

CALIFORNIA STATE UNIVERSITY, SACRAMENTO

College of Business Administration

MIS 114 - Database Systems for Business

Homework 4 - SQL and Graphics¹

Points: 25

Due Date: Wednesday, November 30

This assignment focuses on another important application of SQL, the development of graphs. It involves building two graphs in Oracle Graphics Builder (of Developer), one depicting proportion or relative frequency, and another trend.

The Nature of Graphs

In contrast to the various types of reports, graphs offer a better means to convey summary *information*, particularly for identifying trend and proportion. Generally, most business analyses rely on three types: line graphs, pie charts and bar (horizontal and vertical) charts. Each presents information differently. Although they are created from the same sources of data, bar charts depict frequency or relative frequency (through the height or length of the bars) while pie charts a proportion to the whole. In the case of bar charts, the independent variable placed on the axis usually represents a category (i.e., nominal scale data). Measurements in terms of quantitative units assigned to the complementary axis determines the bars's length.

In contrast, the entire pie of a pie chart represents the sum of all components and the slices their relative proportions or frequencies to one another. As in the case of bar charts, categories or entities (i.e., nominal scale data) are assigned to the independent variable, the slices. The quantitative measurement (at least of interval scale), either in its raw form or as a percentage, determines the size of the slice.

Line graphs allow the viewer to identify trend as in the case of time series data. Unlike bar and pie charts, the independent variable assigned to the horizontal or *x* axis must of at least ordinal scale (i.e., distinct non-interval values placed in ascending or descending sequence with the notion that one is of *greater* or *lesser* value than its predecessor). Thus, when used in time series analysis, the *x* axis would show the time periods

¹This assignment is optional. You may elect to submit this assignment for credit or waive it completely. Your score will be added to the total points you have received throughout the semester. The assignment's total points will NOT be added to your semester's total possible points. Thus, there is no penalty for not doing the assignment.



(years, quarters, months, etc.) sequenced in their correct order. The dependent variable assigned to the vertical axis represents a measurement of at least interval scale (see your statistics textbook for further discussion).

Several IS behavioral studies support the use of graphical presentations to aid decision-makers during computer-aid problem solving tasks. However, different types of graphs convey different types of information and should be used properly.

Graph Designs

Design and create two different types of graphs (i.e., line graph, pie chart, bar chart) in Graphics following the options in Table 1. The graphs will retrieve their data from the video_sales² table. View the table's structure with the describe command in SQL Plus (e.g., describe video_sales;). **Follow the guidelines presented on page 1 when selecting a graph type and subtype.**

Table 1. Options

Option	Subject	Graph 1 displays trend using...	Graph 2 displays relative frequency <u>or</u> proportion using...
1	Video categories	Annual sales revenue or volume (in thousands) for 2000, 2001, 2002, 2003 or 2004, displayed by months or quarters for least 5 selected categories (e.g., 5 highest sales revenue or volume)	Annual sales revenue or volume (in thousands) for 2000, 2001, 2002, 2003 or 2004 by at least 5 selected categories
2	Distributors	Annual sales revenue or volume (in thousands) for 2000, 2001, 2002, 2003 or 2004, displayed by months or quarters for at least 5 selected distributors (e.g., 5 highest sales revenue or volume)	Annual sales revenue or volume (in thousands) for 2000, 2001, 2002, 2003 or 2004 by at least 5 selected distributors
3	Rating	Annual sales revenue or volume (in thousands) for 2000, 2001, 2002, 2003 or 2004, displayed by months or quarters for all ratings	Annual sales revenue or volume (in thousands) for 2000, 2001, 2002, 2003 or 2004 by all ratings

Specifications

²This table has been exported to h4.dmp. Use the IMP (import) utility to bring video_sales into your database (see the Camtasia video for the first homework assignment). There should be 2,976 rows. This table can be joined with the videos, distributors and video_categories tables from prior assignments.



Develop your graphs to meet the following specifications.

- Each graph should have an appropriate title, and display descriptive labels (i.e., distributor, video category) and axis titles. (Use the rating from the table.)
- Include the percent in the slice label for pie charts. Be sure the slices are correctly arranged, from largest to smallest going counterclockwise.
- Apply a format mask to all numeric fields.
- Apply a date mask to all date fields (when applicable). Masks for the month include *Month*, *mm*, and *Mon* (e.g., `to_char(sales_month, 'Month')`).
- Use another font other than the default (Times New Roman) for the graph and axes labels, Highlight them (i.e., making them bold) to increase their visibility.
- Aesthetically arrange the graphs components. (In some cases, restrictions imposed by the software may prevent your from modifying certain properties.)
- Keep clutter to a minimum.

Note. When designing your graphs, use your *common sense*. If *you* have difficulty understanding them the user certainly isn't going to fare any better! Remember, the purpose of the graphs is to convey information, *half* of which is the way it is presented.

Tangibles

Place the following in a 9 H 12-inch manila envelope:

- Printouts of your two graphs (in Graphics, File | Print).
- 3 2-inch diskette or flash drive with your graph (OGD) files. Place only the assignment files (i.e., ogd files) on your diskette.



Test your assignment from your diskette or flash drive before submitting it. You cannot be graded for assumed work.

Be sure to write your name on all material submitted in your envelope.

As stated in the syllabus, no late assignments will be accepted.

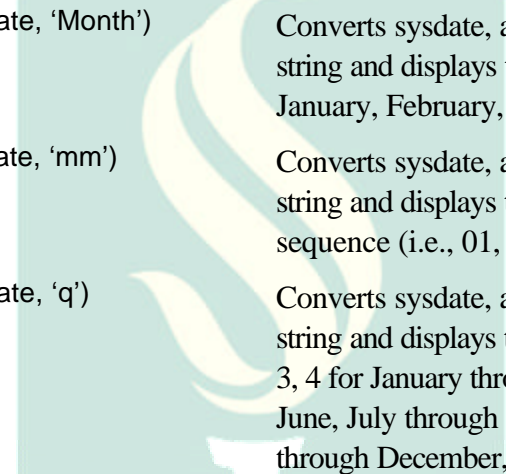


Warning! Check your diskette for viruses. Any diskette with a virus will not be graded.

SQL Notes

To display the date to a month or quarter, it must be converted to a character string (since a date data type is binary) and have a format model (mask) applied to it. The conversion involves using the `to_char` function.

For example:



<code>to_char(sysdate, 'Month')</code>	Converts sysdate, a date data type, to a character string and displays the name of the month (i.e., January, February, etc.).
<code>to_char(sysdate, 'mm')</code>	Converts sysdate, a date data type, to a character string and displays the month's number or its sequence (i.e., 01, 02, 03, etc.).
<code>to_char(sysdate, 'q')</code>	Converts sysdate, a date data type, to a character string and displays the month's quarter (i.e., 1, 2, 3, 4 for January through March, April through June, July through September and October through December, respectively).

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