**Institute of Computer Technology**

**B. Tech. Computer Science and Engineering**

**Semester: III**

**Sub: Database Management System**

**Course Code: 2CSE301**

**Practical Number:4**

**Objective:**

*Create tables with various Data Constraints and verify by inserting  values in it.*

* Scenario: Mohan as an engineer know what are the issues when an entry gets wrongly inserted. Thus to avoid such issues Mohan suggested to have constraints so that whenever by mistake also if someone tries to enter data can first get checked and than inserted.

**Exercise:**

*Create Above tables with given constraints and insert data in it.*

1. **Table Name: Client\_master:**
   1. **Description: Used to store information about clients.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Attributes** |
| Client\_no | Varchar | 6 | Primary key/ first letter  must start with ‘C’ |
| Name | Varchar | 15 | Not Null |
| City | Varchar | 15 |  |
| Pincode | Numeric | 8 |  |
| State | Varchar | 15 |  |
| Bal\_due | Numeric | 10,2 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Client\_no** | **Name** | **City** | **Pincode** | **State** | **Bal\_due** |
| C001 | Ivan | Bombay | 400054 | Maharashtra | 15000 |
| C002 | Vandana | Madras | 780001 | Tamil Nadu | 0 |
| C003 | Pramada | Bombay | 400057 | Maharashtra | 5000 |
| C004 | Basu | Bombay | 400056 | Maharashtra | 0 |
| C005 | Ravi | Delhi | 100001 | Gujarat | 2000 |
| C006 | Rukmani | Bombay | 400050 | Maharashtra | 0 |

**Code :**

**Execution 1:**

alter table client\_master add primary key (Client\_no);

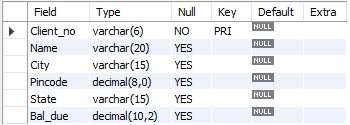
**Execution 2:**

alter table client\_master add constraint C\_Cons CHECK (Client\_no LIKE 'C%') ;

**Execution 3:**

Describe client\_master;

**Output :**



**Code :**

**Execution 1:**

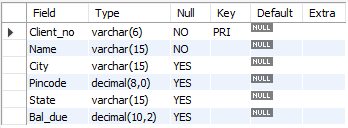
ALTER TABLE client\_master

MODIFY Name VARCHAR(15) NOT NULL;

**Execution 2:**

describe client\_master;

**Output :**

****

1. **Table Name: Product\_master**
   1. **Description: Used to store information about products.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Attributes** |
| Product\_no | Varchar | 6 | Primary key/ first letter  must start with ‘P’ |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Description | | Varchar | | | 15 | Not Null | | |  |  |
| P\_percent | | Numeric | | | 4,2 | Not Null | | |  |  |
| U\_measure | | Varchar | | | 10 | Not Null | | |  |  |
| Qty\_on\_hand | | Numeric | | | 8 | Not Null | | |  |  |
| Reorder\_lvl | | Numeric | | | 8 | Not Null | | |  |  |
| Sell\_price | | Numeric | | | 8,2 | Not Null, cannot be 0 | | |  |  |
| Cost\_price | | Numeric | | | 8,2 | Not Null, cannot be 0 | | |  |  |
|  | |  | | |  |  | | |  |  |
| Product\_ No | Description | | P\_  Percent | U\_  Measure | | | Qty\_on\_  hand | Reorder\_ Lvl | sell\_  price | Cost\_  Price |
| P001 | Floppies | | 5 | Piece | | | 100 | 20 | 525 | 500 |
| P002 | Monitor | | 6 | Piece | | | 10 | 3 | 12000 | 11280 |
| P003 | Mouse | | 5 | Piece | | | 20 | 5 | 1050 | 1000 |
| P004 | Floppies | | 5 | Piece | | | 100 | 20 | 525 | 500 |
| P005 | Keyboards | | 2 | Piece | | | 10 | 3 | 3150 | 3050 |
| P006 | Cd Drive | | 2.5 | Piece | | | 10 | 3 | 5250 | 5100 |
| P007 | 1.44 Drive | | 4 | Piece | | | 10 | 3 | 8400 | 8000 |

**Code :**

**Execution 1:**

ALTER TABLE product\_master

ADD CONSTRAINT chk\_product\_no CHECK (Product\_no LIKE 'P%');

**Execution 2:**

ALTER TABLE product\_master

MODIFY Description VARCHAR(15) NOT NULL,

MODIFY P\_percent NUMERIC(4,2) NOT NULL,

MODIFY U\_measure VARCHAR(10) NOT NULL,

MODIFY Qty\_on\_hand NUMERIC(8) NOT NULL,

MODIFY Reorder\_lvl NUMERIC(8) NOT NULL,

MODIFY Sell\_price NUMERIC(8,2) NOT NULL,

MODIFY Cost\_price NUMERIC(8,2) NOT NULL;

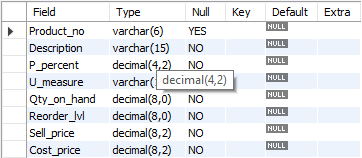
**Execution 3:**

ALTER TABLE product\_master

ADD CONSTRAINT chk\_sell\_price\_nonzero CHECK (Sell\_price > 0),

ADD CONSTRAINT chk\_cost\_price\_nonzero CHECK (Cost\_price > 0);

**Output :**

****

1. **Table Name: Salesman\_master**
2. **Description: Used to store information about salesman working in the company.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Attributes** |
| S\_no | Varchar | 6 | Primary key/ first letter  must start with ‘S’ |
| S\_name | Varchar | 15 | Not Null |
| City | Varchar | 10 |  |
| Pincode | Numeric | 8 |  |
| State | Varchar | 12 |  |
| Sal\_amt | Numeric | 8,2 | Not Null, cannot be 0 |
| Tgt\_to\_get | Numeric | 6,2 | Not Null, cannot be 0 |
| Ytd\_sales | Numeric | 6,2 | Not Null |
| Remarks | Varchar | 20 |  |

**Code :**

**Execution 1:**

ALTER TABLE sman\_mast

ADD CONSTRAINT chk\_s\_no CHECK (S\_no LIKE 'S%');

**Execution 2:**

ALTER TABLE sman\_mast

MODIFY S\_name VARCHAR(15) NOT NULL,

MODIFY City VARCHAR(10) NOT NULL,

MODIFY Sal\_amt NUMERIC(8,2) NOT NULL,

MODIFY Tgt\_to\_get NUMERIC(6,2) NOT NULL,

MODIFY Ytd\_sales NUMERIC(6,2) NOT NULL,

MODIFY Remarks VARCHAR(20) NOT NULL;

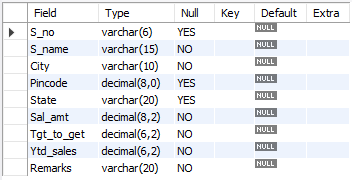
**Execution 3:**

ALTER TABLE sman\_mast

ADD CONSTRAINT chk\_sal\_amt\_nonzero CHECK (Sal\_amt > 0),

ADD CONSTRAINT chk\_tgt\_to\_get\_nonzero CHECK (Tgt\_to\_get > 0);

**Output :**



1. **Table Name: Sales\_order**
   1. **Description: Used to store client’s orders:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data**  **Type** | **Size** | **Attributes** |
| Order\_no | Varchar | 6 | Primary key/ first letter must start with ‘O’ |
| Order\_date | Date |  |  |
| Client\_no | Varchar | 6 | Foreign key references client\_no of client\_master  table. |
| S\_no | Varchar | 6 | Foreign key references s\_no of salesman\_master  table. |
| Dely\_type | Char | 1 | Delivery: part(P) / full (F) Default ‘F’ |
| Billed\_yn | Char | 1 |  |
| Dely\_date | Date |  | Cannot be less than order\_date |
| Order\_status | Varchar | 10 | Values(‘inprocess’,’fullfiled’,’backorder’,’cancelled’) |

**Code :**

**Execution 1:**

ALTER TABLE sales\_order

MODIFY Order\_no VARCHAR(6),

ADD CONSTRAINT pk\_order PRIMARY KEY (Order\_no),

ADD CONSTRAINT chk\_order\_no CHECK (LEFT(Order\_no, 1) = 'O');

**Execution 2:**

ALTER TABLE sales\_order

ADD CONSTRAINT fk\_client\_no FOREIGN KEY (Client\_no) REFERENCES client\_master(client\_no);

**Execution 3:**

ALTER TABLE sman\_mast

ADD PRIMARY KEY (s\_no);

ALTER TABLE sales\_order

ADD CONSTRAINT fk\_s\_no FOREIGN KEY (S\_no) REFERENCES sman\_mast(s\_no);

**Execution 4:**

ALTER TABLE sales\_order

MODIFY Dely\_type CHAR(1) DEFAULT 'F';

**Execution 5:**

ALTER TABLE sales\_order

ADD CONSTRAINT chk\_dely\_date CHECK (Dely\_date >= Order\_date);

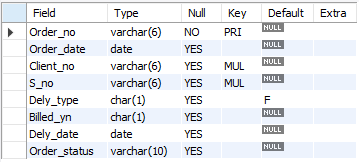
**Execution 6:**

ALTER TABLE sales\_order

MODIFY Order\_status VARCHAR(10),

ADD CONSTRAINT chk\_order\_status CHECK (Order\_status IN ('inprocess', 'fulfilled', 'backorder', 'cancelled'));

**Output :**

****

1. **Table Name: Sales\_order\_details**

**Description: Used to store client’s orders with details of each product ordered.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Attributes** |
| Order\_no | Varchar | 6 | Primary Key/ Foreign Key  references order\_no of the  sales\_order table. |
| Product\_no | Varchar | 6 | Primary Key/ Foreign Key  references product\_no of the  Product\_master table. |
| Qty\_ordered | Numeric | 8 |  |
| Qty\_disp | Numeric | 8 |  |
| Product\_rate | Numeric | 10,2 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Order\_no** | **Product\_no** | **Qty\_ordered** | **Qty\_disp** | **Product\_rate** |
| O1901 | P001 | 4 | 4 | 525 |
| O1901 | P002 | 2 | 1 | 8400 |
| O1901 | P003 | 2 | 1 | 5250 |
| O1902 | P001 | 10 | 0 | 525 |
| O4665 | P002 | 3 | 3 | 3150 |
| O4665 | P004 | 3 | 1 | 5250 |
| O4665 | P005 | 10 | 10 | 525 |
| O4665 | P003 | 4 | 4 | 1050 |
| O1903 | P006 | 2 | 2 | 1050 |
| O1903 | P004 | 1 | 1 | 12000 |
| O1908 | P005 | 1 | 0 | 8400 |
| O1908 | P007 | 10 | 0 | 1050 |

**Code :**

**Execution 1:**

CREATE TABLE Sales\_order\_details (

Order\_no VARCHAR(6),

Product\_no VARCHAR(6),

Qty\_ordered NUMERIC(8),

Qty\_disp NUMERIC(8),

Product\_rate NUMERIC(10,2),

PRIMARY KEY (Order\_no, Product\_no),

FOREIGN KEY (Order\_no) REFERENCES sales\_order(order\_no),

FOREIGN KEY (Product\_no) REFERENCES product\_master(product\_no)

);

**Execution 2:**

-- Inserting data into Sales\_order\_details table

INSERT INTO Sales\_order\_details (Order\_no, Product\_no, Qty\_ordered, Qty\_disp, Product\_rate) VALUES

('O1901', 'P001', 4, 4, 525),

('O1901', 'P002', 2, 1, 8400),

('O1901', 'P003', 2, 1, 5250),

('O1902', 'P001', 10, 0, 525),

('O4665', 'P002', 3, 3, 3150),

('O4665', 'P004', 3, 1, 5250),

('O4665', 'P005', 10, 10, 525),

('O4665', 'P003', 4, 4, 1050),

('O1903', 'P006', 2, 2, 1050),

('O1903', 'P004', 1, 1, 12000),

('O1908', 'P005', 1, 0, 8400);

**Output :**

