Advanced Database Management Systems LAB
(Assignment 3)

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BATCH : B4

- **Title : To understand and apply the concept of Constraints.**

Objective: To understand the concept of data constraints that is enforced on data being stored in the table. Focus on Primary Key and the Foreign Key.

1. Create the tables described below:

Table name: CLIENT_MASTER_1

Description: used to store client information.

Column name	data type	Size	Constraints
CLIENTNO	Varchar	6	Primary key / first letter must start with 'C'
NAME	Varchar	20	Not Null
ADDRESS 1	Varchar	30	
ADDRESS 2	Varchar	30	
CITY	Varchar	15	
PINCODE	Integer	8	
STATE	Varchar	15	
BALDUE	Decimal	10,2	

CODE :

```
Create table CLIENT_MASTER
(
CLIENT_NO varchar(6) PRIMARY KEY,
NAME varchar(20) NOT NULL,
ADDRESS1 varchar(30),
ADDRESS2 varchar(30),
CITY varchar(15),
PINCODE int,
STATE varchar(15),
BALDUE number(10, 2)
);CL

Desc CLIENT_MASTER;
```

OUTPUT :

Table created.

TABLE CLIENT_MASTER

Column	Null?	Type
CLIENT_NO	NOT NULL	VARCHAR2(6)
NAME	NOT NULL	VARCHAR2(20)
ADDRESS1	-	VARCHAR2(30)
ADDRESS2	-	VARCHAR2(30)
CITY	-	VARCHAR2(15)
PINCODE	-	NUMBER
STATE	-	VARCHAR2(15)
BALDUE	-	NUMBER(10,2)

Download CSV

8 rows selected.

Table Name: **PRODUCT_MASTER_1**

Description: used to store product information

Column name	data type	Size	Attributes
PRODUCTNO	Varchar	6	Primary Key/ first letter must start with 'P'
DESCRIPTION	Varchar	15	Not Null
PROFITPERCENT	Decimal	4,2	Not Null
UNIT MEASURE	Varchar	10	Not Null
QTYONHAND	Integer	8	Not Null
REORDERL VL	Integer	8	Not Null
SELLPRICE	Decimal	8,2	Not Null
COSTPRICE	Decimal	8,2	Not Null

CODE :

```
create table Product_Master(
ProductNO varchar(6) PRIMARY KEY,
Description varchar(15) NOT NULL,
Profitpercent number(4, 2) NOT NULL,
Unitmeasure varchar(10) NOT NULL,
QuantityOnhand int NOT NULL,
ReorderLevel int NOT NULL,
SellPrice number(8, 2) NOT NULL,
CostPrice number(8, 2) NOT NULL
);

Desc Product_Master
```

{THEN}

```
ALTER Product_Master(
ADD CONSTRAINT number_chk CHECK(ProductNO like 'p%);
```

OUTPUT :

```
mysql> describe PRODUCT_MASTER;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| PRODUCTNO     | varchar(6)    | NO   | PRI | NULL    |       |
| DESCRIPTION   | varchar(15)   | NO   |     | NULL    |       |
| PROFITPERCENT | decimal(4,2)  | YES  |     | NULL    |       |
| UNITMEASURE   | varchar(10)   | YES  |     | NULL    |       |
| QTYONHAND     | int           | YES  |     | NULL    |       |
| REORDERLVL    | int           | YES  |     | NULL    |       |
| SELLPRICE     | decimal(10,2) | YES  |     | NULL    |       |
| COSTPRICE     | decimal(8,2)  | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

Table Name: **SALESMAN_MASTER _1**

Description: used to store salesman information working for the company.

Column name	data type	Size	Attributes
SALESMANNO	Varchar	6	Primary Key/ first letter must start with ‘S’
SALESMANNAME	Varchar	20	Not Null
ADDRESS 1	Varchar	30	Not Null
ADDRESS 2	Varchar	30	
CITY	Varchar	20	
PINCODE	Integer	8	
STATE	Varchar	20	
SALAMT	Real	8,2	Not Null , Cannot be 0
TGTTOGET	Decimal	6,2	Not Null , Cannot be 0
YTDSALES	Double	6,2	Not Null
REMARKS	Varchar	60	

CODE :

```
create table salesman_master (
SalesmanNo varchar(6) PRIMARY KEY,
SalesmanName varchar(20),
ADDRESS1 varchar(30) NOT NULL,
ADDRESS2 varchar(30),
CITY varchar(20),
PINCODE int,
STATE varchar(20),
SalAmt int NOT NULL,
TgtToGet int NOT NULL,
YtdSales int NOT NULL,
Remarkds varchar(60)
);

desc salesman_master;
```

{THEN}

```
ALTER TABLE salesman_master
ADD CONSTRAINT SALENO_CHK CHECK (SalesmanNo LIKE 'S%');

ALTER TABLE salesman_master
ADD CONSTRAINT G_ZERO CHECK (SalAmt>0 && TgtToGeT>0);
```

OUTPUT :

TABLE SALESMAN_MASTER

Column	Null?	Type
SALESMANNO	NOT NULL	VARCHAR2(6)
SALESMANNAME	-	VARCHAR2(20)
ADDRESS1	NOT NULL	VARCHAR2(30)
ADDRESS2	-	VARCHAR2(30)
CITY	-	VARCHAR2(20)
PINCODE	-	NUMBER
STATE	-	VARCHAR2(20)
SALAMT	NOT NULL	NUMBER
TGTTOGET	NOT NULL	NUMBER
YTDSALES	NOT NULL	NUMBER
REMARKDS	-	VARCHAR2(60)

Download CSV

11 rows selected.

2. Reinsert the data in these two tables based upon Lab 1.

TABLE 1 :

insert into CLIENT_MASTER(CLIENT_NO,NAME,city,pincode,state,baldue)values('C00001','Ivan bavross','Mumbai',400054,'Maharashtra',1500);

insert into CLIENT_MASTER(CLIENT_NO,NAME,city,pincode,state,baldue)values('C00002','Mamta Muzumdar','Madras',780001,'Tamil Nadu',0);

```
insert into
CLIENT_MASTER(CLIENT_NO,NAME,city,pincode,state,baldue)values('C000
03','Chhaya bankar','Mumbai',400057,'Maharashtra',5000);

insert into
CLIENT_MASTER(CLIENT_NO,NAME,city,pincode,state,baldue)values('C000
04','Ashwini Joshi','Banglore',560001,'Karnataka',0);

insert into
CLIENT_MASTER(CLIENT_NO,NAME,city,pincode,state,baldue)values('C000
05','Hansel colaco','Mumbai',400060,'Maharashtra',2000);

insert into
CLIENT_MASTER(CLIENT_NO,NAME,city,pincode,state,baldue)values('C000
06','Deepak Sharma','Manglore',560050,'Karnataka',0);

SELECT * FROM CLIENT_MASTER
```

TABLE 2 :

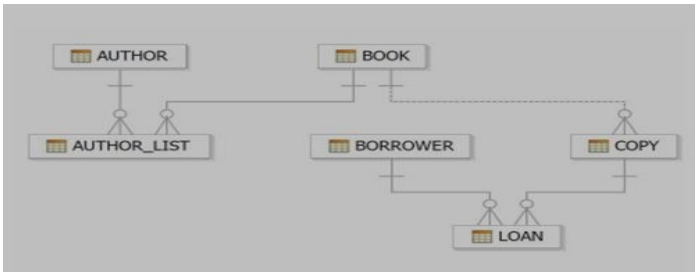
```
insert into product_master values('P00001', 'T-Shirts', 5, 'Piece', 200, 50, 350, 250);
insert into product_master values('P0345', 'Shirts', 6, 'Piece', 150, 50, 500, 350);
insert into product_master values('P06734', 'Cotton Jeans', 5, 'Piece', 100, 20, 600,
450);
insert into product_master values('P07865', 'Jeans', 5, 'Piece', 100, 20, 750, 500);
insert into product_master values('P07868', 'Trousers', 2, 'Piece', 150, 50, 850,
550);
insert into product_master values('P07885', 'Pull Overs', 2.5, 'Piece', 150, 50, 850,
550);
insert into product_master values('P07868', 'Denim Shirts', 4, 'Piece', 100, 40, 350,
250);
```

```
insert into product_master values('P07868', 'Lycra Tops', 5, 'Piece', 70, 30, 300, 175);
insert into product_master values('P07868', 'Skirts', 5, 'Piece', 75, 30, 450, 300);

select* from Product_Master
```

TABLE 3 :

```
insert into salesman_master values('S00001', 'Aman', 'A/14', 'Worli', 'Mumbai', 400002, 'Maharashtra', 3000, 100, 50, 'Good');
insert into salesman_master values('S00002', 'Omkar', '65', 'Nariman', 'Mumbai', 400001, 'Maharashtra', 3000, 200, 100, 'Good');
insert into salesman_master values('S00003', 'Raj', 'P-7', 'Bandra', 'Mumbai', 400032, 'Maharashtra', 3000, 200, 100, 'Good');
insert into salesman_master values('S00004', 'Ashish', 'A/5', 'Juhu', 'Mumbai', 400044, 'Maharashtra', 3500, 200, 150, 'Good');

select * from salesman_master;
```

3. Display the contents of each table.



1.

```
1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

CLIENT_NO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
C00001	Ivan bavross	-	-	Mumbai	400054	Maharashtra	1500
C00002	Mamta Muzumdar	-	-	Madras	780001	Tamil Nadu	0
C00003	Chhaya bankar	-	-	Mumbai	400057	Maharashtra	5000
C00004	Ashwini Joshi	-	-	Banglore	560001	Karnataka	0
C00005	Hansel colaco	-	-	Mumbai	400060	Maharashtra	2000
C00006	Deepak Sharma	-	-	Manglore	560050	Karnataka	0

Download CSV
6 rows selected.

2.

PRODUCTNO	DESCRIPTION	PROFITPERCENT	UNITMEASURE	QUANTITYONHAND	REORDERLEVEL	SELLPRICE	COSTPRICE
P00001	T-Shirts	5	Piece	200	50	350	250
P0345	Shirts	6	Piece	150	50	500	350
P06734	Cotton Jeans	5	Piece	100	20	600	450
P07865	Jeans	5	Piece	100	20	750	500
P07868	Trousers	2	Piece	150	50	850	550
P07885	Pull Overs	2.5	Piece	150	50	850	550
P07868	Denim Shirts	4	Piece	100	40	350	250
P07868	Lycra Tops	5	Piece	70	30	300	175
P07868	Skirts	5	Piece	75	30	450	300

Download CSV
9 rows selected.

3.

SALESMANNO	SALESMANNAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	SALAMT	TGTTOGET	YTDSALES	REMARKDS
S00001	Aman	A/14	Worli	Mumbai	400002	Maharashtra	3000	100	50	Good
S00002	Omkar	65	Nariman	Mumbai	400001	Maharashtra	3000	200	100	Good
S00003	Raj	P-7	Bandra	Mumbai	400032	Maharashtra	3000	200	100	Good
S00004	Ashish	A/5	Juhu	Mumbai	400044	Maharashtra	3500	200	150	Good

Download CSV

4 rows selected.

4. Create table AUTHOR = {<u>Author_ID</u> , Lastname, Firstname, Email, City, Country}

Where:

Author_ID – text data type, 5 characters, primary key

Lastname – text data type, 15 characters, not null

Firstname – text data type, 15 characters, not null

Email – text data type, 40 characters,

City – text data type, 15 characters,

Country – text data type, 15 characters,

CODE :

```
CREATE TABLE AUTHORS
(
AUTHOR_ID VARCHAR(10) PRIMARY KEY,
LAST_NAME VARCHAR(15) NOT NULL,
FIRST_NAME VARCHAR(15) NOT NULL,
EMAIL VARCHAR(40),
CITY VARCHAR(15),
COUNTRY VARCHAR(15)
);
desc AUTHORS;
```

OUTPUT :

TABLE AUTHORS

Column	Null?	Type
AUTHOR_ID	NOT NULL	VARCHAR2(10)
LAST_NAME	NOT NULL	VARCHAR2(15)
FIRST_NAME	NOT NULL	VARCHAR2(15)
EMAIL	-	VARCHAR2(40)
CITY	-	VARCHAR2(15)
COUNTRY	-	VARCHAR2(15)

Download CSV

6 rows selected.

5. Create Table BOOK={ Book_ID, Book_Title, Copies)

Where :

Book_ID – text data type, 5 characters Primary Key Start With Character **B**

Book_Title - Text data Type Not Null

Copies- No.of copies Data Type int always greater the 2

CODE :

```
CREATE TABLE BOOKS
(
BOOK_ID VARCHAR(10) PRIMARY KEY CHECK (BOOK_ID LIKE 'b%'),
BOOK_TITLE VARCHAR(15) NOT NULL,
COPIES INT CHECK (COPIES > 2)
);
desc BOOKS;
```

OUTPUT :

```
Table created.
```

TABLE BOOKS

Column	Null?	Type
BOOK_ID	NOT NULL	VARCHAR2(10)
BOOK_TITLE	NOT NULL	VARCHAR2(15)
COPIES	-	NUMBER

Download CSV

3 rows selected.

6. Create table AUTHOR_LIST = {<u>Author_ID</u> , <u>Book_ID</u> , Role}

Where:

Author_ID – text data type, 5 characters, referenced by Author_ID from AUTHOR table

Book_ID – text data type, 5 characters

Role – text data type, 15 characters

and primary key is: Author_ID, Book_ID

CODE :

```
CREATE TABLE AUTHOR_LIST
(
AUTHOR_ID VARCHAR(10),
BOOK_ID VARCHAR(15),
ROLE VARCHAR(15),

PRIMARY KEY (AUTHOR_ID, BOOK_ID),
```

```
CONSTRAINT F_KEY1 FOREIGN KEY(AUTHOR_ID) references AUTHORS(AUTHOR_ID)
);

desc AUTHOR_LIST;
```

OUTPUT :

TABLE AUTHOR_LIST

Column	Null?	Type
AUTHOR_ID	NOT NULL	VARCHAR2(10)
BOOK_ID	NOT NULL	VARCHAR2(15)
ROLE	-	VARCHAR2(15)

Download CSV

3 rows selected.

7. Add four records in each tables AUTHOR, BOOK, BOOK_LIST.

CODE :

1).

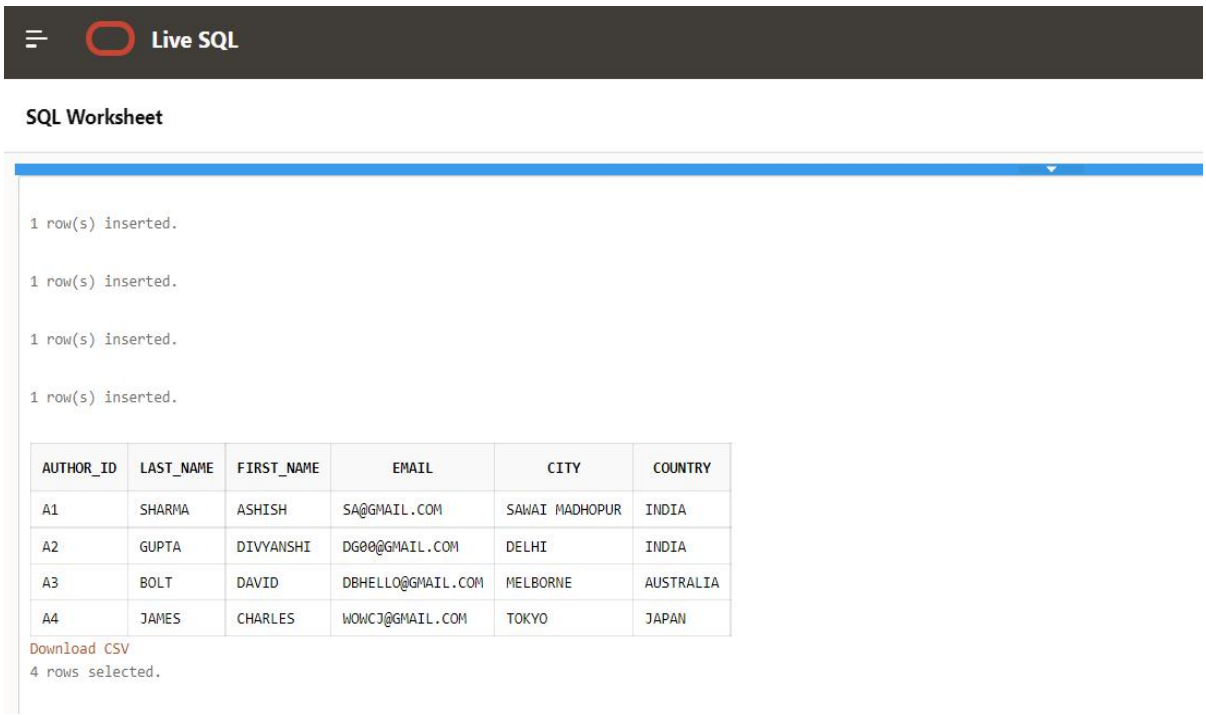
```
INSERT INTO AUTHORS(AUTHOR_ID, LAST_NAME, FIRST_NAME, EMAIL, CITY,COUNTRY)VALUES('A1','SHARMA','ASHISH','SA@GMAIL.COM','SAW AI MADHOPUR', 'INDIA');

INSERT INTO AUTHORS(AUTHOR_ID, LAST_NAME, FIRST_NAME, EMAIL, CITY,COUNTRY)VALUES('A2','GUPTA','DIVYANSHI','DG00@GMAIL.COM',' DELHI', 'INDIA');

INSERT INTO AUTHORS(AUTHOR_ID, LAST_NAME, FIRST_NAME, EMAIL,
```

CITY,COUNTRY)VALUES('A3','BOLT','DAVID','DBHELLO@GMAIL.COM','ME
LBORNE', 'AUSTRALIA');

INSERT INTO AUTHORS(AUTHOR_ID, LAST_NAME, FIRST_NAME, EMAIL,
CITY,COUNTRY)VALUES('A4','JAMES','CHARLES','WOWCJ@GMAIL.COM','T
OKYO', 'JAPAN');

SELECT * FROM AUTHORS;

OUTPUT :



2) .

CODE :

INSERT INTO BOOKS(BOOK_ID, BOOK_TITLE, COPIES)VALUES('A1', 'NOTHING', '28'), ('A2', 'THE WALK', '10'), ('A3', 'STORIES', '16'), ('B1', 'FOREVER', '32');

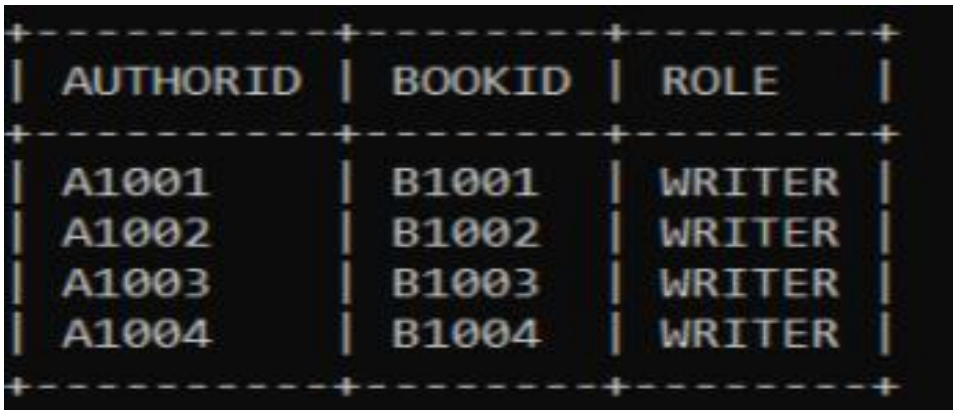
SELECT * FROM BOOKS;

3) .

CODE :

```
INSERT INTO AUTHOR_LIST(AUTHOR_ID, BOOK_ID, ROLE)VALUES('A1001', 'B1001', 'WRITER');

INSERT INTO AUTHOR_LIST(AUTHOR_ID, BOOK_ID, ROLE)VALUES('A1002', 'B1002', 'WRITER');

INSERT INTO AUTHOR_LIST(AUTHOR_ID, BOOK_ID, ROLE)VALUES('A1003', 'B1003', 'WRITER');

INSERT INTO AUTHOR_LIST(AUTHOR_ID, BOOK_ID, ROLE)VALUES('A1004', 'B1004', 'WRITER');

SELECT * FROM AUTHOR_LIST;
```

OUTPUT :



AUTHORID	BOOKID	ROLE
A1001	B1001	WRITER
A1002	B1002	WRITER
A1003	B1003	WRITER
A1004	B1004	WRITER

8. Alter structure of table AUTHOR_LIST add the field Publisher data type of 30 Character.

CODE :

```
ALTER TABLE AUTHOR_LIST
```

ADD PUBLISHER VARCHAR(30);

SELECT FROM AUTHOR_LIST;

OUTPUT :

Column	Null?	Type
AUTHOR_ID	NOT NULL	VARCHAR2(10)
BOOK_ID	NOT NULL	VARCHAR2(15)
ROLE	-	VARCHAR2(15)
PUBLISHER	-	VARCHAR2(30)

Download CSV

4 rows selected.

>>> END <<<