

Module G *Rapid Review*

G

Rapid Review

MyLab Operations Management

Main Heading	Review Material	
INTRODUCTION TO BIG DATA AND BUSINESS ANALYTICS (p. 814)	<ul style="list-style-type: none"> ■ Big data—The huge amount of production, consumer, and social media data collected in digital form. ■ Business analytics—Uses tools and techniques to convert data into summary information and business insights for decision making. <p>The three categories of analytics include <i>descriptive analytics</i> (characterizing and summarizing data to facilitate understanding), <i>predictive analytics</i> (analyzing past data to predict the future), and <i>prescriptive analytics</i> (invoking advanced optimization tools to recommend a strategy or action).</p>	Concept Questions: 1.1–1.6
DATA MANAGEMENT (pp. 815–820)	<ul style="list-style-type: none"> ■ Data management—Overall management of data's integrity, including completeness, consistency, and accuracy. <p>The combination of the <End> and <Down Arrow> keys in Excel can be used to quickly locate missing records in an Excel database.</p> <p>A quick method to see if there are any empty cells in an Excel database is to use the COUNTIF(range,"") function.</p> <p>To check an Excel dataset for accuracy, outliers can be identified that do not fall within these ranges:</p> <p>Lower limit = AVERAGE(range) - 3*STDEV.P(range) Upper limit = AVERAGE(range) + 3*STDEV.P(range)</p> <ul style="list-style-type: none"> ■ Conditional Formatting—An Excel tool to visually identify characteristics of data using formatting. <p>Conditional Formatting is an excellent tool for finding inconsistencies and inaccuracies in a dataset. Numerous formatting choices exist, including color scales, icon sets, and coloring cells that meet the stated condition.</p> <ul style="list-style-type: none"> ■ Pivot table—A tool to facilitate in-depth analysis of numeric data by applying filters and providing summary computations for categories and subcategories of the dataset. <p>The four Excel PivotTable categories (areas) are:</p> <ol style="list-style-type: none"> 1. Filters: filters the whole dataset according to user specifications (similar to Excel's Data Filtering tool) 2. Rows: all entries with the same value for that field will be summarized in one row in the table. 3. Columns: all entries with the same value for that field will be summarized in one column in the table. 4. Values: contain the numeric fields that the user wishes to summarize. <p>After inserting an Excel PivotTable, the user clicks and drags field headings into the appropriate categories and then applies any desired filters.</p>	Concept Questions: 2.1–2.6 Problems: G.1–G.9, Virtual Office Hours for Solved Problems G.1–G.2
DATA VISUALIZATION (pp. 820–822)	<p>Eight of the most common data visualization graphs include:</p> <ol style="list-style-type: none"> 1. Bar graphs—plot data that are readily divided into categories 2. Line graphs—show data that vary continuously 3. Scatter diagrams—note the value of one variable vs. another variable 4. Slope graphs—illustrate relative increases or decreases of categories in time or at points of comparison 5. Pie charts—represent percentages or portions of a whole 6. Histograms—distributions that show the frequency of occurrences of a variable 7. Regression lines—provide a <i>best-fit</i> line through the central tendency of points on a graph 8. Network diagrams—use arcs and nodes to provide representations of flow through a system <p>Graphing Tips:</p> <ol style="list-style-type: none"> 1. Graphs should be self-explanatory. Do the obvious helpful things, such as providing a meaningful descriptive title and labeled axes with units of measure evident. 2. Ensure that multiple datasets on the same graph each have a key or legend. 3. Do not overwhelm the viewer with too much data in a figure. 4. Avoid 3-dimensional graphics. <ul style="list-style-type: none"> ■ Dashboards—Graphically present data for important metrics in one location. 	Concept Questions: 3.1–3.4 Problem G.10

Main Heading Review Material

Excel's Conditional Formatting can be used to superimpose a heat map onto a column of data. A *heat map* uses colors to represent values, with darker colors applied to more extreme values and lighter colors applied to more moderate values.

	A	B
1	Distributor	Annual Inventory Turnover
2	Mid-Atlantic	45
3	Southeast	60
4	Northwest	95
5	North Central	34
6	Northeast	25
7	California/Nevada	85
8	Mountain West	92
9	Southwest	58
10	South Central	12

Figure G.8(b)

Heat Map

(b)

**PREDICTIVE AND
PRESCRIPTIVE BUSI-
NESS ANALYTICS
TOOLS**

(pp. 822–823)

Data mining explores very large datasets (i.e., big data), looking for relevant patterns or relationships that may provide insights for improved decision making. The three data mining paths include *text analysis*, *sentiment analysis* or *opinion mining*, and *pattern analysis*.

With *mapping* or *tracking*, electronic sensors or video can track employee and customer movement.

Cohort analysis studies the behavior of groups over time.

Cluster analysis identifies and organizes data into groups with similar attributes.

Neural networks are computer systems, which, guided by statistical techniques, take large volumes of data and potential variables to form groupings of variables to identify complex paths and associations. *Machine learning* often builds on these paths and associations to make science fiction a reality by creating speech recognition and self-driving cars. As applied to analytics, machine learning provides a vehicle to sift through vast amounts of big data to provide insight.

Concept Questions:
4.1–4.5

Self Test

■ Before taking the self-test, refer to the learning objectives listed at the beginning of the module and the key terms listed at the end of the module.

LO G.1 Which category of analytics recommends a strategy or action?

- a) descriptive analytics
- b) predictive analytics
- c) prescriptive analytics

LO G.2 Which Excel Conditional Formatting *Rule Type* should be used to format values in one column based on the condition of values in another column?

- a) Format all cells based on their values
- b) Format only cells that contain
- c) Format only top or bottom ranked values
- d) Format only unique or duplicate values
- e) Use a formula to determine which cells to format

LO G.3 Which formatting choice for Excel's Conditional Formatting tool can be used to create a heat map?

- a) icon sets
- b) changing the fill color of cells
- c) changing font type
- d) data bars
- e) color scales

LO G.4 Which business analytics tool studies the behavior of groups over time?

- a) cohort analysis
- b) tracking
- c) neural networks
- d) cluster analysis
- e) data mining

Answers: LO G.1. c; LO G.2. e; LO G.3. e; LO G.4. a.