



## SAM Projects

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## Review Assignments

### Data Files needed for the Review Assignments: Market.xlsx, Watermark.png

Another part of Carol and Bob Levitt's business plan for the new Levitt Winery is to analyze current market conditions. The Levitts have created a workbook that explores customer preferences and sales of wine in the United States. The workbook also explores the current wineries in Michigan against which the Levitt Winery will be competing. Bob and Carol asked you to complete their workbook by presenting this data in graphic form using Excel charts. Complete the following:

1. Open the **Market** workbook located in the Excel4 ► Review folder included with your Data Files, and then save the workbook as **Market Analysis** in the location specified by your instructor.
2. In the Documentation sheet, enter your name in cell B3 and the date in cell B4.
3. In the Loan Analysis sheet, enter the data values and formulas required to calculate the monthly payment on a business loan of **\$225,000** at **8.2** percent annual interest to be repaid in **15** years.
4. In the Market Summary worksheet, use the data in the range E21:F27 showing the types of grapes cultivated by Michigan wineries to create a pie chart comparing production rates. Embed the pie chart in the Market Summary worksheet covering the range B5:G18.
5. Format the pie chart by removing the chart title, applying the Style 11 chart style, and aligning the legend with the right edge of the chart area.
6. In the Michigan Wineries worksheet, create a line chart based on the data in the nonadjacent range B4:B16;F4:F16 showing the increase in the number of wineries in Michigan over the past 12 years. Embed the line chart in the Market Summary worksheet covering the range I5:O16.
7. Format the line chart by making the following changes:
  - a. Format the chart with the Style 14 chart style.
  - b. Change the chart title to **Michigan Wineries**.
  - c. Change the fill color of the chart area to light blue and the plot area to white.
  - d. Add primary major vertical gridlines to the plot area.
  - e. Change the scale of the primary axis to range from **50** to **140** in steps of **10** units.
8. In the Michigan Wineries worksheet, create a clustered column chart using the data in the range B4:E16 showing the growth of Michigan wineries by region. Embed the chart in the Market Summary worksheet over the range I18:O28.
9. Format the column chart by making the following changes:
  - a. Format the chart with the Style 13 chart style.
  - b. Change the chart title to **Michigan Wineries** and reduce its font size to 14 points.
  - c. Set the fill color of the chart area to light blue and the plot area to white.
  - d. Add primary major vertical gridlines to the plot area.
10. In the U.S. Wine Sales worksheet, create a stacked column chart using the data in the range B3:E15 showing the breakout of the wine market into table wines, dessert wines, and sparkling wines or champagne. Embed the stacked column chart in the range B30:G43 of the Market Summary worksheet.



11. Format the stacked column chart by making the following changes:
  - a. Format the chart with the Style 6 chart style.
  - b. Change the chart title to **U.S. Wine Sales** and set its font size to 14 points.
  - c. Add a primary vertical axis title with the text **Millions of Cases** and remove the primary horizontal axis title.
  - d. Add primary major vertical gridlines.
  - e. Set the fill color of the chart area to light blue and the plot area to white.
12. In the U.S. Wine Consumption worksheet, create a combination chart based on the data in the range B3:D15 showing how much wine Americans consume annually. Display the Gallons (millions) data series as a clustered column chart on the primary axis, and then display the Gallons (per Capita) data series as a line chart on the secondary axis.
13. Move the combination chart to the Market Summary worksheet; embed it over the range I30:O43.
14. Format the combination chart by making the following changes:
  - a. Format the chart with the Style 4 chart style.
  - b. Change the chart title to **U.S. Wine Consumption** and set its font size to 14 points.
  - c. Add the primary axis title **Gallons (millions)** and the secondary axis title **Gallons (per Capita)**. Change the font color of the axis titles and scales to match the column and line markers.
  - d. Remove the horizontal axis title and chart legend.
  - e. Change the rotation of the secondary axis title to Rotate Text Down.
  - f. Change the primary axis scale to range from **650** to **950** in intervals of **50**. Change the scale of the secondary axis to range from **2.2** to **3.0** in steps of **0.1** units.
  - g. Change the fill color of the chart area to light blue and the plot area to white.
  - h. Add primary major vertical gridlines to the chart.
15. Insert column sparklines in the range G21:G27 of the Market Summary worksheet based on the data in the range C5:N11 of the Michigan Grapes worksheet to show whether the number of wineries growing their own grapes has increased over the past 12 years.
16. Set the axis of the sparklines so that the column heights range from **0** to a maximum of **26** for each sparkline. Ungroup the sparklines and set the color of each to match the color of the corresponding grape in the pie chart.
17. Because the Levitts plan to grow their own grapes rather than purchasing them from out-of-state vendors, they are interested in knowing how many wineries in Michigan also grow their own grapes. The results of their survey are shown in the range B20:C22 in the Market Summary worksheet. Add data bars to the values in the range C20:C22 using the blue gradient fill. Define a rule that sets the maximum length of the data bars in those cells to a value of **100**.
18. Insert the **Watermark.png** graphic file located in the Excel4 ► Review folder as a washed-out watermark in the center section of the header of the Market Summary worksheet.
19. Save the workbook, and then close it.

## Case Problem 1

Data File needed for this Case Problem: **Bertrand.xlsx**

**Bertrand Family Budget** Andrew and Maria Bertrand of Santa Fe, New Mexico, are hoping to purchase their first home and they are using Excel to help manage their family budget. The couple needs to estimate the monthly payments required for a \$275,000 mortgage. They want to track their income and expenses using tables, charts, data bars, and sparklines. You will help them do all of these tasks. Complete the following:

1. Open the **Bertrand** workbook located in the Excel4 ► Case1 folder included with your Data Files, and then save the workbook as **Bertrand Budget** in the location specified by your instructor.
2. In the Documentation sheet, enter your name in cell B3 and the date in cell B4.



3. In the Budget worksheet, in the range O4:O6, enter the parameters of a **\$275,000** loan that is repaid at an annual interest rate of **4.35** percent over **30** years.
4. In the range O8:O9, calculate the total number of months to repay the loan and the interest rate per month.
5. In cell O11, use the PMT function to calculate the monthly payment. Multiply the PMT function by **-1** so that the result appears as a positive currency value rather than a negative value.
6. In the range D25:O25, enter the value of the monthly mortgage payment by creating an absolute reference to the value in cell O11.
7. In the range D18:O18, calculate the total income per month. In the range D27:O27, calculate the total expenses incurred each month. In the range D28:O28, calculate the couple's net income (total income minus total expenses) each month.
8. In the range C4:C11, calculate the average monthly value of each expense category.
9. Add green gradient data bars to the values in the range C4:C11. Set the maximum length of the data bars to a value of **2500**.
- **Explore** 10. Insert line sparklines in the range D4:D11 using the expense values in the range D19:O26. On the SPARKLINE TOOLS DESIGN tab, in the Show group, click the High Point check box to mark the high point of each sparkline.
11. Create a clustered column chart of the income, expenses, and net income for each month of the year based on the data in the nonadjacent range D15:O15;D18:O18;D27:O28. Place the chart within the range E2:K13.
12. Format the clustered column chart by making the following changes:
  - a. Format the chart with the Style 8 chart style.
  - b. Change the chart title to **Income and Expenses** and format it in a Calibri, non-bold 12-point font.
  - c. Change the vertical scale of the chart to range from **-1000** to **6500** in steps of **1000**.
  - d. Change the series overlap of the columns to **0%** and the gap width to **200%**.
13. Save the workbook.
14. Perform a what-if analysis by changing the length of the loan from 30 years to **15** years. Determine the monthly payments under this new mortgage plan, and then analyze its impact on the couple's projected income and expenses.
15. Save the workbook as **Bertrand Budget 2**, and then close it.

## Case Problem 2

Data File needed for this Case Problem: **PetroChart.xlsx**

**PetroChart Reports** William Rawlings runs a blog called *PetroChart Reports* that deals with the energy market with special emphasis on crude oil production and consumption. William likes to augment his writing with informative charts and graphics. He has an Excel workbook with some historic data on the crude oil market. He has asked you to create charts from that data that he can use in an article that reviews the history of oil production and consumption, and their impact on the size of the proven world oil reserves. Complete the following:

1. Open the **PetroChart** workbook located in the Excel4 ► Case2 folder included with your Data Files, and then save the workbook as **PetroChart Reports**.
2. In the Documentation sheet, enter your name in cell B3 and the date in cell B4.
3. In the World Oil Production worksheet, create a line chart of world oil production from 1980 to 2010 using the data from the range A6:G37. Move the chart to the Summary worksheet covering the range B4:H19.
4. Format the chart with the Style 9 chart style, and then change the chart title to **Oil Production Historic Trends**.
5. Change the line color for the North America data series to white, which is easier to read against the black backdrop.



- ✦ **Explore** 6. Revise the vertical axis scale so that the display unit is expressed in terms of thousands (most oil production reports are quoted in terms of thousands of barrels per day). Change the text of the display unit from Thousands to **Thousands of Barrels per Day**.
7. In the World Oil Production worksheet, create a pie chart that displays the relative size of the oil production values for different regions in 2010 based on the data in the nonadjacent range B6:G6;B37:G37. Move the pie chart to the Summary worksheet covering the range J4:P19.
8. Make the following changes to the pie chart:
- Format the chart with the Style 7 chart style.
  - Change the chart title to **2010 Oil Production** and reduce its font size to 14 points.
  - Move the chart legend to the left edge of the chart area.
  - Add data labels outside of the pie slices showing the percentage associated with each region.
  - Change the color of the pie slice for the North America region to white.
9. In the World Oil Consumption worksheet, create a line chart that shows how oil consumption changed from 1980 to 2010 based on the data in the range A6:G37. Move the chart to the Summary worksheet covering the range B21:H36.
10. Change the chart title to **Oil Consumption Historic Trends**.
- ✦ **Explore** 11. Copy the Oil Production Historic Trends line chart. Use Paste Special to paste the format of that chart into the Oil Consumption Historic Trends line chart.
12. In the World Oil Consumption worksheet, create a pie chart showing the 2010 regional breakdown of oil consumption based on the data in the range B6:G6;B37:G37. Move the chart to the Summary worksheet covering the range J21:P36.
- ✦ **Explore** 13. Change the chart title to **2010 Oil Consumption**. Use Paste Special to copy the 2010 Oil Production pie chart and paste its format into the 2010 Oil Consumption pie chart.
14. There was a fear that with increased oil production and consumption from 1980 to 2010, there would be decreasing amounts of proven reserves. Was this the case? In the Proven Reserves worksheet, create a combination chart based on the data in the range A5:D36. Display the Oil Production and Oil Consumption data series as line charts on the primary axis. Display the Proven Reserves data series as an area chart on the secondary axis. Move the chart to the Summary worksheet covering the range E38:M53.
15. Make the following changes to the combination chart:
- Format the chart with the Style 6 chart style.
  - Change the chart title to **Historic Trends in Proven Oil Reserves**; reduce the font size to 12 points.
  - Change the primary axis scale to range from **50,000** to **90,000** in steps of **5,000**.
  - Change the line color of the Oil Production data series to white.
16. Save the workbook, and then close it.

### Case Problem 3

Data Files needed for this Case Problem: **Frame.xlsx, Confidential.png**

**Frame Financial** Jeri Carbone is the owner of Frame Financial, a small financial consulting firm in Marion, Iowa. Among her many tasks is to maintain Excel workbooks with information on companies and their stock market activity. One of her workbooks contains information on Harriman Scientific, a company traded on the stock exchange. She wants you to complete the workbook by adding charts that describe the company's financial status and stock charts to display recent values of the company's stock. The stock chart should display the stock's daily opening, high, low, and closing values, and the number of shares traded for each day of the past few weeks. The volume of shares traded should be expressed in terms of millions of shares. Complete the following:

- Open the **Frame** workbook located in the Excel4 ► Case3 folder included with your Data Files, and then save the workbook as **Frame Financial** in the location specified by your instructor.
- In the Documentation sheet, enter your name in cell B3 and the date in cell B4.