75	3
3	73	1
4	83	2
5	74	2

-- 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")
```



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists 'team5', 'valtrg17', and 'valtrg6'. Under 'valtrg6', the 'Tables (Filtered)' section shows 'CART_LINE', 'ORDERS', 'PRODUCTS' (highlighted), 'ROLES', 'USERS', and 'USERS_ROLES'. The main pane displays the 'PRODUCTS' table data in a grid. The table has columns: ID, PRICE, PRODUCT_DESCRIPTION, PRODUCT_NAME, QUANTITY, WEIGHT, EIMAGE, IMAGE, and USER_ID. The data is as follows:

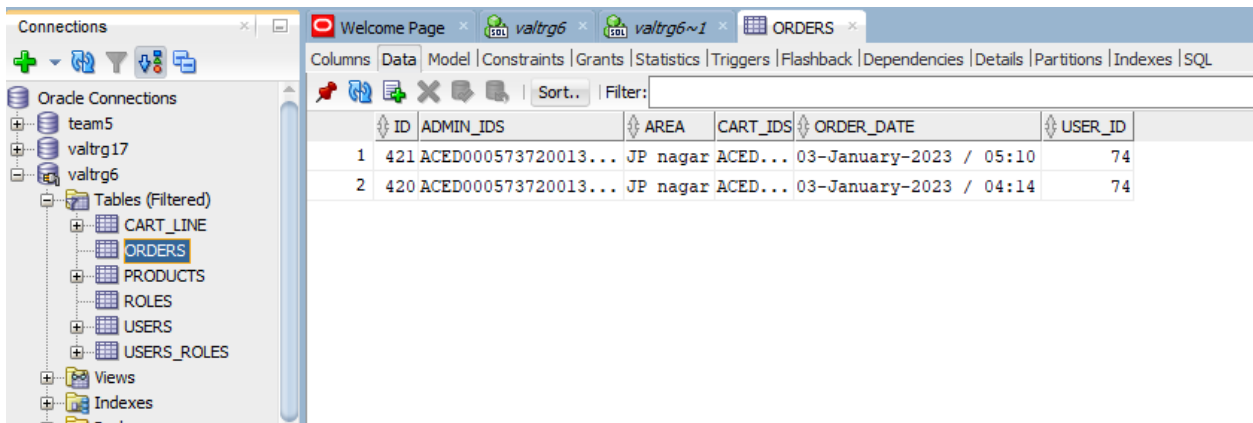
ID	PRICE	PRODUCT_DESCRIPTION	PRODUCT_NAME	QUANTITY	WEIGHT	EIMAGE	IMAGE	USER_ID
1	402	25 Red Chilli Powder	ChilliPowder	50	50 (BLOB)	/9j...		73
2	297	20 Pure and Red Chi...	ChilliPowder	98	50 (BLOB)	/9j...		285
3	303	15 Jeera powder is ...	JeeraPowder	200	50 (BLOB)	/9j...		285
4	305	10 High Quality Pur...	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")
```



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists 'team5', 'valtrg17', and 'valtrg6'. Under 'valtrg6', the 'Tables (Filtered)' section shows 'CART_LINE', 'ORDERS' (highlighted), 'PRODUCTS', 'ROLES', 'USERS', and 'USERS_ROLES'. The main pane displays the 'ORDERS' table structure with columns: ID, ADMIN_IDS, AREA, CART_IDS, ORDER_DATE, and USER_ID. The 'Data' tab shows two rows of data.

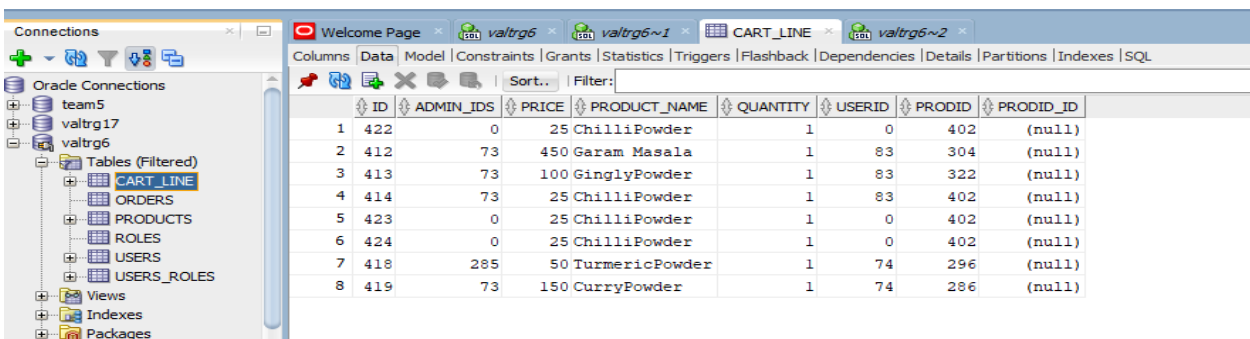
	ID	ADMIN_IDS	AREA	CART_IDS	ORDER_DATE	USER_ID
1	421	ACED000573720013...	JP nagar	ACED...	03-January-2023 / 05:10	74
2	420	ACED000573720013...	JP nagar	ACED...	03-January-2023 / 04:14	74

-- 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),
    "PROIDID" NUMBER(10,0),
    "PROIDID_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")
```



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several databases, with 'valtrg6' selected. Under 'Tables (Filtered)', 'CART_LINE' is highlighted. The main window displays the 'Data' tab for the 'CART_LINE' table. The table has 8 columns: ID, ADMIN_IDS, PRICE, PRODUCT_NAME, QUANTITY, USERID, PROIDID, and PROIDID_ID. The data is as follows:

	ID	ADMIN_IDS	PRICE	PRODUCT_NAME	QUANTITY	USERID	PROIDID	PROIDID_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)