

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 7 Exercise 1: Restricting Data Using WHERE

Limit rows using WHERE (S6L7 Objective 1)

In this exercise you will refine the data that is returned in your query by adding a WHERE clause to your SELECT statement.

Part 1: Using the WHERE Clause.

1. Using the unique customer number in the where clause display all columns for Maria Galant.
2. Display the first name, last name and customer number for all customers who have a current balance of greater than 100. Use an appropriate alias for your column headings.
3. Display the order id, date and time of all orders that were placed before the 28th of May 2019. Use an appropriate alias for your column headings.

Part 2: Range Conditions: BETWEEN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that have a trade cost of between 3.00 and 15.00.

Part 3: Membership Conditions: IN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that have 50, 100, 150 or 200 units in stock.

Part 4: Membership Conditions: NOT IN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that do not have 50, 100, 150 or 200 units in stock.

Part 5: Pattern Matching: LIKE Operator

1. Display item number and name of all items that have a name that begins with g. Use an appropriate alias for your column headings.

Part 6 : Pattern Matching: Combining Wildcard Characters with the LIKE Operator

1. Display item number and name of all items that have a name that contain a lowercase o. Use an appropriate alias for your column headings.

Part 1: Using the WHERE Clause.

1. Using the unique customer number in the where clause display all columns for Maria Galant.

```
1. SELECT *  
   FROM customers  
  WHERE ctr-number = 'C01986';
```

2. Display the first name, last name and customer number for all customers who have a current balance of greater than 100. Use an appropriate alias for your column headings.

```
2. SELECT first-name AS "First Name", last-name AS "Last Name", current-balance AS "Balance"  
   FROM customers  
  WHERE current-balance > 100;
```

3. Display the order id, date and time of all orders that were placed before the 28th of May 2019. Use an appropriate alias for your column headings.

```
3. SELECT ID AS "Order ID", ODR-DATE AS "Order Date", TO_CHAR(ODR-TIME, 'HH24:MI:SS') AS "ORDER TIME"  
   FROM ORDERS  
  WHERE ODR-DATE < TO_DATE('28-MAY-2019', 'DD-MON-YYYY');
```

Part 2: Range Conditions: BETWEEN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that have a trade cost of between 3.00 and 15.00.

```
1. SELECT id AS "Inventory ID", cost AS "Cost", units AS "Number of Units in Stock"  
   FROM inventory-list  
  WHERE cost BETWEEN 3 AND 15;
```

Part 3: Membership Conditions: IN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that have 50, 100, 150 or 200 units in stock.

```
1. SELECT id AS "Inventory ID", cost AS "Cost", units AS "Number of Units in Stock"  
   FROM inventory-list  
  WHERE units IN (50, 100, 150, 200, 250);
```

Part 4: Membership Conditions: NOT IN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that do not have 50, 100, 150 or 200 units in stock.

```
1. SELECT id AS "Inventory ID", cost AS "Cost", units AS "Number of Units in Stock"  
   FROM inventory-list  
  WHERE units NOT IN (50, 100, 150, 200, 250);
```

Part 5: Pattern Matching: LIKE Operator

1. Display item number and name of all items that have a name that begins with g. Use an appropriate alias for your column headings.

```
1. SELECT item-number AS "Item ID", name AS "Item Name"  
   FROM items  
  WHERE name LIKE 'g%';
```

Part 6 : Pattern Matching: Combining Wildcard Characters with the LIKE Operator

1. Display item number and name of all items that have a name that contain a lowercase o. Use an appropriate alias for your column headings.

```
1. SELECT item-number AS "Item ID", name AS "Item Name"  
   FROM items  
  WHERE name LIKE '%o%';
```

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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.

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Section 6 Lesson 6 Exercise 1: Retrieving Data Using SELECT

Write and Execute SELECT statements (S6L6 Objective 2)

In this exercise you will retrieve data that is stored in the database system by using a SELECT statement.

Part 1: Retrieving all columns from a table.

Using the SELECT * statement show all data stored in the following tables:

1. customers.
2. teams.
3. items

Part 2: Selecting Specific Columns

1. Display the customer number, first name, last name, email and phone number of the customers.
2. Display the name and number of players for each team.
3. Display the name, description and category for every item in the table.

Part 1: Retrieving all columns from a table.

Using the SELECT * statement show all data stored in the following tables:

1. customers.

1. `SELECT *`
`FROM customers;`

2. teams.

2. `SELECT *`
`FROM teams;`

3. items

3. `SELECT *`
`FROM items;`

Part 2: Selecting Specific Columns

1. Display the customer number, first name, last name, email and phone number of the customers.

1. `SELECT customerNumber, firstName, lastName, email, phoneNo`
`FROM customers;`

2. Display the name and number of players for each team.

2. `SELECT name, numberPlayer`
`FROM team;`

3. Display the name, description and category for every item in the table.

3. `SELECT name, description, category`
`FROM item;`

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Section 6 Lesson 8 Exercise 2: Sorting Data Using ORDER BY

Part 1 : TOP-N-ANALYSIS (S6L8 Objective 3)

1. The customers are numbered sequentially with each new customer being assigned a higher customer number. Use TOP-N-ANALYSIS to only show the First and last name of the first three customers. Show the customers first and last name in the same column using Customer Name as the column alias.

Part 2 : Using a Substitution Variable (S6L8 Objective 4)

1. Use a substitution variable that will allow you to enter the commission rate for the sales representatives. The first and last names should be displayed to screen for any sales representatives that earn that commission rate and the output should be ordered by their last name. Use an appropriate alias for your column headings.

Section 6 Lesson 8 Exercise 2: Sorting Data Using ORDER BY

Part 1 : TOP-N-ANALYSIS (S6L8 Objective 3)

1. The customers are numbered sequentially with each new customer being assigned a higher customer number. Use TOP-N-ANALYSIS to only show the First and last name of the first three customers. Show the customers first and last name in the same column using Customer Name as the column alias.

1. SELECT ROWNUM AS

"ORDER OF MEMBERSHIP", FIRST-NAME || ' ' || LAST-NAME AS "CUSTOMER NAME"

FROM(

SELECT FIRST-NAME, LAST-NAME FROM CUSTOMERS

ORDER BY CTR-NUMBER)

WHERE ROWNUM <= 3 ;

Part 2 : Using a Substitution Variable (S6L8 Objective 4)

1. Use a substitution variable that will allow you to enter the commission rate for the sales representatives. The first and last names should be displayed to screen for any sales representatives that earn that commission rate and the output should be ordered by their last name. Use an appropriate alias for your column headings.

1. SELECT FIRST-NAME || ' ' || LAST-NAME AS "SALE REPRESENTATIVES"

FROM SALES_REPRESENTATIVES

WHERE COMMISSION-RATE =:COMMISSION-RATE

ORDER BY LAST-NAME ;

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Section 6 Lesson 7 Exercise 2: Restricting Data Using WHERE

Limit rows using WHERE (S6L7 Objective 1)

In this exercise you will refine the data that is returned in your query by adding a WHERE clause to your SELECT statement.

Part 1: Using the NULL Conditions

1. Write a query that will display information for teams that don't receive a discount in the following format:

The Rovers team has 25 players and does not receive a discount.

Use **Team Information** as the column alias.

2. Write a query that will display information for only teams that receive a discount in the following format:

The Rockets team has 25 players and receives a discount of 10 percent.

Use **Team Information** as the column alias.

Part 2: Logical Operators: AND

1. Write a query that will display the customer number, address line 1 and postal code for customers that live in the starford area of Liverpool. Use Customer Number, Street Address and Postal Code as the column aliases.

Part 3: Logical Operators: OR

1. Write a query that will display the customer number, address line 1 and postal code for customers that live in either starford or Liverpool in general. Use Customer Number, Street Address and Postal Code as the column aliases.

Part 4: Logical Operators: NOT Equal To

1. Write a query that will display the customer number, address line 1 and postal code for customers that do not live in Liverpool. Use Customer Number, Street Address and Postal Code as the column aliases.

Part 1: Using the NULL Conditions

1. Write a query that will display information for teams that don't receive a discount in the following format:

The Rovers team has 25 players and does not receive a discount.

Use Team Information as the column alias.

1. `SELECT * FROM TEAMS
WHERE TEAMS.DISCOUNT IS NULL;`

2. Write a query that will display information for only teams that receive a discount in the following format:

The Rockets team has 25 players and receives a discount of 10 percent.

Use Team Information as the column alias.

2. `SELECT * FROM TEAMS
WHERE TEAMS.DISCOUNT IS NOT NULL;`

Part 2: Logical Operators: AND

1. Write a query that will display the customer number, address line 1 and postal code for customers that live in the starford area of Liverpool. Use Customer Number, Street Address and Postal Code as the column aliases.

1. `SELECT CTR-NUMBER AS "Customer Number", ADDRESS-LINE-1 AS "Street Address", ZIP-CODE AS "Postal Code"
FROM CUSTOMERS-ADDRESS
WHERE ADDRESS-LINE-2 = 'Starford'
AND CITY = 'Liverpool';`

Part 3: Logical Operators: OR

1. Write a query that will display the customer number, address line 1 and postal code for customers that live in either starford or Liverpool in general. Use Customer Number, Street Address and Postal Code as the column aliases.

1. `SELECT CTR-NUMBER AS "Customer Number", ADDRESS-LINE-1 AS "Street Address", ZIP-CODE AS "Postal Code"
FROM CUSTOMERS-ADDRESS
WHERE ADDRESS-LINE-2 = 'Starford'
OR CITY = 'Liverpool';`

Part 4: Logical Operators: NOT Equal To

1. Write a query that will display the customer number, address line 1 and postal code for customers that do not live in Liverpool. Use Customer Number, Street Address and Postal Code as the column aliases.

1. `SELECT CTR-NUMBER AS "Customer Number", ADDRESS-LINE-1 AS "Street Address", ZIP-CODE AS "Postal Code"
FROM CUSTOMERS-ADDRESS
WHERE CITY != 'Liverpool';`

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Section 6 Lesson 8 Exercise 1: Sorting Data Using ORDER BY

Use the ORDER BY Clause to Sort SQL Results (S6L8 Objective 1)

In this exercise you will sort the order of the data that is returned in your query by adding an ORDER BY clause to the end of your SELECT statement.

1. Display the team name and number of players alphabetically in order of team name. Use an appropriate alias for your column headings.
2. Display the team name and number of players in descending order of number of players. Use an appropriate alias for your column headings.
3. Display the team name and number of players alphabetically in order of team name. Use Team Name for the name alias and Players for the number of players. Sort the output in descending order of name using the alias in the ORDER BY clause.

Section 6 Lesson 8 Exercise 1: Sorting Data Using ORDER BY

Use the ORDER BY Clause to Sort SQL Results (S6L8 Objective 1)

In this exercise you will sort the order of the data that is returned in your query by adding an ORDER BY clause to the end of your SELECT statement.

1. Display the team name and number of players alphabetically in order of team name. Use an appropriate alias for your column headings.

1. `SELECT NAME , NUMBER_OF_PLAYERS
FROM TEAMS
ORDER BY NAME ASC ;`

2. Display the team name and number of players in descending order of number of players. Use an appropriate alias for your column headings.

2. `SELECT NAME , NUMBER_OF_PLAYERS
FROM TEAMS
ORDER BY NUMBER_OF_PLAYERS DESC ;`

3. Display the team name and number of players alphabetically in order of team name. Use Team Name for the name alias and Players for the number of players. Sort the output in descending order of name using the alias in the ORDER BY clause.

3. `SELECT NAME AS TEAM_NAME, NUMBER_OF_PLAYERS AS Players
FROM TEAMS
ORDER BY Name DESC ;`

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Section 6 Lesson 6 Exercise 2: Retrieving Data Using SELECT

Write and Execute SELECT statements (S6L6 Objective 2)

In this exercise you will retrieve data that is stored in the database system by using a SELECT statement.

Part 1: Using Arithmetic Operators

1. Every customer has been told they can pay off their current balance over a 12 month period. Display the customer's first name, last name, current balance and monthly payment.
2. Obl is considering giving a gift card to all its customers of 5.00 that can be used to reduce their current balance. Write a query that will show the customers first name, last name, customer number, current balance and the value of their balance minus the gift value.
3. What would be the problem with implementing this scheme?

Part 2 : Using Column Aliases

1. You previously wrote a query that display the customer's first name, last name, current balance and monthly payment. Rewrite the query to use First Name, Last Name, Balance and Monthly Repayments as the column aliases. The aliases are to be shown exactly as described (case sensitive).

Part 3: Using Literal Character Strings

1. Write a query that will display the team information in the following format:

The Rockets team has 25 players and receives a discount of 10 percent.

Use **Team Information** as the column alias.

2. Why does the last team not show a discount?

Part 1: Using Arithmetic Operators

1. Every customer has been told they can pay off their current balance over a 12 month period. Display the customer's first name, last name, current balance and monthly payment.

1. `SELECT first_name, last_name, current_balance, ROUND(current_balance / 12, 2)`
`FROM customers;`

2. Obl is considering giving a gift card to all its customers of 5.00 that can be used to reduce their current balance.

Write a query that will show the customers first name, last name, customer number, current balance and the value of their balance minus the gift value.

2. `SELECT first_name, last_name, ctr_number, current_balance, current_balance - 5`
`FROM customers;`

3. What would be the problem with implementing this scheme?

3. Some of the current balance value is below zero.

Part 2 : Using Column Aliases

1. You previously wrote a query that display the customer's first name, last name, current balance and monthly payment. Rewrite the query to use First Name, Last Name, Balance and Monthly Repayments as the column aliases. The aliases are to be shown exactly as described (case sensitive).

1. `SELECT first_name AS "First Name", last_name AS "Last Name",`
`current_balance AS "Balance", current_balance / 12 AS "Monthly Repayments"`
`FROM customer;`

Part 3: Using Literal Character Strings

1. Write a query that will display the team information in the following format:

The Rockets team has 25 players and receives a discount of 10 percent.

Use Team Information as the column alias.

1. `SELECT 'The' || name || 'team has' || number_of_players || 'players and receives a discount of' || discount || 'percent.' AS "Team Information"`
`FROM teams;`

2. Why does the last team not show a discount?

2. It is because the discount value is a NULL value and it is not equal to zero.