

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 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;`

The screenshot shows the Oracle SQL Developer interface. In the central workspace, the query `select * from customers;` is entered. Below the workspace, the 'Query Result' window displays the retrieved data:

CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEAM_ID	LOYALTY_CARD_NUMBER
c00001	bob.thornberry@beatmail.com	Robert	Thornberry	01234567898	150	s01	t001	(null)
c00012	Jjones@freemail.com	Jennifer	Jones	01505214598	0	(null)	(null)	lc1015
c00101	unknown@here.com	John	Doe	03216547808	987.5	s01	t002	(null)
c00103	Murcia@GlobalTech.com	Andrew	Murcia	07715246950	85	(null)	(null)	lc2341
c01966	margal15@alphaview.com	Maria	Galant	01442736569	125.65	s03	t003	(null)
c02001	brianrog@bootch.com	Brian	Rogers	01654564698	50	(null)	(null)	lc4587

2. `Select * from teams;`

The screenshot shows the Oracle SQL Developer interface. In the central workspace, the query `select * from teams;` is entered. Below the workspace, the 'Query Result' window displays the retrieved data:

ID	NAME	NUMBER_OF_PLAYERS	DISCOUNT
t001	Rockets	25	10
t002	Celtics	42	20
t003	Rovers	8	(null)
t004	Jets	10	5

3- select * from items ;

The screenshot shows the Oracle SQL Developer interface. In the top navigation bar, the path is C:\Users\Asus\AppData\Roaming\SQL Developer\DB_LAB_3.sql. The menu bar includes File, Edit, View, Navigate, Run, Source, Team, Tools, Window, Help. The toolbar has icons for New, Open, Save, Run, Stop, Refresh, and others. The Connections sidebar shows Oracle Connections (HR, System) and Database Schema Service Connections. The Reports sidebar lists Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, and User Defined Reports. The Files sidebar shows Recent Files, My Computer, Desktop, Documents, My Documents, mywork (with SEC02523-02), and OS (C:) with SAV_ASW, SRecycle.Bin, and SWREAgent. The central area has tabs for DB_LAB1.sql, DB_LAB 2.sql, and DB_LAB_3.sql. The DB_LAB_3.sql tab is active, displaying the following SQL code:

```
select * from customers;
select * from teams;
select * from items;
```

The Query Result window below shows the output of the last query:

ITEM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	SIZE	LT_ID	
1 im01101044	gloves	catcher mitt	clothing	brown	m	11010230124	
2 im01101045	under shirt	top worn under the game	top	clothing	white	s	11010230125
3 im01101046	socks	team socks with emblem	clothing	range	i	11010230126	
4 im01101047	game top	team shirt with emblem	clothing	range	m	11010230127	
5 im01101048	premium bat	high quality baseball bat	equipment	(null)	(null)	11010230128	

At the bottom, the status bar shows Line 5 Column 21, Insert, Modified, Windows: C, 28°C Partly sunny, ENG, 11:30 AM.

Part 2

1. select ctr_number , first_name , last_name , email , phone_number from customers ;

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows a folder structure including 'mywork' and 'OS (C:)'. The 'Worksheet' tab contains the following SQL code:

```
select * from customers;
```

The 'Query Result' tab displays the output of the query:

CTR_NUMBER	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER
c00001	Robert	Thornberry	bob.thornberry@beathmail.com	01234567898
c00012	Jennifer	Jones	Jjones@fremail.com	01505214598
c00101	John	Doe	unknown@here.com	03216547808
c00103	Andrew	Marcia	MurciaA@globaltech.com	07715246590
c01966	Maria	Galant	margal7@delphiview.com	01422736599
c02001	Brian	Rogers	brianrog@hootech.com	01654564698

The status bar at the bottom indicates '29°C Mostly cloudy' and the system date '11:32 AM'.

2. select name , number_of_players from teams ;

The screenshot shows the Oracle SQL Developer interface, similar to the previous one. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows a folder structure including 'mywork' and 'OS (C:)'. The 'Worksheet' tab contains the following SQL code:

```
select * from customers;
```

```
select * from teams;
```

```
select * from items;
```

```
select ctr_number , first_name , last_name , email , phone_number from customers;
```

```
select name , number_of_players from teams;
```

The 'Query Result' tab displays the output of the query:

NAME	NUMBER_OF_PLAYERS
Rockets	25
Celtics	42
Rovers	8
Jets	10

The status bar at the bottom indicates '29°C Mostly cloudy' and the system date '11:32 AM'.

3. select name , description , category from items ;

The screenshot shows the Oracle SQL Developer interface. The 'Worksheet' tab contains the following SQL code:

```
select * from customers;
select * from teams;
select * from items;
select ctr_number, first_name, last_name, email, phone_number from customers;
select name, number_of_players from teams;
select name, description, category from items;
```

The 'Query Result' tab displays the output of the last query, which is a table with three columns: NAME, DESCRIPTION, and CATEGORY. The data is as follows:

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

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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.

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 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 I

1. select first_name, last_name, current_balance, current_balance / 12 from customers;

- 2 select first_name, last_name, city_number, current_balance, current_balance - 5 from customers;

The screenshot shows the Oracle SQL Developer interface. The top menu bar includes File, Edit, View, Navigate, Run, Source, Team, Tools, Window, Help. The left sidebar has sections for Connections (Oracle Connections, HR, System, Database Schema Service Connections), Reports (All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimeTen Reports, User Defined Reports), and Files (Recent Files, My Computer, Desktop, Documents, My Documents, SED0532-02, C:, \$V\$AWS, \$Recycle.Bin, \$WinREAgent). The main workspace shows three tabs: DB_LAB1.sql, DB_LAB2.sql, and DB_LAB3.sql. The DB_LAB3.sql tab is active, displaying a SQL worksheet with the following code:

```
select * from items;

select ctr_number, first_name, last_name, email, phone_number from customers;

select name, number_of_players from teams;

select name, description, category from items;

--part 2
select first_name, last_name, current_balance, current_balance/12 from
customers;

select first_name, last_name, ctr_number, current_balance, current_balance-5
from customers;
```

The Query Result window below shows the output of the second part of the query:

FIRST_NAME	LAST_NAME	CTR_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
Brian	Rogers	c02001	50	45

The status bar at the bottom indicates Line 10 Column 16, Insert, Modified, Windows 10, 29°C Mostly cloudy, and 11:54 AM.

3. One of the values of "CURRENT_BALANCE_S" is negative which is illegal and not logical.

Part 2

1. select first_name "First Name", last_name "Last Name", current_balance "Balance", current_balance / 12
"Monthly Repayments" from customers;

Part 3

1. select 'The ' || name || ' team has ' || number_of_players || ' and receive a discount at ' || discount || ' percent.' "Team Information" from teams;

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files like 'SEC0252302' and 'OS (C)'. The central 'Worksheet' tab contains the following SQL code:

```
select name, description, category from items;
--part 2
select first_name, last_name, current_balance, current_balance/12 from
customers;
select first_name, last_name, ctr_number, current_balance, current_balance-5
from customers;
select first_name "First Name", last_name "Last Name",
current_balance "Balance", current_balance/12 "Monthly Repayments"
from customers;
select 'The'||name||' team has'||number_of_players||' and receives a discount
of'||discount||' percent.' from teams;
```

The 'Query Result' tab displays the output:

Team Information
1 The Rockets team has 25 and receives a discount of 10 percent.
2 The Celtics team has 42 and receives a discount of 20 percent.
3 The Rovers team has 8 and receives a discount of percent.
4 The Jets team has 10 and receives a discount of 5 percent.

2. Because the value for discount is null which doesn't equal zero.

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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.

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

1. `select * from customers`

`where ctr_number = 'c01986';`

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files including 'SEC02523-02', 'OS (C)', 'SAV_ASW', 'SRecycle.Bin', and 'SWnREAgent'. The 'SQL Worksheet' tab has three tabs: 'DB_LAB1.sql', 'DB_LAB 2.sql', and 'DB_LAB_3.sql'. The 'DB_LAB_3.sql' tab contains the following SQL code:

```
select first_name, last_name, current_balance, current_balance/12 from customers;
select first_name, last_name, ctr_number, current_balance, current_balance-5 from customers;
select first_name "First Name", last_name "Last Name", current_balance "Balance", current_balance/12 "Monthly Repayments" from customers;
select 'The'||name||' team has'||number_of_players||' and receives a discount of'||discount||' percent.' "Team Information" from teams;
--part 3
select * from customers
where ctr_number = 'c01986';
```

The 'Query Result' tab shows the output of the query:

CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	ITEM_ID	LOYALTY_CARD_NUMBER
c01986	margala18@delphiview.com	Maria	Galant	01442736569	125.65	sr03	t003	(null)

The status bar at the bottom indicates 'Line 30 Column 30 | Insert | Modified | Windows: C' and the system status '30°C Mostly cloudy'.

2. `select first_name "First Name", last_name "Last Name", ctr_number "Customer Number" from customers`

`where current_balance > 100;`

The screenshot shows the Oracle SQL Developer interface, identical to the previous one but with a different query in the worksheet. The 'SQL Worksheet' tab now contains:

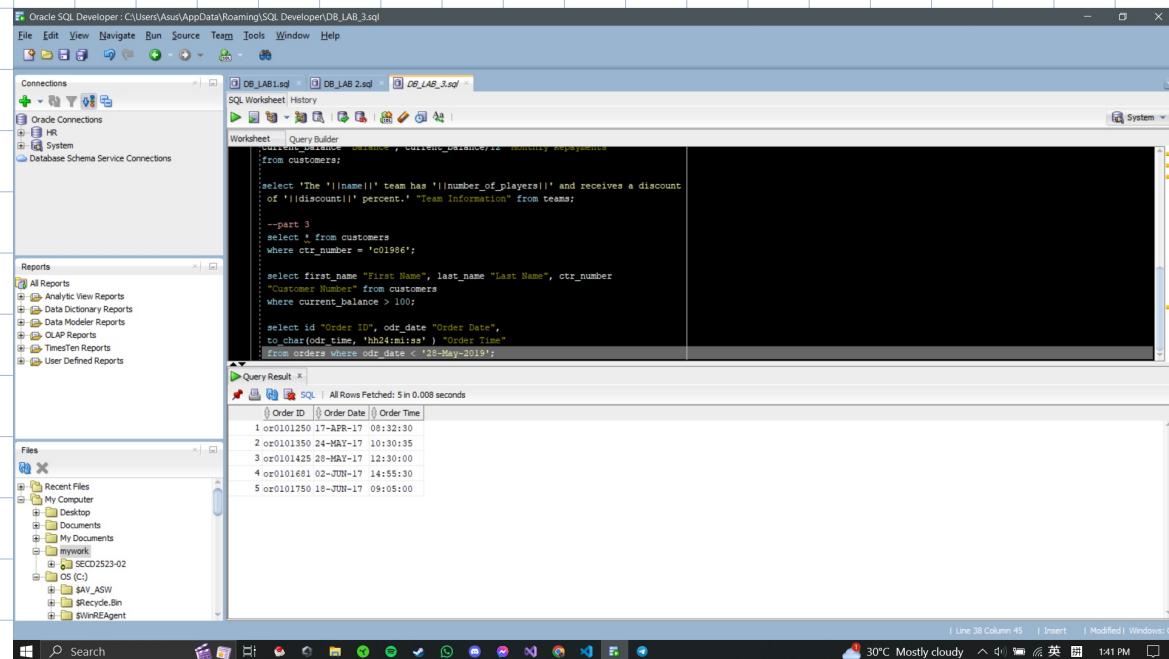
```
select first_name "First Name", last_name "Last Name", current_balance "Customer Number" from customers
where current_balance > 100;
```

The 'Query Result' tab shows the output:

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

The status bar at the bottom indicates 'Line 34 Column 30 | Insert | Modified | Windows: C' and the system status '30°C Mostly cloudy'.

3. select id "Order ID", odr_date "Order Date", to_char(odr_time, 'hh24:mi:ss') "Order Time"
 from orders
 where odr_date < '28-MAY-2019';



The screenshot shows the Oracle SQL Developer interface. The 'SQL Worksheet' tab is active, displaying the following SQL code:

```

current_balance, current_balance/12 monthly_repayments
from customers;

select 'The'||name||' team has'||number_of_players||' and receives a discount
of'||discount||' percent.' "Team Information" from teams;

--part 3
select * from customers
where ctr_number = 'c01986';

select first_name "First Name", last_name "Last Name", ctr_number
"Customer Number" from customers
where current_balance > 100;

select id "Order ID", odr_date "Order Date",
to_char(odr_time, 'hh24:mi:ss') "Order Time"
from orders where odr_date < '28-May-2019';

```

The 'QueryResult' tab shows the results of the last query:

	Order ID	Order Date	Order Time
1	or0101250	17-APR-17	08:32:30
2	or0101350	24-MAY-17	10:30:35
3	or0101425	28-MAY-17	12:30:00
4	or0101681	02-JUN-17	14:55:30
5	or0101750	18-JUN-17	09:05:00

Part 2

I. select id "Inventory ID", cost "Cost", units "Number of Units" from inventory_list
where cost between 3.00 and 15.00 ;

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar includes 'All Reports', 'Analytic View Reports', 'Data Dictionary Reports', 'Data Modeler Reports', 'OLAP Reports', 'TimesTen Reports', and 'User Defined Reports'. The 'Files' sidebar shows recent files like 'DB_LAB1.sql', 'DB_LAB2.sql', and 'DB_LAB3.sql'. The 'SQL Worksheet' tab contains the following SQL code:

```
part 3
select * from customers
where ctr_number = 'C01906';

select first_name "First Name", last_name "Last Name", ctr_number
"Customer Number" from customers
where current_balance > 100;

select id "Order ID", odr_date "Order Date",
to_char(odr_time, 'hh24:mi:ss') "Order Time"
from orders where odr_date < '28-May-2019';

select id "Inventory ID", cost "Cost", units "Number of Units"
from inventory_list
where cost between 3.00 and 15.00;
```

The 'Query Result' tab displays the output of the last query:

Inventory ID	Cost	Number of Units
11010230125	7.99	250
11010230126	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);

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files like 'mywork\SECD2523_02' and 'OS (C)\SAV_ASW'. The 'SQL Worksheet' tab contains three tabs: 'DB_LAB1.sql', 'DB_LAB2.sql', and 'DB_LAB3.sql'. The 'DB_LAB3.sql' tab is active and displays the following SQL code:

```
select first_name "First Name", last_name "Last Name", ctr_number
"Customer Number" from customers
where current_balance > 100;

select id "Order ID", odr_date "Order Date",
to_char(odr_time, 'hh24:mi:ss') "Order Time"
from orders where odr_date < '28-May-2019';

select id "Inventory ID", cost "Cost", units "Number of Units"
from inventory_list
where cost between 3.00 and 15.00;

select id "Inventory ID", cost "Cost", units "Number of Units"
from inventory_list
where units in (50, 100, 150, 200);
```

The 'Query Result' tab shows the output of the last query:

Inventory ID	Cost	Number of Units
11010230124	2.5	100

The status bar at the bottom right indicates: Line 46 Column 37 | Insert | Modified | Windows | 30°C Mostly cloudy | 1:47 PM.

Part 4

1. select id "Inventory ID", cost "Cost" , units "Number of Units" from inventory_list
where units not in (50, 100, 150, 200);

The screenshot shows the Oracle SQL Developer interface. On the left, there are tabs for 'DB_LAB1.sql', 'DB_LAB2.sql', and 'DB_LAB3.sql'. The main area is titled 'Worksheet' and contains the following SQL code:

```
select id "Inventory ID", cost "Cost" , units "Number of Units"
from inventory_list
where units not in (50, 100, 150, 200);

select id "Inventory ID", cost "Cost" , units "Number of Units"
from inventory_list
where cost between 3.00 and 15.00;

select id "Inventory ID", cost "Cost" , units "Number of Units"
from inventory_list
where units in (50, 100, 150, 200);

select id "Inventory ID", cost "Cost" , units "Number of Units"
from inventory_list
where units not in (50, 100, 150, 200);
```

Below the code, the 'Query Results' tab is open, showing the output:

Inventory ID	Cost	Number of Units
1 11010230125	7.89	250
2 11010230126	5.24	87
3 11010230127	18.95	65
4 11010230128	97.46	8

Part 5

1. select item_number "Item Number", name "Item Name" from items
where name like 'g %';

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files including 'SECD2523_02', 'SAV_ASW', 'SAV_ASW.BIN', and 'SWnREAgent'. The 'Worksheet' tab contains the following SQL code:

```
select item_number "Item Number", name "Item Name"
from items
where name like 'g %';
```

The 'Query Result' tab displays the output:

Item Number	Item Name
1 im01101044	gloves
2 im01101047	game top

At the bottom, the status bar shows 'Line 53 Column 23' and '29°C Mostly cloudy 153 PM'.

Part 6

1. select item_number "Item Number", name "Item Name" from items
where name like '%o %' ;

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar shows various report types. The 'Files' sidebar displays recent files including 'My Computer', 'Desktop', 'Documents', 'My Documents', and 'mywork'. The central 'Worksheet' pane contains the following SQL code:

```
select id "Inventory ID", cost "Cost", units "Number of Units"
from inventory_list
where cost between 3.00 and 15.00;

select id "Inventory ID", cost "Cost", units "Number of Units"
from inventory_list
where units in (50, 100, 150, 200);

select id "Inventory ID", cost "Cost", units "Number of Units"
from inventory_list
where units not in (50, 100, 150, 200);

select item_number "Item Number", name "Item Name" from items
where name like 'g%';

select item_number "Item Number", name "Item Name" from items
where name like 'so%';
```

The 'Query Result' pane shows the output:

Item Number	Item Name
1 im01101044	gloves
2 im01101046	socks
3 im01101047	game top

At the bottom, the status bar indicates 'Line 56 Column 24 | Insert | Modified | Windows | 29°C Mostly cloudy | 2:01 PM'.

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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 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 .' "Team Information"
from teams
where discount is null;

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar shows various report types. The 'Files' sidebar shows recent files including 'mywork' and 'SEC02523-02'. The 'Worksheet' tab contains the following SQL code:

```
--part 1
select 'The '|| name || ' team has '|| number_of_players || ' players and does not receive a discount .' "Team Information"
from teams
where discount is null;
```

The 'QueryResult' tab displays the output of the query:

```
Team Information
1 The Rovers team has 8 players and does not receive a discount.
```

The status bar at the bottom right shows '29°C Mostly cloudy' and the system date '2:36 PM'.

2. select 'The '||name||' team has '||number_of_players||' players and receive a discount at '||discount||' percent.'

" Team Information " from teams

where discount is not null;

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'Oracle Connections' (HR) and 'Database Schema Service Connections'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files like 'SECD2523-02', 'OS (C)', and 'mywork'. The central 'Worksheet' tab contains the following SQL code:

```
--part 3
select item_number "Item Number", name "Item Name" from items
where units not in (50, 100, 150, 200);

select item_number "Item Number", name "Item Name" from items
where name like 'g%';

select item_number "Item Number", name "Item Name" from items
where name like 'k%';

--part 4
select 'The'||name||' team has'||number_of_players||' players and does not
receive a discount.' "Team Information" from teams
where discount is null;

select 'The'||name||' team has'||number_of_players||' players and receive
a discount of'||discount||' percent.' "Team Information" from teams
where discount is not null;
```

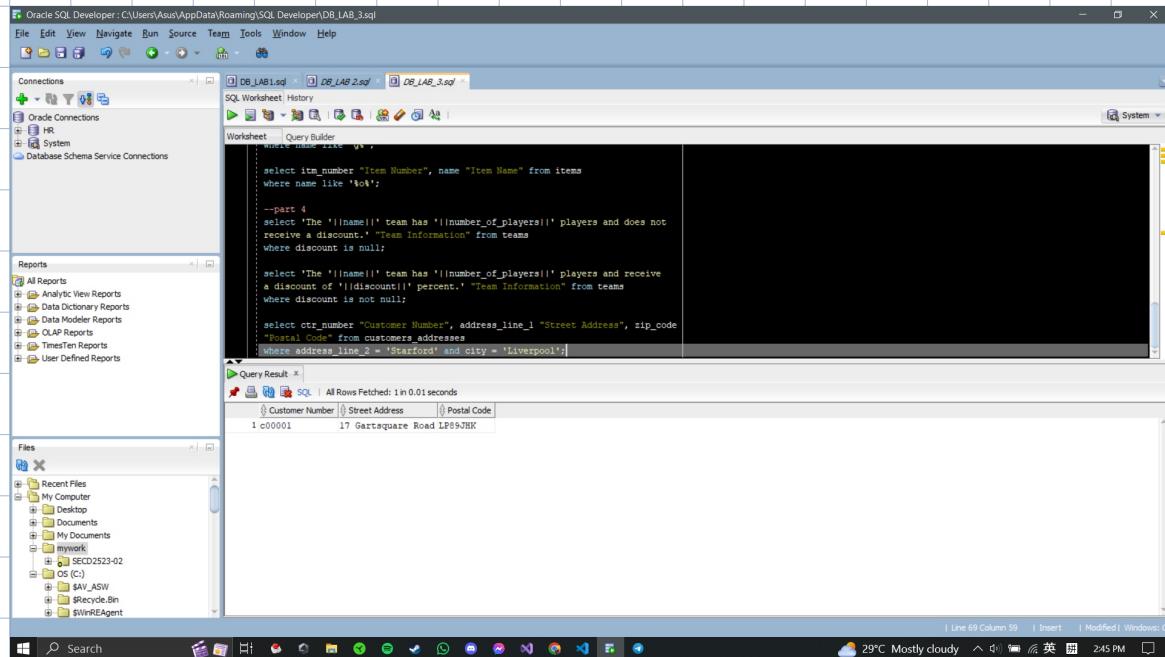
The 'Query Result' tab shows the output of the last two parts of the query:

Team Information
1 The Rockets team has 25 players and receive a discount of 10 percent.
2 The Celtics team has 42 players and receive a discount of 20 percent.
3 The Jets team has 10 players and receive a discount of 5 percent.

Part 2

1. 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';



The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files including 'mywork\SQLLAB23-02\SQL LAB 3.sql'. The 'SQL Worksheet' tab contains the following SQL code:

```
select item_number "Item Number", name "Item Name" from items
where name like '%oil';

--part 4
select 'The'||name||' team has'||number_of_players||' players and does not
receive a discount.' "Team Information" from teams
where discount is null;

select 'The'||name||' team has'||number_of_players||' players and receive
a discount of'||discount||' percent.' "Team Information" from teams
where discount is not null;

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';
```

The 'Query Result' tab shows the output of the last query:

Customer Number	Street Address	Postal Code
1 c00001	17 Gartsquare Road	L889JHK

The status bar at the bottom right indicates: Line 69 Column 59 | Insert | Modified | Windows: Q. The system tray shows the date and time as 29°C Mostly cloudy, 2:45 PM.

Part 3

1. select ctr_number "Customer Number", address_line_1 "Street Address", zip_code "Postal Code"
from customers_addresses
where address_line_2 = 'Starford' or city = 'Liverpool';

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar includes 'All Reports', 'Analysis View Reports', 'Data Dictionary Reports', 'Data Modeler Reports', 'OLAP Reports', 'TimeTen Reports', and 'User Defined Reports'. The 'Files' sidebar shows recent files like 'DB_LAB1.sql', 'DB_LAB2.sql', and 'DB_LAB_3.sql'. The main 'Worksheet' tab displays the SQL query:

```
--part 4
select 'The ''||name||'' team has ''||number_of_players||'' players and does not
receive a discount.' "Team Information" from teams
where discount is null;

select 'The ''||name||'' team has ''||number_of_players||'' players and receive
a discount of ''||discount||'' percent.' "Team Information" from teams
where discount is not null;

select ctr_number "Customer Number", address_line_1 "Street Address", zip_code
"Postal Code" from customers_addresses
where address_line_2 = 'Starford' and city = 'Liverpool';

select ctr_number "Customer Number", address_line_1 "Street Address", zip_code
"Postal Code" from customers_addresses
where address_line_2 = 'Starford' or city = 'Liverpool';
```

The 'Query Result' tab shows the output:

Customer Number	Street Address	Postal Code
1 c00001	17 Gartsquare Road LP89JHK	
2 c00001	63 Acacia Drive LP83JHR	

The status bar at the bottom indicates 'Line 73 Column 58 | Insert | Modified | Windows: 0'.

Part 4

1. select ctr_number "Customer Number", address_line_1 "Street Address", zip_code "Postal Code"
from customers_addresses
where city not in ('Liverpool');

The screenshot shows the Oracle SQL Developer interface. The top menu bar includes File, Edit, View, Navigate, Run, Source, Team, Tools, Window, Help. The left sidebar has sections for Connections (HR, System), Reports (All Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimeTen Reports, User Defined Reports), and Files (Recent Files, My Computer, Desktop, Documents, My Documents, mywork, mywork\CD2523-02, C:, SAV_AGW, SRecycle.Bin, SWRERAgent). The main area has tabs for DB_LAB_1.sql, DB_LAB_2.sql, and DB_LAB_3.sql. The DB_LAB_3.sql tab is active, showing the SQL query from the text above. Below the query is a 'Query Result' section with a table containing two rows of data.

Customer Number	Street Address	Postal Code
c00101	54 Ropehill Crescent	ST45AGV
c01986	36 Watercress Lane	JP23YTH

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 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 ;

The screenshot shows the Oracle SQL Developer interface. The 'Worksheet' tab is active, displaying the following SQL code:

```
select ctr_number "Customer Number", address_line_1 "Street Address", zip_code
"Postal Code" from customers_addresses
where address_line_2 = 'Starford' and city = 'Liverpool';

select ctr_number "Customer Number", address_line_1 "Street Address", zip_code
"Postal Code" from customers_addresses
where address_line_2 = 'Starford' or city = 'Liverpool';

select ctr_number "Customer Number", address_line_1 "Street Address", zip_code
"Postal Code" from customers_addresses
where city not in ('Liverpool');

--part 5
select name "Team Name", number_of_players "Number of Players"
from teams
order by name;
```

The 'Query Result' tab shows the output of the query:

Team Name	Number of Players
1 Celtics	42
2 Jets	10
3 Rockets	25
4 Rovers	8

2. select name " Team Name ", number_of_players " Number of Players " from teams

order by number_of_players desc ;

The screenshot shows the Oracle SQL Developer interface. The 'Worksheet' tab is active, displaying the same SQL code as the previous screenshot, but with a different order clause:

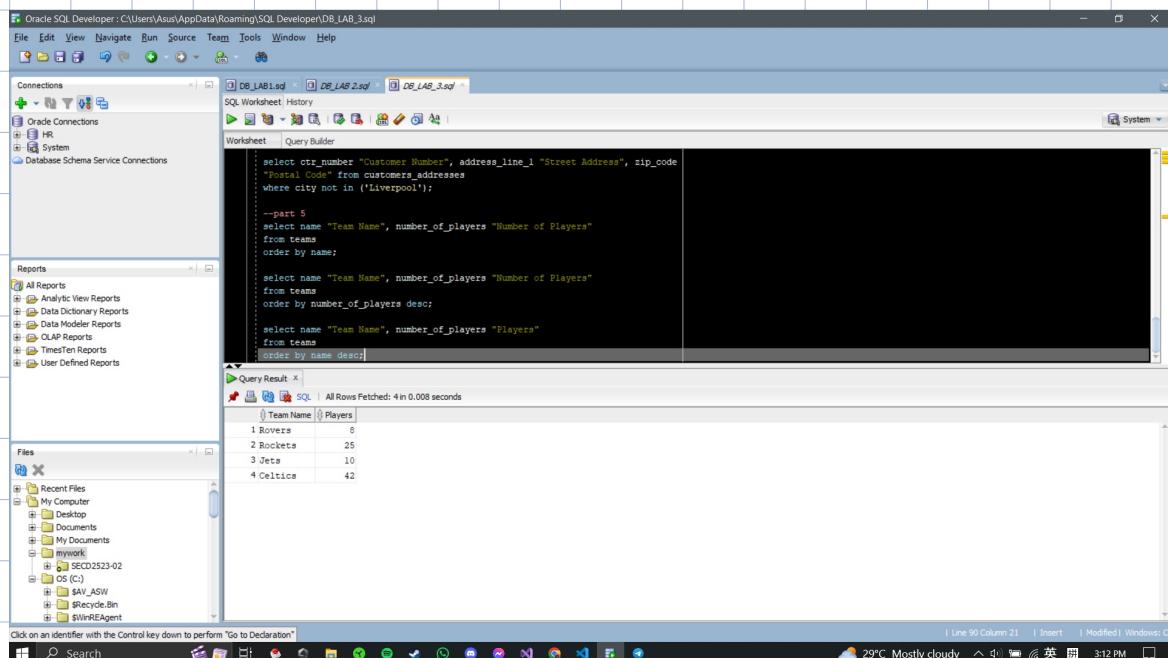
```
select name "Team Name", number_of_players "Number of Players"
from teams
order by number_of_players desc;
```

The 'Query Result' tab shows the output of the query:

Team Name	Number of Players
1 Celtics	42
3 Rockets	25
2 Jets	10
4 Rovers	8

3. select name " Team Name ", number_of_players " Number of Players " from teams

order by name desc ;



The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files like 'mywork', 'SECD2523_02', 'SAV_ASW', 'Recycle.Bin', and 'SWREAgent'. The 'SQL Worksheet' tab contains the following SQL code:

```
select ctr_number "Customer Number", address_line_1 "Street Address", zip_code
  "Postal Code" from customers_addresses
 where city not in ('Liverpool');

--part 5
select name "Team Name", number_of_players "Number of Players"
  from teams
 order by name;

select name "Team Name", number_of_players "Number of Players"
  from teams
 order by number_of_players desc;

select name "Team Name", number_of_players "Players"
  from teams
 order by name desc;
```

The 'Query Result' tab displays the output of the third query:

Team Name	Players
1 Rovers	8
2 Rockets	25
3 Jets	10
4 Celtics	42

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 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.

Part 1

1. select rownum "Customer Number", first_name || ' ' || last_name "Customer Name" from customers
where rownum <= 3 ;

The screenshot shows the Oracle SQL Developer interface. The 'Connections' sidebar lists 'HR' and 'System'. The 'Reports' sidebar lists various report types. The 'Files' sidebar shows recent files like 'My Computer', 'Desktop', and 'mywork'. The central 'Worksheet' pane contains the following SQL code:

```
select name "Team Name", number_of_players "Number of Players"
from teams
order by name;

select name "Team Name", number_of_players "Number of Players"
from teams
order by number_of_players desc;

select name "Team Name", number_of_players "Players"
from teams
order by name desc;

--part 6
select rownum "Customer Number", first_name|| ' ' ||last_name "Customer Name"
from customers
where rownum <=3;
```

The 'Query Result' pane displays the output:

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

The status bar at the bottom indicates 'All Rows Parsed: 3 in 0.001 seconds'.

Part 2

1. Select first_name "First Name", last_name "Last Name", commission_rate "Commission Rate" from sales_representatives
where commission_rate = :rate_of_commission
order by last_name;

The screenshot shows the Oracle SQL Developer interface with two tabs open: DB_LAB_1.sql and DB_LAB_3.sql. The DB_LAB_3.sql tab contains the following SQL code:

```
--part 6
select rownum "Customer Number", first_name||' '||last_name "Customer Name"
from customers
where rownum <=3;

select first_name "First Name", last_name "Last Name", commission_rate
"Commission Rate"
from sales_representatives
where commission_rate = :rate_of_commission
order by last_name;
```

An Enter Binds dialog box is displayed, showing a bind variable named "rate_of_commission" with a value of 10. The Query Result window shows the following data:

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

The screenshot shows the Oracle SQL Developer interface with the same tabs and code as the previous screenshot. The Query Result window now displays the following data:

First Name	Last Name	Commission Rate
Charles	Raymond	10