

Database Design Project

Oracle Baseball League Store Database

Project Scenario:

You are a small consulting company specializing in database development. You have just been awarded the contract to develop a data model for a database application system for a small retail store called Oracle Baseball League (OBL).

The Oracle Baseball League store serves the entire surrounding community selling baseball kit. The OBL has two types of customer, there are individuals who purchase items like balls, cleats, gloves, shirts, screen printed t-shirts, and shorts. Additionally customers can represent a team when they purchase uniforms and equipment on behalf of the team.

Teams and individual customers are free to purchase any item from the inventory list, but teams get a discount on the list price depending on the number of players. When a customer places an order we record the order items for that order in our database.

OBL has a team of three sales representatives that officially only call on teams but have been known to handle individual customer complaints.

Section 6 Lesson 4 Exercise 1: Data Manipulation Language

Use DML operations to manage database tables (S6L4 Objective 2)

In this exercise you will populate and work with the data that is stored in the database system tables.

Part 1 : Running a script to populate the tables.

You have to consider the order of the tables when populating them. A table that has a foreign key field cannot be populated before the related table with the primary key.

1. Use the table mapping document and list the order that you would use to populate the tables.

```
CREATE TABLE inventory_list (  
  id      VARCHAR2(11) NOT NULL,  
  cost    NUMBER(7,2) NOT NULL,  
  units   NUMBER(4) NOT NULL,  
  CONSTRAINT inventory_list_pk PRIMARY KEY ( id )  
)
```

Table created.

```
CREATE TABLE items (  
  itm_number  VARCHAR2(10) NOT NULL,  
  name        VARCHAR2(20) NOT NULL,  
  description  VARCHAR2(50) NOT NULL,  
  category    VARCHAR2(25) NOT NULL,  
  color       VARCHAR2(15),  
  "Size"      CHAR(1),  
  ilt_id      VARCHAR2(11) NOT NULL,  
  CONSTRAINT item_pk PRIMARY KEY ( itm_number )  
)
```

Table created.

```
CREATE TABLE price_history (  
  start_date  DATE NOT NULL,  
  start_time  DATE NOT NULL,  
  price       NUMBER(7,2) NOT NULL,  
  end_date    DATE,  
  end_time    DATE,  
  itm_number  VARCHAR2(10) NOT NULL,  
  CONSTRAINT price_history_pk PRIMARY KEY ( itm_number, start_date, start_time ),  
  CONSTRAINT price_history_items_fk FOREIGN KEY ( itm_number ) REFERENCES items ( itm_number )  
)
```

Table created.

```

CREATE TABLE sales_representatives (
  id          VARCHAR2(4) NOT NULL,
  email       VARCHAR2(50) NOT NULL,
  first_name  VARCHAR2(20) NOT NULL,
  last_name   VARCHAR2(30) NOT NULL,
  phone_number VARCHAR2(11) NOT NULL,
  commission_rate NUMBER(2) NOT NULL,
  supervisor_id VARCHAR2(4) NOT NULL,
  CONSTRAINT sales_representative_pk PRIMARY KEY ( id ),
  CONSTRAINT sre_email_uk UNIQUE (email)
)

```

Table created.

```

CREATE TABLE sales_rep_addresses (
  id          VARCHAR2(4) NOT NULL,
  address_line_1 VARCHAR2(30) NOT NULL,
  address_line_2 VARCHAR2(30),
  city        VARCHAR2(15) NOT NULL,
  zip_code    VARCHAR2(7) NOT NULL,
  CONSTRAINT sales_rep_address_pk PRIMARY KEY ( id )
)

```

Table created.

```

CREATE TABLE teams (
  id          VARCHAR2(4) NOT NULL,
  name        VARCHAR2(20) NOT NULL,
  number_of_players NUMBER(2) NOT NULL,
  discount    NUMBER(2),
  CONSTRAINT team_pk PRIMARY KEY ( id )
)

```

Table created.

```

CREATE TABLE customers (
  ctr_number    VARCHAR2(6) NOT NULL,
  email         VARCHAR2(50) NOT NULL,
  first_name    VARCHAR2(20) NOT NULL,
  last_name     VARCHAR2(30) NOT NULL,
  phone_number  VARCHAR2(11) NOT NULL,
  current_balance NUMBER(6,2) NOT NULL,
  sre_id        VARCHAR2(4),
  tem_id        VARCHAR2(4),
  loyalty_card_number VARCHAR2(6),
  CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
  CONSTRAINT ctr_email_uk UNIQUE (email),
  CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
)

```

Table created.

```
CREATE TABLE customers_addresses (
  id          VARCHAR2(8) NOT NULL,
  address_line_1 VARCHAR2(30) NOT NULL,
  address_line_2 VARCHAR2(30),
  city        VARCHAR2(15) NOT NULL,
  zip_code    VARCHAR2(7) NOT NULL,
  ctr_number   VARCHAR2(6) NOT NULL,
  CONSTRAINT customer_address_pk PRIMARY KEY ( id )
)
```

Table created.

```
CREATE TABLE orders (
  id          VARCHAR2(9) NOT NULL,
  odr_date    DATE NOT NULL,
  odr_time    DATE NOT NULL,
  number_of_units NUMBER(2) NOT NULL,
  ctr_number   VARCHAR2(6) NOT NULL,
  CONSTRAINT orders_pk PRIMARY KEY ( id )
)
```

Table created.

```
CREATE TABLE ordered_items (
  quantity_ordered  NUMBER(3) NOT NULL,
  quantity_shipped  NUMBER(3) NOT NULL,
  itm_number        VARCHAR2(10) NOT NULL,
  odr_id            VARCHAR2(9) NOT NULL,
  CONSTRAINT ordered_item_pk PRIMARY KEY ( itm_number,odr_id )
)
```

Table created.

```
ALTER TABLE customers_addresses ADD CONSTRAINT customer_address_customer_fk FOREIGN KEY ( ctr_number )
  REFERENCES customers ( ctr_number )
```

Table altered.

```
ALTER TABLE customers ADD CONSTRAINT customer_sales_rep_fk FOREIGN KEY ( sre_id )
  REFERENCES sales_representatives ( id )
```

Table altered.

```
ALTER TABLE customers ADD CONSTRAINT customer_team_fk FOREIGN KEY ( tem_id )  
REFERENCES teams ( id )
```

Table altered.

```
ALTER TABLE items ADD CONSTRAINT item_inventory_list_fk FOREIGN KEY ( ilt_id )  
REFERENCES inventory_list ( id )
```

Table altered.

```
ALTER TABLE orders ADD CONSTRAINT order_customer_fk FOREIGN KEY ( ctr_number )  
REFERENCES customers ( ctr_number )
```

Table altered.

```
ALTER TABLE ordered_items ADD CONSTRAINT ordered_item_item_fk FOREIGN KEY ( itm_number )  
REFERENCES items ( itm_number )
```

Table altered.

```
ALTER TABLE ordered_items ADD CONSTRAINT ordered_item_order_fk FOREIGN KEY ( odr_id )  
REFERENCES orders ( id )
```

Table altered.

```
ALTER TABLE sales_rep_addresses ADD CONSTRAINT sales_rep_add_sales_rep_fk FOREIGN KEY ( id )  
REFERENCES sales_representatives ( id )
```

Table altered.

```
ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id )
```

Table altered.

```
CREATE OR REPLACE TRIGGER fkntm_orders BEFORE
UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20225,
        'Non Transferable FK constraint on table orders is violated'
    );
END;
```

Trigger created.

- Open the “sports data.sql” and look at the order the data is being added there, does your list match?
This file can be found in the Section 6 Lesson 4 interaction (sports data.zip) and must first be extracted.

YES

- Run the “sports data.sql” script in APEX to populate your tables.
- Check that no errors occurred when you ran the script.

↑ SQL Scripts \ Results

Script: sports data.sql ⓘ

Status: Complete ⓘ

Create App

Edit Script

View:

● Detail

● Summary ⓘ

 Rows: 15 ⓘ

Go

| Number ↑≡ | Elapsed | Statement | Feedback | Rows |
|-----------|---------|--|--------------------|------|
| 46 | 0.00 | INSERT INTO ordered_items (quantity_ordered, quantity_shippe | 1 row(s) inserted. | 1 |
| 47 | 0.00 | INSERT INTO ordered_items (quantity_ordered, quantity_shippe | 1 row(s) inserted. | 1 |

Download

◀ Previous row(s) 46 - 47 of 47

47

Statements Processed

47

Successful

0

With Errors

Part 2- Inserting rows to the system

1. Add a new team to the system

| id | name | Number_of_players | discount |
|------|------|-------------------|----------|
| t004 | Jets | 10 | 5 |

INSERT INTO TEAMS (id, name, Number_of_players, discount) VALUES ('t004', 'Jets', '10', '5')

| TEAMS | | | | |
|---|----------|--------------|-------------------|----------------|
| Columns | Data | Indexes | Constraints | Grants |
| Statistics | Triggers | Dependencies | DDL | Sample Queries |
| + Insert Row Columns... Filter... Count Rows Load Data Download Refresh | | | | |
| | ID | NAME | NUMBER_OF_PLAYERS | DISCOUNT |
| | t001 | Rockets | 25 | 10 |
| | t002 | Celtics | 42 | 20 |
| | t003 | Rovers | 8 | |
| | t004 | Jets | 10 | 5 |

2. Add a new Customer with the following details to the system

| ctr number | email | First name | Last name | Phone number | Current balance | Loyalty card number | tem id | sre id |
|------------|----------------------|------------|-----------|--------------|-----------------|---------------------|--------|--------|
| c02001 | brianrog@hootech.com | Brian | Rogers | 01654564898 | -5 | lc4587 | | |

INSERT INTO CUSTOMERS (ctr_number, email, first_name, last_name, phone_number, current_balance, loyalty_card_number) VALUES ('c02001', 'brianrog@hootech.com', 'Brian', 'Rogers', '01654564898', '-5', 'lc4587')

| | CTR_NUMBER | EMAIL | FIRST_NAME | LAST_NAME | PHONE_NUMBER | CURRENT_BALANCE | SRE_ID | TEM_ID | LOYALTY_CARD_NUMBER |
|--|------------|--------------------------|------------|------------|--------------|-----------------|--------|--------|---------------------|
| | c00001 | bob.thornberry@heatma... | Robert | Thornberry | 01234567898 | 150 | sr01 | t001 | |
| | c00012 | Jjones@firemail.com | Jennifer | Jones | 01505214598 | 0 | | | lc1015 |
| | c00101 | unknown@here.com | John | Doe | 03216547808 | 9875 | sr01 | t002 | |
| | c00103 | MurciaA@globaltech.com | Andrew | Murcia | 07715246890 | 85 | | | lc2341 |
| | c01986 | margal87@delphiview.com | Maria | Galant | 01442736589 | 125.65 | sr03 | t003 | |
| | c02001 | brianrog@hootech.com | Brian | Rogers | 01654564898 | -5 | | | lc4587 |

- This information violates the check constraint that the current balance must not be less than zero.
Change the current balance to 50 and rerun the query.

INFORMATION VIOLATES

```

1 ALTER TABLE CUSTOMERS
2 ADD CHECK (CURRENT_BALANCE >= 0)

```

Results Explain Describe Saved SQL History

ORA-02293: cannot validate (WKSP_YEWEONG.) - check constraint violated

CHANGE CURRENT BALANCE

```

1 UPDATE CUSTOMERS
2 SET CURRENT_BALANCE = 50
3 WHERE ctr_number = 'c02001'

```

Results Explain Describe Saved SQL History

1 row(s) updated.

AFTER UPDATED

| | CTR_NUMBER | EMAIL | FIRST_NAME | LAST_NAME | PHONE_NUMBER | CURRENT_BALANCE | SRE_ID | TEM_ID | LOYALTY_CARD_NUMBER |
|--|------------|--------------------------|------------|------------|--------------|-----------------|--------|--------|---------------------|
| | c00001 | bob.thornberry@heatma... | Robert | Thornberry | 01234567898 | 150 | sr01 | t001 | |
| | c00012 | Jjones@freemail.com | Jennifer | Jones | 01505214598 | 0 | | | lc1015 |
| | c00101 | unknown@here.com | John | Doe | 03216547808 | 9875 | sr01 | t002 | |
| | c00103 | MurciaA@globaltech.com | Andrew | Murcia | 07715246890 | 85 | | | lc2341 |
| | c01986 | margal87@delphiview.com | Maria | Galant | 01442736589 | 125.65 | sr03 | t003 | |
| | c02001 | brianrog@hootech.com | Brian | Rogers | 01654564898 | 50 | | | lc4587 |