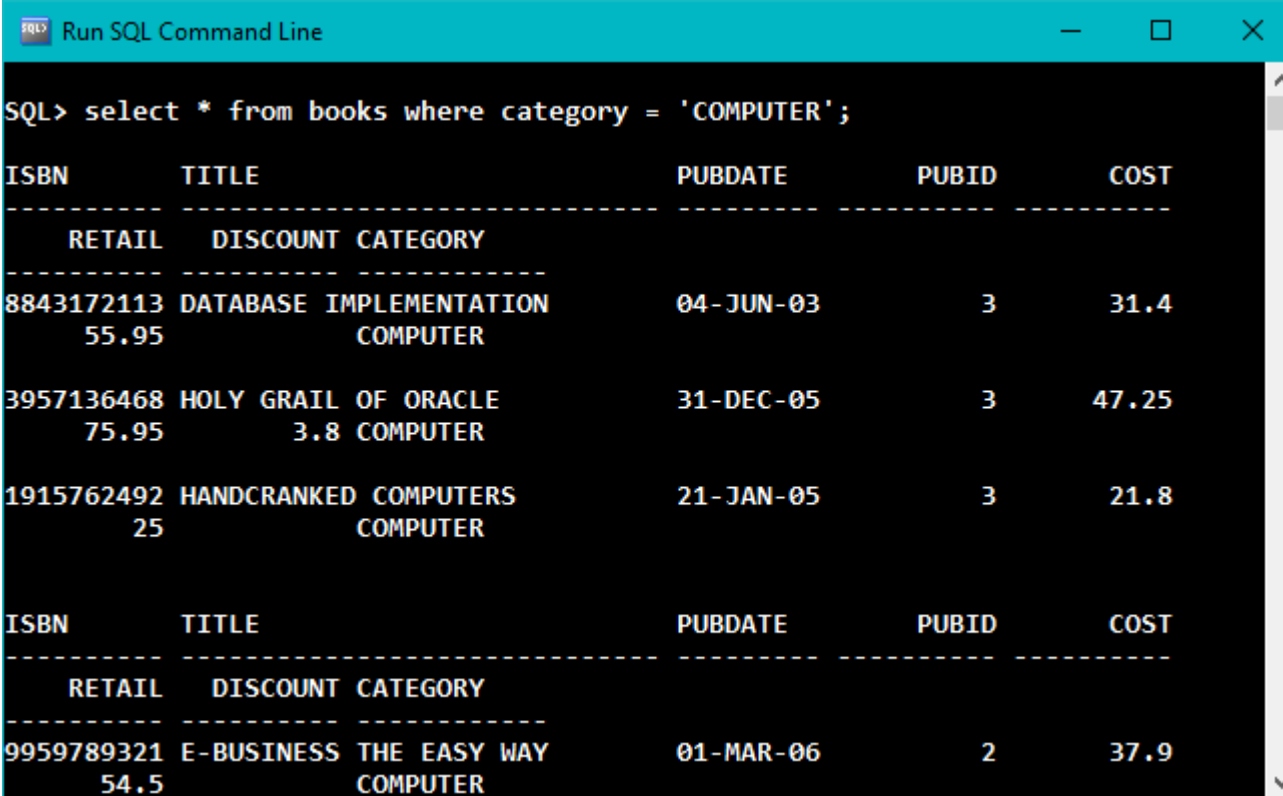


Formatting results of queries in SQL*Plus

SQL*Plus has a number of ways for formatting results of queries. Consider them in your homework.

The following is the initial output from a query that lists content of a table (all computer books we have in *JustLeeBooks* DB):



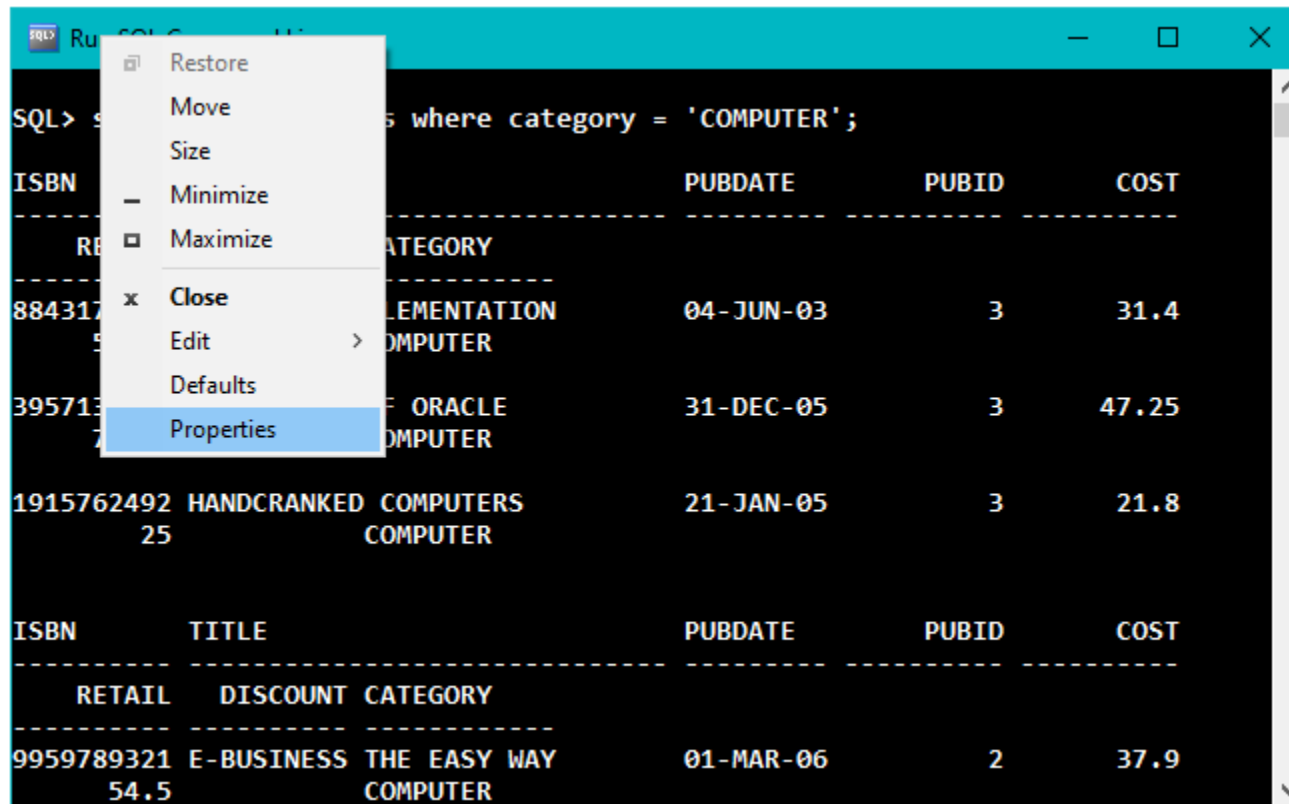
The screenshot shows a SQL*Plus window titled "Run SQL Command Line". The command entered is `SQL> select * from books where category = 'COMPUTER';`. The output displays a table of computer books with columns: ISBN, TITLE, PUBDATE, PUBID, and COST. The table is formatted with dashed lines as headers and is wrapped across two lines per row. The first three rows are truncated on the right side of the window.

ISBN	TITLE	PUBDATE	PUBID	COST
8843172113	DATABASE IMPLEMENTATION	04-JUN-03	3	31.4
3957136468	HOLY GRAIL OF ORACLE	31-DEC-05	3	47.25
1915762492	HANDCRANKED COMPUTERS	21-JAN-05	3	21.8
9959789321	E-BUSINESS THE EASY WAY	01-MAR-06	2	37.9

Note that each row of results wraps – using two lines. Header of the table is printed twice (second time in the middle of the result). There is also extra “wasted” space that makes the output difficult to read.

The following are ways you can use to better format the output.

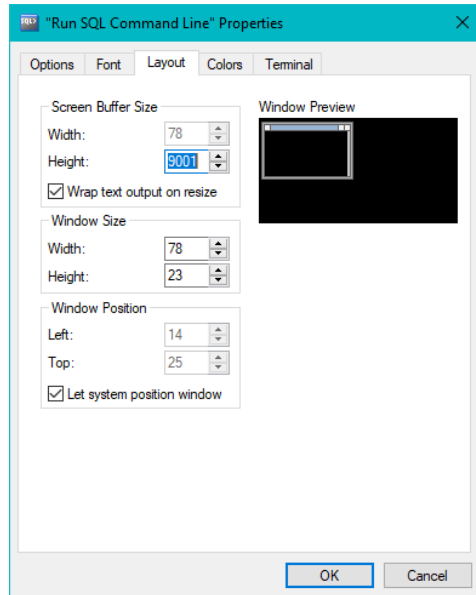
1. You can increase the size of the application window by increasing the size and available buffer for the program:
 - Click on the menu icon in the top left side of the program window or right-click on the title bar on top of the window.
 - Choose “Properties”



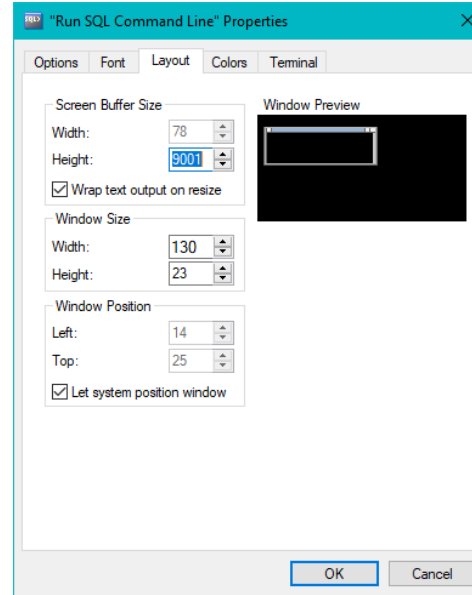
Once in the “Properties” menu, go to the “Layout” tab and increase the “Width” settings for “Window Size”.

Type 130 in the Width setting for “Window Size” as seen below:

Initial settings:



Changed settings:



2. The reshaped window will look different, however, the SQL*Plus will still continue to wrap the results of the query:

```
SQL> select * from books where category = 'COMPUTER';
```

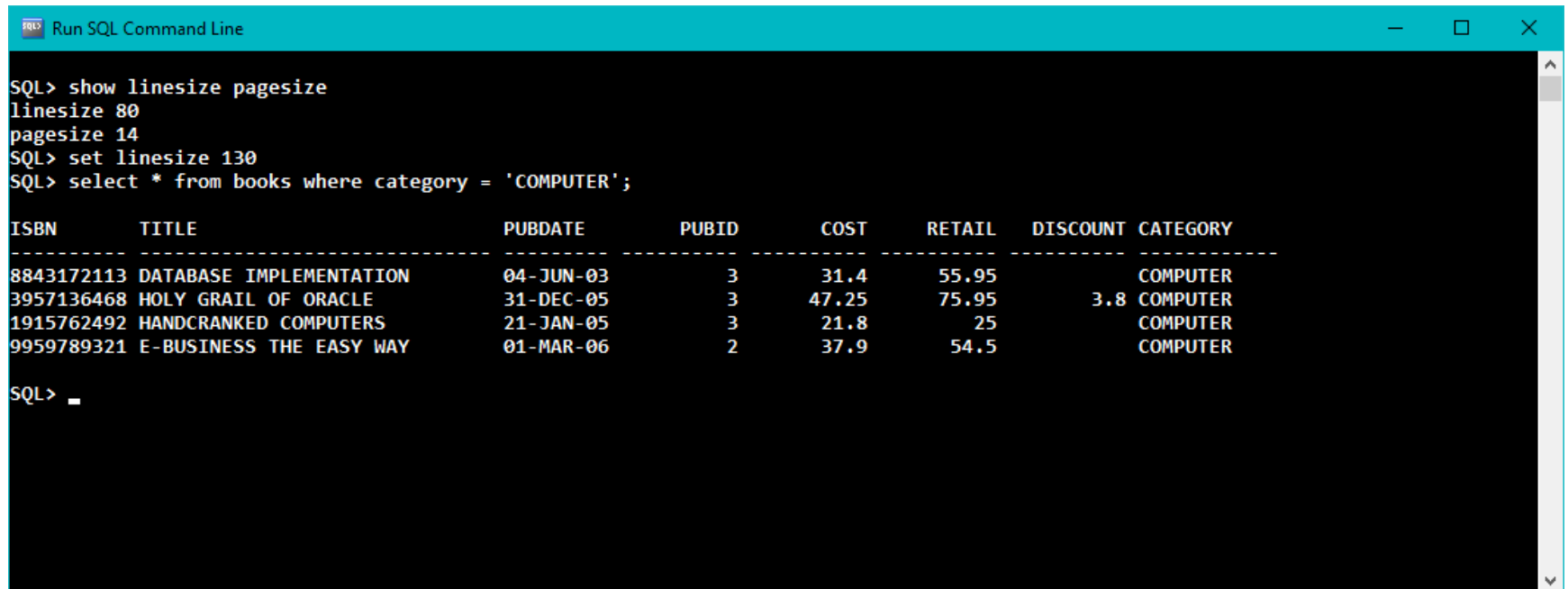
ISBN	TITLE	PUBDATE	PUBID	COST
8843172113	DATABASE IMPLEMENTATION	04-JUN-03	3	31.4
55.95	COMPUTER			
3957136468	HOLY GRAIL OF ORACLE	31-DEC-05	3	47.25
75.95	3.8 COMPUTER			
1915762492	HANDCRANKED COMPUTERS	21-JAN-05	3	21.8
25	COMPUTER			
9959789321	E-BUSINESS THE EASY WAY	01-MAR-06	2	37.9
54.5	COMPUTER			

3. Next, find the current SQL*Plus settings for “Linesize” and “Pagesize”.

You can retrieve these settings with **SHOW LINESIZE** and **SHOW PAGESIZE** commands.

These commands will reveal that each line is set to **80** characters long and each page is set to include only **14** rows of output (before repeating the table header).

Changing the *Linesize* setting increases the number of characters that SQL*Plus will fit on each line before wrapping the line (if the line is still longer than **130** characters).



```
SQL> show linesize pagesize
linesize 80
pagesize 14
SQL> set linesize 130
SQL> select * from books where category = 'COMPUTER';
```

ISBN	TITLE	PUBDATE	PUBID	COST	RETAIL	DISCOUNT	CATEGORY
8843172113	DATABASE IMPLEMENTATION	04-JUN-03	3	31.4	55.95		COMPUTER
3957136468	HOLY GRAIL OF ORACLE	31-DEC-05	3	47.25	75.95	3.8	COMPUTER
1915762492	HANDCRANKED COMPUTERS	21-JAN-05	3	21.8	25		COMPUTER
9959789321	E-BUSINESS THE EASY WAY	01-MAR-06	2	37.9	54.5		COMPUTER

```
SQL> _
```

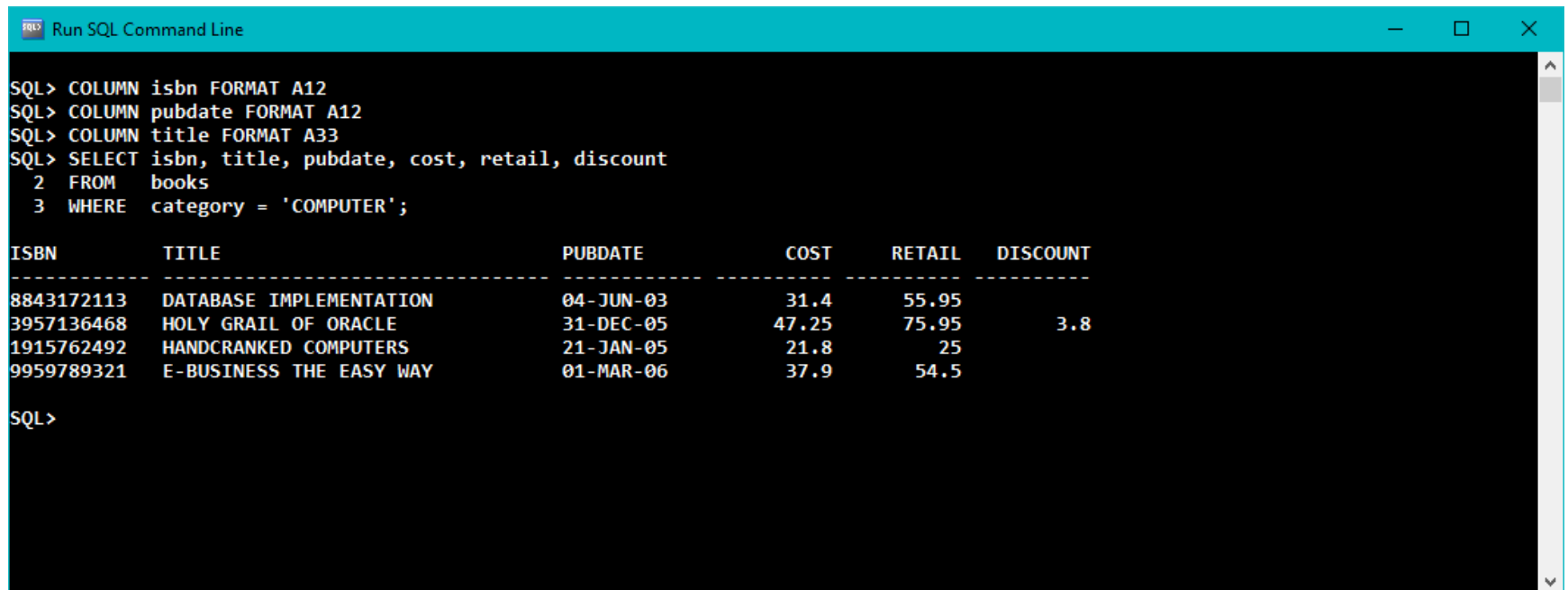
Each row is on a single line and it looks fine. We can further improve the presentation of each column using “COLUMN” command.

4. The SQL*Plus “COLUMN” command enables you to define the width of any column (among other things). The syntax for the command is:

COLUMN [column_name] FORMAT [format value]

For text or date columns, the format value to be used is A[number]. The A indicates that the values are strings and the number specifies the width of the column. For “number” columns, the format value can be defined using the number formatting elements using ‘9’ character, comma, period, and dollar sign (also covered in the “Selected Single-Row Functions” lecture).

In this example, we want to slightly increase the width for the first three column of the output (i.e., ISBN, Title, and PubDate columns):



```
SQL> COLUMN isbn FORMAT A12
SQL> COLUMN pubdate FORMAT A12
SQL> COLUMN title FORMAT A33
SQL> SELECT isbn, title, pubdate, cost, retail, discount
2 FROM books
3 WHERE category = 'COMPUTER';
```

ISBN	TITLE	PUBDATE	COST	RETAIL	DISCOUNT
8843172113	DATABASE IMPLEMENTATION	04-JUN-03	31.4	55.95	
3957136468	HOLY GRAIL OF ORACLE	31-DEC-05	47.25	75.95	3.8
1915762492	HANDCRANKED COMPUTERS	21-JAN-05	21.8	25	
9959789321	E-BUSINESS THE EASY WAY	01-MAR-06	37.9	54.5	

```
SQL>
```

The formatting made the first three columns wider & more readable. Before applying COLUMN commands, be sure to run the command “CLEAR COLUMNS” to ensure that all previous COLUMN settings are removed/cleared.

If you give an alias to a column, the alias becomes the column name (the header for the column in a table that represents output for a query). The Column command can also be used to define a new header for the column and to replace NULL value with a particular value.

Now, format the last three columns and expand the query to include all books (not only the computer books).

```
Run SQL Command Line
SQL> COLUMN cost FORMAT $9999.99
SQL> COLUMN retail FORMAT $9999.99
SQL> COLUMN discount FORMAT $9999.99
SQL> SELECT isbn, title, pubdate, cost, retail, discount
2 FROM books;
```

ISBN	TITLE	PUBDATE	COST	RETAIL	DISCOUNT
1059831198	BODYBUILD IN 10 MINUTES A DAY	21-JAN-05	\$18.75	\$30.95	
0401140733	REVENGE OF MICKEY	14-DEC-05	\$14.20	\$22.00	
4981341710	BUILDING A CAR WITH TOOTHPICKS	18-MAR-06	\$37.80	\$59.95	\$3.00
8843172113	DATABASE IMPLEMENTATION	04-JUN-03	\$31.40	\$55.95	
3437212490	COOKING WITH MUSHROOMS	28-FEB-04	\$12.50	\$19.95	
3957136468	HOLY GRAIL OF ORACLE	31-DEC-05	\$47.25	\$75.95	\$3.80
1915762492	HANDCRANKED COMPUTERS	21-JAN-05	\$21.80	\$25.00	
9959789321	E-BUSINESS THE EASY WAY	01-MAR-06	\$37.90	\$54.50	
2491748320	PAINLESS CHILD-REARING	17-JUL-04	\$48.00	\$89.95	\$4.50
0299282519	THE WOK WAY TO COOK	11-SEP-04	\$19.00	\$28.75	
8117949391	BIG BEAR AND LITTLE DOVE	08-NOV-05	\$5.32	\$8.95	
ISBN	TITLE	PUBDATE	COST	RETAIL	DISCOUNT
0132149871	HOW TO GET FASTER PIZZA	11-NOV-06	\$17.85	\$29.95	\$1.50
9247381001	HOW TO MANAGE THE MANAGER	09-MAY-03	\$15.40	\$31.95	
2147428890	SHORTEST POEMS	01-MAY-05	\$21.85	\$39.95	

Notice, that the “header” is still printed twice.

5. The “Pagesize” setting determines after how many lines SQL*Plus will repeat the table header (headers for the columns). In our example, you can see that, using the default *Pagesize*, the headers were repeated after every 14 rows. Increase the *Pagesize* to 50 and rerun the query. The output shows the column headers only once as the output is within 50 lines in this case.

```
Run SQL Command Line

SQL> SET pagesize 50
SQL> /
```

ISBN	TITLE	PUBDATE	COST	RETAIL	DISCOUNT
1059831198	BODYBUILD IN 10 MINUTES A DAY	21-JAN-05	\$18.75	\$30.95	
0401140733	REVENGE OF MICKEY	14-DEC-05	\$14.20	\$22.00	
4981341710	BUILDING A CAR WITH TOOTHPICKS	18-MAR-06	\$37.80	\$59.95	\$3.00
8843172113	DATABASE IMPLEMENTATION	04-JUN-03	\$31.40	\$55.95	
3437212490	COOKING WITH MUSHROOMS	28-FEB-04	\$12.50	\$19.95	
3957136468	HOLY GRAIL OF ORACLE	31-DEC-05	\$47.25	\$75.95	\$3.80
1915762492	HANDCRANKED COMPUTERS	21-JAN-05	\$21.80	\$25.00	
9959789321	E-BUSINESS THE EASY WAY	01-MAR-06	\$37.90	\$54.50	
2491748320	PAINLESS CHILD-REARING	17-JUL-04	\$48.00	\$89.95	\$4.50
0299282519	THE WOK WAY TO COOK	11-SEP-04	\$19.00	\$28.75	
8117949391	BIG BEAR AND LITTLE DOVE	08-NOV-05	\$5.32	\$8.95	
0132149871	HOW TO GET FASTER PIZZA	11-NOV-06	\$17.85	\$29.95	\$1.50
9247381001	HOW TO MANAGE THE MANAGER	09-MAY-03	\$15.40	\$31.95	
2147428890	SHORTEST POEMS	01-MAY-05	\$21.85	\$39.95	

```
14 rows selected.

SQL>
```

Other formatting considerations:

- Replace NULL values in the result with an appropriate information/value,
- For any string comparison, both upper and lower case letters should be considered,
- Concatenate ID and a name (or first and last name, and such like) and represent it as a single expression (single column in the results), and
- Round all the numbers to two decimal places or whole numbers (when appropriate) & format amount (any number representing currency) with '\$' sign in front.

6. After you formatted your query and the output of the query to look readable and understandable, you can copy the text from the SQL*Plus command line window into a MS Word document. It is not acceptable to include screenshots of the SQL*Plus command line in your assignment. You must copy the actual text into your MS Word document (do not copy a “screenshots” of your results). You could also use a SPOOL command to capture both your queries and results of your running your queries. Open the text file (the one you indicated in the SPOOL command) in your MS Word document. Then, within MS Word you can format your document using the following:

- a. Choose fonts that preserve spacing of individual characters (e.g., **CONSOLAS** or **COURIER NEW** fonts),
- b. If lines of your statements (or results) are wrapped, you can lower the font size (e.g., to 9 points),
- c. In “Page Layout” tab, change orientation from portrait to landscape and change margins to smaller size (if it helps), and
- d. Change the “spacing” set up (before, after, and line spacing) to eliminate any extra space between lines.

7. An example of poorly formatted query:

```
SQL> select books.isbn || ': ' || title, name, author.authorid || ': ' || lname || ', ' || fname from
2  books join bookauthor on bookauthor.isbn = books.isbn join author author on bookauthor.authorid =
author.authorid join publisher on books.pubid = publisher.pubid
3  where category = 'COMPUTER' and pubdate > '01-JAN-2005' order by title;
```

BOOKS.ISBN ': ' TITLE	NAME
-----	-----
AUTHOR.AUTHORID ': ' LNAME	

9959789321: E-BUSINESS THE EASY WAY	PUBLISH OUR WAY
J100: JONES, JANICE	
1915762492: HANDCRANKED COMPUTERS	AMERICAN PUBLISHING
W100: WHITE, WILLIAM	
1915762492: HANDCRANKED COMPUTERS	AMERICAN PUBLISHING
W105: WHITE, LISA	
BOOKS.ISBN ': ' TITLE	NAME
-----	-----
AUTHOR.AUTHORID ': ' LNAME	

3957136468: HOLY GRAIL OF ORACLE	AMERICAN PUBLISHING
A100: AUSTIN, JAMES	

In this query we did not set the *linesize* and *pagesize* properly. As a result the output has wrapping lines and header is provided more than one time. Further, the query itself could be improved by using aliases for columns (generating headers for the output) and tables (simplifying the query), starting each clause of a query on a new line, and using more than one line for a clause when useful.

8. The same example that is well formatted (both query and results):

Question #1

```
SQL> SELECT B.isbn || ': ' || title AS book, name AS "Publisher's Name",
2      A.authorid || ': ' || lname || ', ' || fname AS "Author's Name"
3 FROM   books B JOIN bookauthor BA ON BA.isbn = B.isbn
4        JOIN author   A  ON BA.authorID = A.authorID
5        JOIN publisher P  ON B.pubID = P.pubID
6 WHERE  category = 'COMPUTER'
7        AND  pubdate > '01-JAN-2005'
8 ORDER BY title;
```

BOOK	Publisher's Name	Author's Name
-----	-----	-----
9959789321: E-BUSINESS THE EASY WAY	PUBLISH OUR WAY	J100: JONES, JANICE
1915762492: HANDCRANKED COMPUTERS	AMERICAN PUBLISHING	W100: WHITE, WILLIAM
1915762492: HANDCRANKED COMPUTERS	AMERICAN PUBLISHING	W105: WHITE, LISA
3957136468: HOLY GRAIL OF ORACLE	AMERICAN PUBLISHING	A100: AUSTIN, JAMES