Formatting

WV Mining Problem

Topics

- Format cells
- Apply cell styles
- Apply conditional formatting
- Apply color scale formatting

Background Information

This project includes information on coal mining in West Virginia from 1999 to 2019.

Instructions

IMPORTANT: Complete the steps below in the order they are given. Completing the steps out of order may complicate the assignment or result in an incorrect result.

1. Download and extract the provided Data Files ZIP file. It contains the following files for use in this assignment:
   a. **mining_ppfo_wvmp.xlsx** – Information on coal mining in West Virginia [1], [2].

Sheet: *Coal Mined*		
Column Name	**Type**	**Description**
County	Text	Name of the West Virginia county.
Region	Text	Region where the county is located.
1999	Number	Tons of coal mined in the county in 1999.
2004	Number	Tons of coal mined in the county in 2004.
2009	Number	Tons of coal mined in the county in 2009.
2014	Number	Tons of coal mined in the county in 2014.
2019	Number	Tons of coal mined in the county in 2019.
Pctg of Total Mined	Percentage	Empty column.
2019 Top 10 County	Text	Empty column.
1999+ Top 10 County	Text	Empty column.

Sheet: *Prices*		
Column Name	**Type**	**Description**
County	Text	Name of the West Virginia county.
Region	Text	Region where the county is located.
1999	Currency	Per-ton price of coal sold in 1999.
2004	Currency	Per-ton price of coal sold in 2004.
2009	Currency	Per-ton price of coal sold in 2009.
2014	Currency	Per-ton price of coal sold in 2014.
2019	Currency	Per-ton price of coal sold in 2019.
Average Price	Currency	Empty column.
Inflation-Adjusted 1999	Currency	Empty column.
2019 Rank	Number	Empty column.
2019 Rank Class	Text	Empty column.
Coal Pricing	Text	Empty column.

Sheet: *Total Values*		
Column Name	**Type**	**Description**
County	Text	Name of the West Virginia county.
Region	Text	Region where the county is located.
1999	Currency	Empty column.
2004	Currency	Empty column.
2009	Currency	Empty column.
2014	Currency	Empty column.
2019	Currency	Empty column.
Coal Pricing	Text	Empty column.
2014-2019 Change	Text	Empty column.
Sparkline	Sparkline	Empty column.
County (Region)	Text	Empty column.

Sheet: *Forecasts*		
Column Name	**Type**	**Description**
Region	Text	Region where the county is located.
1999 Tons	Number	Tons of coal mined in the region in 1999.
2004 Tons	Number	Tons of coal mined in the region in 2004.
2009 Tons	Number	Tons of coal mined in the region in 2009.
2014 Tons	Number	Tons of coal mined in the region in 2014.
2019 Tons	Number	Tons of coal mined in the region in 2019.
2024 Tons	Number	Empty column.
2024 Price	Currency	Forecasted per-ton price of coal in 2024, assuming 2.5% inflation from 2019.
2024 Total Coal Value	Currency	Empty column.

Sheet: *Analysis Questions*		
Column Name	**Type**	**Description**
Question Number	Text	Question being answered.
Response	Text	Response to the analysis question prompt.

2. Open the **mining_ppfo_wvmp.xlsx** workbook in Microsoft Excel.

Format cells / Apply cell styles / Apply conditional formatting / Apply color scale formatting

3. We wish to apply formatting to the *Coal Mined* sheet.
   a. Merge-and-center cells **A1** through **J1**.
   b. Apply the *Heading 1* cell style to cell **A1**.
   c. Add borders to the cells as indicated below:
      i. **C3** through **C64**: left – thick solid line
   d. Format the cells as indicated below:
      i. **C4** through **G63**: number with no decimal places, use 1000 separator
      ii. **H4** through **H59**: percentage with 1 decimal place
      iii. **I4** through **J59**: general type
      iv. **C64** through **G64**: number with 3 decimal places
   e. Set the widths of columns **A** through **J** to 21.
   f. Apply conditional formatting to the *Coal Mined* sheet in cells **C4** through **G58**.
      i. If there were at least 5 million tons of coal mined in the county (≥ 5000000), change the cell fill color to green and the text color to white.
      ii. If there were less than 100,000 tons of coal mined in the county (< 100000), change the cell fill color to red and the text color to white.
4. We also wish to apply formatting to the *Prices* sheet.
   a. Merge (but not center) cells **A1** through **L1**.
   b. Apply the *Title* cell style to cell **A1**.
   c. Format the cells as indicated below:
      i. **C4** through **I58**: currency with 2 decimal places
      ii. **J4** through **L58**: general type
   d. AutoFit the widths of columns **A** through **L**.

   e. Apply *Green-Yellow-Red* color scale conditional formatting to cells **C4** through **G58**.

5. We must also apply formatting to the *Total Values* sheet.
   a. Set the font size to 16-point for cell **A1**.
   b. Format the cells as indicated below:
      i. **C4** through **G58**: currency with no decimal places
      ii. **H4** through **K58**: general type
   c. Set the widths of columns **A** through **J** to 18 (1.56”). Set the width of column **K** to 26 (2.22”).

6. We wish to apply formatting to the *Forecasts* sheet.
   a. Set the font size to 16-point for cell **A1**.
   b. Format the cells as indicated below:
      i. **B6** through **G16**: number with no decimal places, use 1000 separator
      ii. **H6** through **H16**: currency with 2 decimal places
      iii. **I6** through **I16**: currency with no decimal places
   c. AutoFit the widths of columns **A** through **I**.

7. We also wish to apply formatting to the *Analysis Questions* sheet.
   a. Bold the contents of row **1**.
   b. AutoFit the width of column **A**. Set the width of column **B** to 100 (8.39”).
   c. Set the height for rows **2** through **20** to 110 (1.53”).
   d. Change the vertical alignment for columns **A** and **B** so that text is displayed at the top of each row.
   e. Turn on text wrapping for column **B**.

8. Starting in row **2** of the *Analysis Questions* sheet, answer the analysis question below. Respond to one question per row.
   a. The amount of coal produced in some counties varied significantly over time. Clay County produced 6.8 million tons of coal in 1999 but no coal in 2014 and 2019. Why might there be a significant amount of variance?

Grading Rubric

This assignment is worth 8 points. It will be graded by your instructor using this rubric:

Standard	Meets Requirements (8 points)	Does Not Meet Requirements (0 points)
Student made reasonable effort in correctly completing assignment.	Assignment is at least 70% complete and correct, or student contacted instructor for help on incorrect or incomplete items.	Assignment is less than 70% complete and correct, and student did not contact instructor for assistance on incorrect or incomplete items.

This rubric will be used for peer evaluation of this assignment:

Standard	Excellent	Satisfactory	Needs Improvement
Assignment is correct and complete.	Assignment is at least 90% complete and correct.	Assignment is 70%-89% complete and correct.	Assignment is less than 70% complete and correct.

The analysis question in Step 8a will be evaluated using this rubric:

Standard	Meets Requirements	Does Not Meet Requirements
Answer is reasonable.	Answer addresses the question prompt and is factually correct or a reasonable interpretation of available data.	Answer does not address the question prompt, is factually incorrect, or is an unreasonable interpretation of available data.
Answer is supported.	Logical rationale is provided to support the given answer.	Logical rationale is not provided to support the given answer.

References

[1] "Historical & Statistical Data," *West Virginia Office of Miners' Health, Safety and Training*, May 18, 2021. Available: *https://minesafety.wv.gov/historical-statistical-data/*.

[2] "Annual Coal Report: Table 30," *Energy Information Administration*, Oct. 05, 2020. Available: *http://www.eia.gov/coal/annual/*.