

Database Design Project

Oracle Baseball League Store Database

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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.

KughanRaj A/L Arunasalam

A22E0179

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

1) SELECT *

FROM customers;

CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	-
c00012	Jjones@freemail.com	Jennifer	Jones	01505214598	0	-	-	lc1015
c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	-
c00103	MurciaA@globaltech.com	Andrew	Murcia	07715246890	85	-	-	lc2341
c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	-

2) SELECT *

FROM teams;

Team Name	Players
Rovers	8
Rockets	25
Jets	10
Celtics	42

3) SELECT *

FROM items;

ITM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	Size	ILT_ID
im01101044	gloves	catcher mitt	clothing	brown	m	il010230124
im01101045	under shirt	top worn under the game top	clothing	white	s	il010230125
im01101046	socks	team socks with emblem	clothing	range	l	il010230126
im01101047	game top	team shirt with emblem	clothing	range	m	il010230127
im01101048	premium bat	high quality baseball bat	equipment	-	-	il010230128

Part 2

1) SELECT ctr-number, first-name, last-name, email, phone-number
FROM customers;

CTR_NUMBER	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER
c00001	Robert	Thornberry	bob.thornberry@heatmail.com	01234567898
c00012	Jennifer	Jones	Jjones@freemail.com	01505214598
c00101	John	Doe	unknown@here.com	03216547808
c00103	Andrew	Murcia	MurciaA@globaltech.com	07715246890
c01986	Maria	Galant	margal87@delphiview.com	01442736589

2) SELECT name, number-of-players
FROM teams;

NAME	NUMBER_OF_PLAYERS
Rockets	25
Celtics	42
Rovers	8
Jets	10

SELECT name, description, category
From items.

NAME	DESCRIPTION	CATEGORY
gloves	catcher mitt	clothing
under shirt	top worn under the game top	clothing
socks	team socks with emblem	clothing
game top	team shirt with emblem	clothing
premium bat	high quality baseball bat	equipment

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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

1) SELECT first-name, last-name, current-balance, current-balance / 12
FROM customers;

2) SELECT first-name, last-name, current-balance , current-balance - 5
FROM customers;

FIRST_NAME	LAST_NAME	CUSTOMER_NUMBER	CURRENT_BALANCE	CURRENT_BALANCE-5
Robert	Thornberry	c00001	150	145
Jennifer	Jones	c00012	0	-5
John	Doe	c00101	987.5	982.5
Andrew	Murcia	c00103	85	80
Maria	Galant	c01986	125.65	120.65

③ There are customers with 0 current balance, and after 0-5 it makes their current balance -5, a negative numbers.

Part 2.

1) SELECT first-name "First-Name", last-name "Last-Name",
current-balance "Balance", current-balance /12 "Monthly Repayment"
FROM customers;

Part 3:

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

Team Information

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

The Celtics team has 42 players and receives a discount of 20 percent.

The Rovers team has 8 players and receives a discount of percent.

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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

1) SELECT * FROM customers

WHERE ctr-number = 'c01986'

CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	s03	t03	-

2) SELECT first-name "First Name", last-name "Last Name", ctr-number "Customer Number"
FROM customers
WHERE current_balance > 100;

First Name	Last Name	Customer Number
Robert	Thornberry	c00001
John	Doe	c00101
Maria	Galant	c01986

3) SELECT id "Order ID", odr_date "Order Date", odr-time "Order Time"
FROM orders
WHERE odr_date < '28-May-2019';

Order ID	Order Date	Order Time
or0101250	17-APR-17	17-APR-17
or0101350	24-MAY-17	24-MAY-17
or0101425	28-MAY-17	28-MAY-17
or0101681	02-JUN-17	02-JUN-17
or0101750	18-JUN-17	18-JUN-17

Part 2.

1) SELECT id "Inventory ID", cost "Cost", units "Number of Units"
FROM inventory_list
WHERE cost BETWEEN 3 AND 15;

Inventory ID	Cost	Number of units
il010230125	7.99	250
il010230126	5.24	87

Part 3.

1) SELECT id "Inventory ID", cost "Cost", units "Number of Units"
FROM inventory_list
WHERE units IN (50, 100, 150, 200);

Inventory ID	Cost	Number of units
il010230124	2.5	100

Part 4

1) SELECT id "Inventory ID", cost "Cost", units "Number of Units"
 FROM inventory_list
 WHERE units NOT IN (50, 100, 150, 200);

Inventory ID	Cost	Number of units
il010230125	7.99	250
il010230126	5.24	87
il010230127	18.95	65
il010230128	97.46	8

Part 5

1) SELECT itm-number "Item Number", name "Item Name"
 FROM items
 WHERE name LIKE 'g%';

Item Number	Item Name
im01101044	gloves
im01101047	game top

Part G.

```
SELECT item-number "Item Number", name "Item Name"  
FROM items  
WHERE name LIKE '% - o - %';
```

Item Number	Item Name
im01101044	gloves
im01101046	socks
im01101047	game top

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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

1) SELECT 'The' ||name|| 'team has' ||number-of-players|| 'players and does not receive a discount.' AS "Team Information"

FROM teams

WHERE discount IS NULL;

Team Information

The Rovers team has 8 players and does not receive a discount.

2) SELECT 'The' ||name|| 'team has' ||number-of-players|| 'players and receives a discount of' ||discount|| 'percent.' AS "Team Information"

FROM teams

WHERE discount = 10;

Team Information

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

Part 2.

```
SELECT ctr-number "Customer Number", address-line-1 "Street Address",
       zip-code "Postal Code"
  FROM customer-addresses
 WHERE address-line-2 = 'Stanford'
   AND city = 'Liverpool';
```

Customer Number	Street Address	Postal code
ca0102	17 Gartsquare Road	LP89JHK

Part 3.

```
SELECT ctr-number "Customer Number", address-line-1 "Street Address",
       zip-code "Postal Code"
  FROM customer-addresses
 WHERE address-line-2 = 'Stanford'
   OR city = 'Liverpool';
```

Customer Number	Street Address	Postal code
ca0102	17 Gartsquare Road	LP89JHK
ca0105	63 Acacia Drive	LP83JHR

Part 7

```
SELECT dr-number "Customer Number", address-line-1 "Street Address",
       zip-code "Postal Code"
  FROM customers_address
 WHERE city NOT IN ('Liverpool');
```

Customer Number	Street Address	Postal code
ca0103	54 Ropehill Crescent	ST45AGV
ca0104	36 Watercress Lane	JP23YTH

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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.

1) SELECT name "TEAM NAME", number_of_players "Number of Players"
FROM teams
ORDER BY name ;

Team Name	Number of Players
Celtics	42
Jets	10
Rockets	25
Rovers	8

2) SELECT name "Team Name", number_of_players "Number of Players"
FROM teams
ORDER BY number_of_players DESC;

Team Name	Number of Players
Celtics	42
Rockets	25
Jets	10
Rovers	8

3) SELECT Name "TEAM NAME", Number_of_players "Number of Players"
From teams
ORDER BY name DESC;

Team Name	Players
Rovers	8
Rockets	25
Jets	10
Celtics	42

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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.

1) SELECT ROWNUM AS "Higher Customer Number", first-name || " " || last-name AS "Customer Name"
 FROM (SELECT first-name, last-name
 FROM customers
 ORDER BY ctr-number)
 WHERE ROWNUM <= 3

Higher Customer Number	Customer Name
1	Robert Thornberry
2	Jennifer Jones
3	John Doe

2) SELECT first-name || " " || last-name AS "Sales Representatives"
 FROM SALES REPRESENTATIVES
 WHERE commission-rate =: commission-rate
 ORDER BY last-name;