**18CSC303 DATABASE DESIGN**

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**Table Creation:**

**--Create users Table**

CREATE TABLE users (

user\_id NUMBER PRIMARY KEY,

username VARCHAR2(50) NOT NULL,

email VARCHAR2(100) UNIQUE,

password VARCHAR2(100) NOT NULL,

registration\_date DATE,

last\_login TIMESTAMP

);

**-- Create master\_books Table**

CREATE TABLE master\_books (

book\_id NUMBER PRIMARY KEY,

book\_title VARCHAR2(100) NOT NULL,

author VARCHAR2(100),

publication\_date DATE,

genre VARCHAR2(50),

price NUMBER(10, 2),

CONSTRAINT chk\_price\_books CHECK (price >= 0)

);

**-- Create master\_movies Table**

CREATE TABLE master\_movies (

movie\_id NUMBER PRIMARY KEY,

movie\_title VARCHAR2(100) NOT NULL,

director VARCHAR2(100),

release\_date DATE,

genre VARCHAR2(50),

price NUMBER(10, 2),

CONSTRAINT chk\_price\_movies CHECK (price >= 0)

);

**--Create master\_products Table**

CREATE TABLE master\_products (

product\_id NUMBER PRIMARY KEY,

product\_name VARCHAR2(100) NOT NULL,

brand VARCHAR2(100),

manufacture\_date DATE,

category VARCHAR2(50),

price NUMBER(10, 2),

CONSTRAINT chk\_product\_price CHECK (price >= 0)

);

**--Create master\_courses Table**

CREATE TABLE master\_courses (

course\_id NUMBER PRIMARY KEY,

course\_name VARCHAR2(100) NOT NULL,

instructor VARCHAR2(100),

start\_date DATE,

category VARCHAR2(50),

price NUMBER(10, 2),

CONSTRAINT chk\_courses\_price CHECK (price >= 0)

);

**--Create master\_restaurants Table**

CREATE TABLE master\_restaurants (

restaurant\_id NUMBER PRIMARY KEY,

restaurant\_name VARCHAR2(100) NOT NULL,

cuisine VARCHAR2(100),

opening\_date DATE,

rating NUMBER(3, 2),

price\_range VARCHAR2(20),

CONSTRAINT chk\_rating CHECK (rating >= 0 AND rating <= 5)

);

**-- Create transactions\_books Table**

CREATE TABLE transactions\_books (

transaction\_id NUMBER PRIMARY KEY,

user\_id NUMBER,

book\_id NUMBER,

transaction\_date DATE,

purchase\_price NUMBER(10, 2),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

CONSTRAINT fk\_user\_books FOREIGN KEY (user\_id) REFERENCES users(user\_id),

CONSTRAINT fk\_book\_books FOREIGN KEY (book\_id) REFERENCES master\_books(book\_id),

CONSTRAINT chk\_purchase\_price\_books CHECK (purchase\_price >= 0)

);

**-- Create transactions\_movies Table**

CREATE TABLE transactions\_movies (

transaction\_id NUMBER PRIMARY KEY,

user\_id NUMBER,

movie\_id NUMBER,

transaction\_date DATE,

purchase\_price NUMBER(10, 2),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

CONSTRAINT fk\_user\_movies FOREIGN KEY (user\_id) REFERENCES users(user\_id),

CONSTRAINT fk\_movie\_movies FOREIGN KEY (movie\_id) REFERENCES master\_movies(movie\_id),

CONSTRAINT chk\_purchase\_price\_movies CHECK (purchase\_price >= 0)

);

**-- Create transactions\_products Table**

CREATE TABLE transactions\_products (

transaction\_id NUMBER PRIMARY KEY,

user\_id NUMBER,

product\_id NUMBER,

transaction\_date DATE,

purchase\_price NUMBER(10, 2),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

CONSTRAINT fk\_user\_products FOREIGN KEY (user\_id) REFERENCES users(user\_id),

CONSTRAINT fk\_product\_products FOREIGN KEY (product\_id) REFERENCES master\_products(product\_id),

CONSTRAINT chk\_purchase\_price\_products CHECK (purchase\_price >= 0)

);

**-- Create transactions\_courses Table**

CREATE TABLE transactions\_courses (

transaction\_id NUMBER PRIMARY KEY,

user\_id NUMBER,

course\_id NUMBER,

transaction\_date DATE,

purchase\_price NUMBER(10, 2),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

CONSTRAINT fk\_user\_courses FOREIGN KEY (user\_id) REFERENCES users(user\_id),

CONSTRAINT fk\_course\_courses FOREIGN KEY (course\_id) REFERENCES master\_courses(course\_id),

CONSTRAINT chk\_purchase\_price\_courses CHECK (purchase\_price >= 0)

);

**-- Create transactions\_restaurants Table**

CREATE TABLE transactions\_restaurants (

transaction\_id NUMBER PRIMARY KEY,

user\_id NUMBER,

restaurant\_id NUMBER,

transaction\_date DATE,

total\_bill NUMBER(10, 2),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

CONSTRAINT fk\_user\_restaurants FOREIGN KEY (user\_id) REFERENCES users(user\_id),

CONSTRAINT fk\_restaurant\_restaurants FOREIGN KEY (restaurant\_id) REFERENCES master\_restaurants(restaurant\_id),

CONSTRAINT chk\_total\_bill CHECK (total\_bill >= 0)

);

**-- Create transactions\_miscellaneous Table**

CREATE TABLE transactions\_miscellaneous (

transaction\_id NUMBER PRIMARY KEY,

user\_id NUMBER,

description VARCHAR2(4000),

transaction\_date DATE,

amount NUMBER(10, 2),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

CONSTRAINT fk\_user\_miscellaneous FOREIGN KEY (user\_id) REFERENCES users(user\_id),

CONSTRAINT chk\_amount CHECK (amount >= 0));

**Insertion:**

**-- Insert values into users table**

INSERT INTO users (user\_id, username, email, password, registration\_date, last\_login)

VALUES

(1, 'user1', 'user1@example.com', 'password123', to\_date('2023-01-01','yyyy-mm-dd'), timestamp'2023-08-21 10:00:00');

INSERT INTO users (user\_id, username, email, password, registration\_date, last\_login)

VALUES(2, 'user2', 'user2@example.com', 'securepass', to\_date('2023-02-15','yyyy-mm-dd'), timestamp'2023-08-20 15:30:00');

-- Insert more values into users table

INSERT INTO users (user\_id, username, email, password, registration\_date, last\_login)

VALUES

(3, 'user3', 'user3@example.com', 'securepassword', TO\_DATE('2023-03-10', 'YYYY-MM-DD'), TO\_TIMESTAMP('2023-08-25 12:45:00', 'YYYY-MM-DD HH24:MI:SS'));

INSERT INTO users (user\_id, username, email, password, registration\_date, last\_login)

VALUES

(4, 'user4', 'user4@example.com', 'strongpass', TO\_DATE('2023-04-15', 'YYYY-MM-DD'), TO\_TIMESTAMP('2023-08-28 09:30:00', 'YYYY-MM-DD HH24:MI:SS'));

INSERT INTO users (user\_id, username, email, password, registration\_date, last\_login)

VALUES

(5, 'user5', 'user5@example.com', 'password456', TO\_DATE('2023-05-20', 'YYYY-MM-DD'), TO\_TIMESTAMP('2023-08-30 15:15:00', 'YYYY-MM-DD HH24:MI:SS'));

**-- Insert values into master\_books table**

INSERT INTO master\_books (book\_id, book\_title, author, publication\_date, genre, price)

VALUES

(1, 'Book Title 1', 'Author A', to\_date('2022-05-15','yyyy-mm-dd'), 'Fiction', 19.99);

INSERT INTO master\_books (book\_id, book\_title, author, publication\_date, genre, price)

VALUES(2, 'Book Title 2', 'Author B', to\_date('2021-10-20','yyyy-mm-dd'), 'Mystery', 12.99);

INSERT INTO master\_books (book\_id, book\_title, author, publication\_date, genre, price)

VALUES

(3, 'Book Title 3', 'Author C', TO\_DATE('2022-08-25', 'YYYY-MM-DD'), 'Sci-Fi', 24.99);

INSERT INTO master\_books (book\_id, book\_title, author, publication\_date, genre, price)

VALUES

(4, 'Book Title 4', 'Author D', TO\_DATE('2023-01-20', 'YYYY-MM-DD'), 'Thriller', 15.99);

INSERT INTO master\_books (book\_id, book\_title, author, publication\_date, genre, price)

VALUES

(5, 'Book Title 5', 'Author E', TO\_DATE('2023-03-05', 'YYYY-MM-DD'), 'Non-Fiction', 29.99);

**-- Insert values into master\_movies table**

INSERT INTO master\_movies (movie\_id, movie\_title, director, release\_date, genre, price)

VALUES

(1, 'Movie Title 1', 'Director X', TO\_DATE('2023-07-05', 'YYYY-MM-DD'), 'Action', 14.99);

INSERT INTO master\_movies (movie\_id, movie\_title, director, release\_date, genre, price)

VALUES

(2, 'Movie Title 2', 'Director Y', TO\_DATE('2022-12-10', 'YYYY-MM-DD'), 'Comedy', 9.99);

INSERT INTO master\_movies (movie\_id, movie\_title, director, release\_date, genre, price)

VALUES

(3, 'Movie Title 3', 'Director Z', TO\_DATE('2023-04-10', 'YYYY-MM-DD'), 'Drama', 17.99);

INSERT INTO master\_movies (movie\_id, movie\_title, director, release\_date, genre, price)

VALUES

(4, 'Movie Title 4', 'Director M', TO\_DATE('2023-06-15', 'YYYY-MM-DD'), 'Sci-Fi', 18.99);

INSERT INTO master\_movies (movie\_id, movie\_title, director, release\_date, genre, price)

VALUES

(5, 'Movie Title 5', 'Director N', TO\_DATE('2023-04-30', 'YYYY-MM-DD'), 'Romance', 12.99);

**-- Insert values into master\_products table**

INSERT INTO master\_products (product\_id, product\_name, brand, manufacture\_date, category, price)

VALUES

(1, 'Product 1', 'Brand A', TO\_DATE('2023-06-01', 'YYYY-MM-DD'), 'Electronics', 299.99);

INSERT INTO master\_products (product\_id, product\_name, brand, manufacture\_date, category, price)

VALUES

(2, 'Product 2', 'Brand B', TO\_DATE('2023-07-15', 'YYYY-MM-DD'), 'Home Appliances', 149.99);

INSERT INTO master\_products (product\_id, product\_name, brand, manufacture\_date, category, price)

VALUES

(3, 'Product 3', 'Brand C', TO\_DATE('2023-08-10', 'YYYY-MM-DD'), 'Clothing', 49.99);

INSERT INTO master\_products (product\_id, product\_name, brand, manufacture\_date, category, price)

VALUES

(4, 'Product 4', 'Brand D', TO\_DATE('2023-07-20', 'YYYY-MM-DD'), 'Beauty', 29.99);

INSERT INTO master\_products (product\_id, product\_name, brand, manufacture\_date, category, price)

VALUES

(5, 'Product 5', 'Brand E', TO\_DATE('2023-08-05', 'YYYY-MM-DD'), 'Electronics', 199.99);

**-- Insert values into master\_courses table**

INSERT INTO master\_courses (course\_id, course\_name, instructor, start\_date, category, price)

VALUES

(1, 'Course 1', 'Instructor X', TO\_DATE('2023-09-01', 'YYYY-MM-DD'), 'Programming', 199.99);

INSERT INTO master\_courses (course\_id, course\_name, instructor, start\_date, category, price)

VALUES

(2, 'Course 2', 'Instructor Y', TO\_DATE('2023-08-15', 'YYYY-MM-DD'), 'Design', 149.99);

INSERT INTO master\_courses (course\_id, course\_name, instructor, start\_date, category, price)

VALUES

(3, 'Course 3', 'Instructor Z', TO\_DATE('2023-09-10', 'YYYY-MM-DD'), 'Language', 99.99);

INSERT INTO master\_courses (course\_id, course\_name, instructor, start\_date, category, price)

VALUES

(4, 'Course 4', 'Instructor W', TO\_DATE('2023-08-15', 'YYYY-MM-DD'), 'Music', 79.99);

INSERT INTO master\_courses (course\_id, course\_name, instructor, start\_date, category, price)

VALUES

(5, 'Course 5', 'Instructor X', TO\_DATE('2023-07-20', 'YYYY-MM-DD'), 'Fitness', 149.99);

**-- Insert values into master\_restaurants table**

INSERT INTO master\_restaurants (restaurant\_id, restaurant\_name, cuisine, opening\_date, rating, price\_range)

VALUES (1, 'Restaurant A', 'Italian', TO\_DATE('2022-03-10', 'YYYY-MM-DD'), 4.5, 'Moderate');

INSERT INTO master\_restaurants (restaurant\_id, restaurant\_name, cuisine, opening\_date, rating, price\_range)

VALUES

(2, 'Restaurant B', 'Asian Fusion', TO\_DATE('2023-01-20', 'YYYY-MM-DD'), 4.0, 'Expensive');

INSERT INTO master\_restaurants (restaurant\_id, restaurant\_name, cuisine, opening\_date, rating, price\_range)

VALUES

(3, 'Restaurant C', 'Mexican', TO\_DATE('2023-06-10', 'YYYY-MM-DD'), 4.2, 'Moderate');

INSERT INTO master\_restaurants (restaurant\_id, restaurant\_name, cuisine, opening\_date, rating, price\_range)

VALUES

(4, 'Restaurant D', 'Indian', TO\_DATE('2023-05-15', 'YYYY-MM-DD'), 4.5, 'Expensive');

INSERT INTO master\_restaurants (restaurant\_id, restaurant\_name, cuisine, opening\_date, rating, price\_range)

VALUES

(5, 'Restaurant E', 'Japanese', TO\_DATE('2023-07-01', 'YYYY-MM-DD'), 4.0, 'Moderate');

**-- Insert values into transactions\_books table**

INSERT INTO transactions\_books (transaction\_id, user\_id, book\_id, transaction\_date, purchase\_price)

VALUES

(1, 1, 1, TO\_DATE('2023-08-10', 'YYYY-MM-DD'), 19.99);

INSERT INTO transactions\_books (transaction\_id, user\_id, book\_id, transaction\_date, purchase\_price)

VALUES

(2, 2, 2, TO\_DATE('2023-08-18', 'YYYY-MM-DD'), 12.99);

-- Insert additional values into transactions\_books table

INSERT INTO transactions\_books (transaction\_id, user\_id, book\_id, transaction\_date, purchase\_price)

VALUES

(3, 1, 3, TO\_DATE('2023-08-25', 'YYYY-MM-DD'), 24.99);

INSERT INTO transactions\_books (transaction\_id, user\_id, book\_id, transaction\_date, purchase\_price)

VALUES

(4, 2, 4, TO\_DATE('2023-08-30', 'YYYY-MM-DD'), 15.99);

INSERT INTO transactions\_books (transaction\_id, user\_id, book\_id, transaction\_date, purchase\_price)

VALUES

(5, 2, 5, TO\_DATE('2023-08-27', 'YYYY-MM-DD'), 29.99);

**-- Insert values into transactions\_movies table**

INSERT INTO transactions\_movies (transaction\_id, user\_id, movie\_id, transaction\_date, purchase\_price)

VALUES

(1, 1, 1, TO\_DATE('2023-08-12', 'YYYY-MM-DD'), 14.99);

INSERT INTO transactions\_movies (transaction\_id, user\_id, movie\_id, transaction\_date, purchase\_price)

VALUES

(2, 2, 2, TO\_DATE('2023-08-19', 'YYYY-MM-DD'), 9.99);

INSERT INTO transactions\_movies (transaction\_id, user\_id, movie\_id, transaction\_date, purchase\_price)

VALUES

(3, 1, 3, TO\_DATE('2023-08-28', 'YYYY-MM-DD'), 17.99);

INSERT INTO transactions\_movies (transaction\_id, user\_id, movie\_id, transaction\_date, purchase\_price)

VALUES

(4, 2, 4, TO\_DATE('2023-08-31', 'YYYY-MM-DD'), 18.99);

INSERT INTO transactions\_movies (transaction\_id, user\_id, movie\_id, transaction\_date, purchase\_price)

VALUES

(5, 1, 5, TO\_DATE('2023-09-02', 'YYYY-MM-DD'), 12.99);

**-- Insert values into transactions\_products table**

INSERT INTO transactions\_products (transaction\_id, user\_id, product\_id, transaction\_date, purchase\_price)

VALUES

(1, 1, 1, TO\_DATE('2023-08-05', 'YYYY-MM-DD'), 299.99);

INSERT INTO transactions\_products (transaction\_id, user\_id, product\_id, transaction\_date, purchase\_price)

VALUES

(2, 2, 2, TO\_DATE('2023-08-22', 'YYYY-MM-DD'), 149.99);

INSERT INTO transactions\_products (transaction\_id, user\_id, product\_id, transaction\_date, purchase\_price)

VALUES

(3, 1, 3, TO\_DATE('2023-08-10', 'YYYY-MM-DD'), 49.99);

INSERT INTO transactions\_products (transaction\_id, user\_id, product\_id, transaction\_date, purchase\_price)

VALUES

(4, 2, 4, TO\_DATE('2023-08-22', 'YYYY-MM-DD'), 29.99);

INSERT INTO transactions\_products (transaction\_id, user\_id, product\_id, transaction\_date, purchase\_price)

VALUES

(5, 1, 5, TO\_DATE('2023-08-15', 'YYYY-MM-DD'), 199.99);

**-- Insert values into transactions\_courses table**

INSERT INTO transactions\_courses (transaction\_id, user\_id, course\_id, transaction\_date, purchase\_price)

VALUES

(1, 1, 1, TO\_DATE('2023-08-08', 'YYYY-MM-DD'), 199.99);

INSERT INTO transactions\_courses (transaction\_id, user\_id, course\_id, transaction\_date, purchase\_price)

VALUES

(2, 2, 2, TO\_DATE('2023-08-16', 'YYYY-MM-DD'), 149.99);

INSERT INTO transactions\_courses (transaction\_id, user\_id, course\_id, transaction\_date, purchase\_price)

VALUES

(3, 1, 3, TO\_DATE('2023-08-08', 'YYYY-MM-DD'), 99.99);

INSERT INTO transactions\_courses (transaction\_id, user\_id, course\_id, transaction\_date, purchase\_price)

VALUES

(4, 2, 4, TO\_DATE('2023-08-16', 'YYYY-MM-DD'), 79.99);

INSERT INTO transactions\_courses (transaction\_id, user\_id, course\_id, transaction\_date, purchase\_price)

VALUES

(5, 1, 5, TO\_DATE('2023-08-12', 'YYYY-MM-DD'), 149.99);

**-- Insert values into transactions\_restaurants table**

INSERT INTO transactions\_restaurants (transaction\_id, user\_id, restaurant\_id, transaction\_date, total\_bill)

VALUES

(1, 1, 1, TO\_DATE('2023-08-14', 'YYYY-MM-DD'), 50.00);

INSERT INTO transactions\_restaurants (transaction\_id, user\_id, restaurant\_id, transaction\_date, total\_bill)

VALUES

(2, 2, 2, TO\_DATE('2023-08-21', 'YYYY-MM-DD'), 80.00);

INSERT INTO transactions\_restaurants (transaction\_id, user\_id, restaurant\_id, transaction\_date, total\_bill)

VALUES

(3, 1, 3, TO\_DATE('2023-08-14', 'YYYY-MM-DD'), 70.00);

INSERT INTO transactions\_restaurants (transaction\_id, user\_id, restaurant\_id, transaction\_date, total\_bill)

VALUES

(4, 2, 4, TO\_DATE('2023-08-21', 'YYYY-MM-DD'), 100.00);

INSERT INTO transactions\_restaurants (transaction\_id, user\_id, restaurant\_id, transaction\_date, total\_bill)

VALUES

(5, 1, 5, TO\_DATE('2023-08-18', 'YYYY-MM-DD'), 120.00);

**-- Insert values into transactions\_miscellaneous table**

INSERT INTO transactions\_miscellaneous (transaction\_id, user\_id, description, transaction\_date, amount)

VALUES

(1, 1, 'Misc Item 1', TO\_DATE('2023-08-17', 'YYYY-MM-DD'), 10.00);

INSERT INTO transactions\_miscellaneous (transaction\_id, user\_id, description, transaction\_date, amount)

VALUES

(2, 2, 'Misc Item 2', TO\_DATE('2023-08-23', 'YYYY-MM-DD'), 15.00);

INSERT INTO transactions\_miscellaneous (transaction\_id, user\_id, description, transaction\_date, amount)

VALUES

(3, 1, 'Misc Item 3', TO\_DATE('2023-08-17', 'YYYY-MM-DD'), 7.50);

INSERT INTO transactions\_miscellaneous (transaction\_id, user\_id, description, transaction\_date, amount)

VALUES

(4, 2, 'Misc Item 4', TO\_DATE('2023-08-23', 'YYYY-MM-DD'), 12.25);

INSERT INTO transactions\_miscellaneous (transaction\_id, user\_id, description, transaction\_date, amount)

VALUES

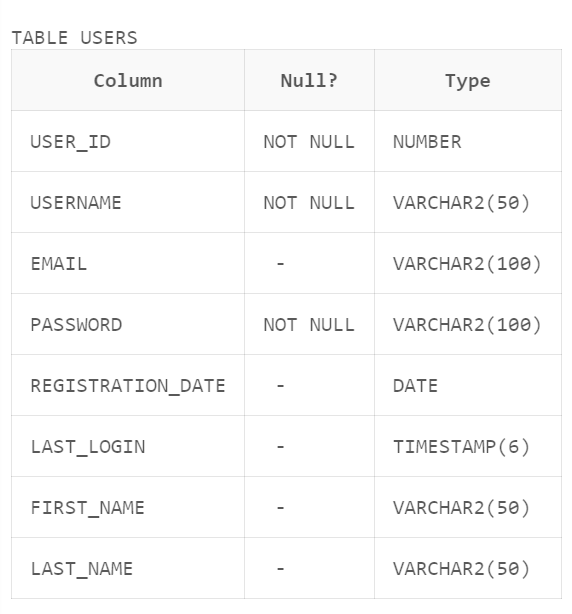
(5, 1, 'Misc Item 5', TO\_DATE('2023-08-20', 'YYYY-MM-DD'), 20.00);

**Adding new columns in user table for HTML form**

ALTER TABLE users

ADD first\_name VARCHAR(50),

ADD last\_name VARCHAR(50);



**Select**

**-- Retrieve all user data**

SELECT \* FROM users;

**-- Retrieve books priced less than 15**

SELECT \* FROM master\_books WHERE price < 15;

**-- Retrieve transactions for user 1**

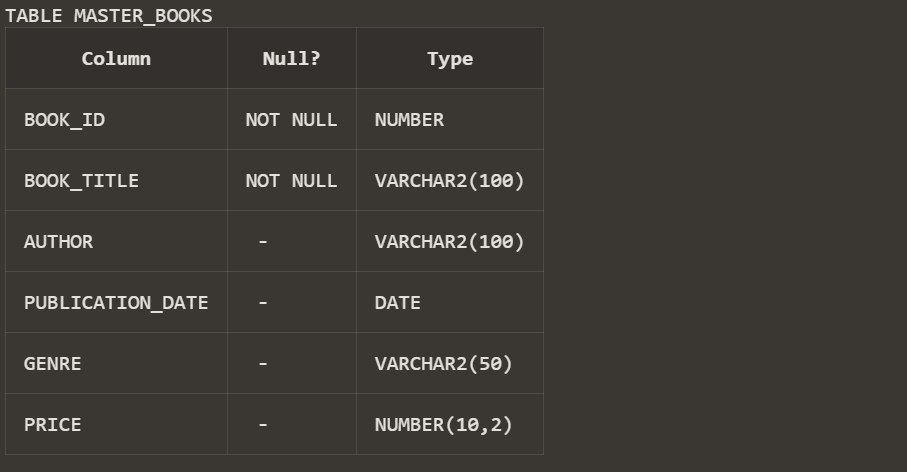
SELECT \* FROM transactions\_books WHERE user\_id = 1;

**Describe**

**-- Describe the structure of the users table**

DESCRIBE users;

**-- Describe the structure of the master\_books table**

DESCRIBE master\_books;

**Delete**

**-- Delete user with user\_id 2**

DELETE FROM users WHERE user\_id = 2;

**-- Delete a book with book\_id 1**

DELETE FROM master\_books WHERE book\_id = 1;

**Alter**

**--- Add a new column 'is\_active' to the users table**

ALTER TABLE users ADD is\_active NUMBER(1) DEFAULT 1;

SELECT \* FROM users;

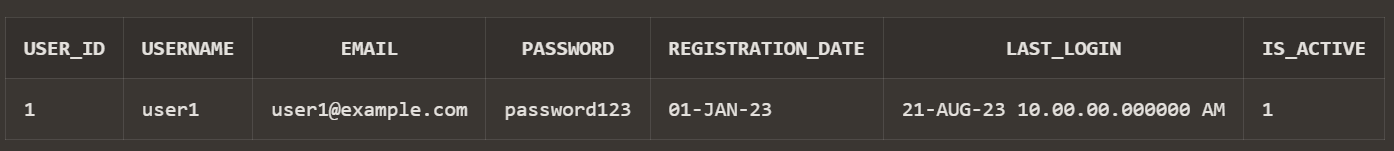
**-- Add a new column 'is\_featured' to the master\_books table**

ALTER TABLE master\_books ADD is\_featured NUMBER(1) DEFAULT 0;

SELECT \* FROM master\_books;

**Select with where clause**

**-- Retrieve user details for user\_id 1**

SELECT \* FROM users WHERE user\_id = 1;

**-- Retrieve movies released after 2022-01-01**

SELECT \* FROM master\_movies WHERE release\_date > TO\_DATE('2022-01-01', 'YYYY-MM-DD');

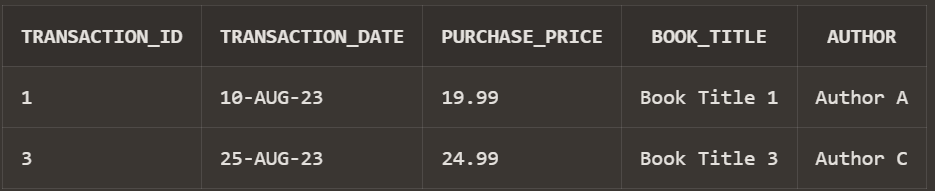
**Select with where clause on multiple tables**

**-- Retrieve transactions for user 1 along with book details**

SELECT tb.transaction\_id, tb.transaction\_date, tb.purchase\_price, mb.book\_title, mb.author

FROM transactions\_books tb

JOIN master\_books mb ON tb.book\_id = mb.book\_id

WHERE tb.user\_id = 1;

**Drop**

**-- Drop the transactions\_miscellaneous table**

DROP TABLE transactions\_miscellaneous;