

## Business Computing (70-110)

### Home Work IV (Individual)

**Problem 1. Cycle Green** is expanding its product mix into a new line of mountain bikes. Gianna has created a workbook with an income statement detailing the revenue and expenses associated with this new lineup. She wants you to perform what-if analyses of the data and determine the optimal product mix. Complete the following:

1. Open the **Mountain** workbook sent to you by email. In the Documentation worksheet, enter your name and the date. **(0.5 + 0.5 point)**
2. In the Income Statement worksheet, create a one-variable data table to explore the impact of different numbers of Bikes Sold on Total Revenue, Total Expenses, and Net Income in D4:G13.
  - a) In cell D4:G4 enter formulas to reference the appropriate cells in column B. **(1 point)**
  - b) In the range D5:D13, enter Bikes Sold values of **100** up to **900** in increments of 100. **(1 point)**
  - c) Now create the one-variable data table. **(2 point)**
  - d) Create a cost-volume-profit chart as a scatter with straight lines chart in the range D14:G26. Use the CVP chart in Tutorial 10 as a **guide** to format the chart. **(2 point)**
3. Complete the following steps to create a two-variable data table to analyze the impact of Average Price per Bike and different numbers of Bikes Sold on Net Income in I4:N13:
  - a) In cell I4, enter a formula to reference Net Income in column B. **(1 point)**
  - b) Format cell I4 so that it displays the text **Bikes Sold**. **(1 point)**
  - c) In the range I5:I13, enter Bikes Sold values of **100** up to **900** in increments of 100. **(1 point)**
  - d) In the range J4:N4, enter average bike prices of **\$600** up to **\$1,000** in increments of \$100. **(1 point)**
  - e) Now create the two-variable data table. **(2 point)**
  - f) In the range I14:N26, create a scatter with straight lines chart of the net income values from the two-variable data table, displaying each average sales price as a different line in the chart. Make sure that the chart legend identifies each line by the average sales price value listed in row 4 of the two-variable data table. Use the corresponding chart in Tutorial 10 as a **guide** to format the chart. **(3 point)**
4. Use the Scenario Manager to analyze the financial impact of the different scenarios listed in the range I29:M35 of the Income Statement worksheet. The results should include: Total Revenue, Total Expenses and Net Income. **(4 point)**
5. Create a scenario summary report of the four scenarios proposed by Gianna, displaying the Total Revenue, Total Expenses and Net Income under each scenario. Move the worksheet to the end of the workbook. **(2 point)**
6. Based on the values in the Income Statement worksheet, create a Scenario PivotTable report of the four scenarios displaying Total Revenue, Total Expenses and Net Income under each scenario. Move the Scenario PivotTable to the end of the workbook. **(2 point)**
7. Format the Scenario PivotTable worksheet as follows:
  - a) Remove the filter from the PivotTable. **(1 point)**
  - b) In cell A1, enter **Scenario Report** and format the text using the Title cell style. **(1 point)**

- c) Format the Total\_Revenue, Total\_Expenses, and Net\_Income values using the Currency format with no decimal point and negative numbers displayed in red and enclosed within parentheses. **(1 point)**
- d) Add a PivotChart of the PivotTable displaying the data as a clustered column chart positioned over the range A8:E21. Hide Field Buttons at the bottom of chart. **(2 point)**
8. The Product Mix worksheet lists four mountain bike models produced by Cycle Green. Use Solver to find the product mix that maximizes the value of Net Income by changing the values of the optimal product mix. **(1 point)**
9. Apply the following constraints to your model:
  - The total bikes produced and sold must be 330. **(1 point)**
  - Only integer numbers of each bike model can be produced and sold. **(1 point)**
  - At least 50 units of each bike model must be produced and sold. **(1 point)**
  - The number of parts remaining after the production run must be greater than or equal to 0. **(1 point)**
10. Run Solver to see how much net income increases under the Solver model.
11. Save the parameters of the Solver model to the range A21:A28 in the Product Mix worksheet. Enter the text **Max Net Income** in cell A20. **(1 + 0.5 point)**
12. Restore the values in the range B4:E4 to their current product mix value, and then rerun Solver. Create an answer report detailing the Solver solution, and then move the Answer Report 1 worksheet to the end of the workbook. **(1 + 0.5 point)**
13. Restore the values in the range B4:E4 to their current product mix value in the Product Mix worksheet. Change the Solver model so that it minimizes the total material cost. Save the parameters of this model to the range A31:A38, and then enter the text **Min Material Expenses** in cell A30. **(1 + 1 + 0.5 point)**
14. Restore the values in the range B4:E4 to their current product mix value in the Product Mix worksheet. Reload the Maximum Net Income Model into Solver and run Solver to display the product mix that results in the maximum net income. **(1 point)**
15. Save the workbook, and then close it.

**Problem 2.** The Billings **Cooking Club** has a youth division for members 6 to 18 years of age. Shirley has a workbook to store the information collected about these members. Shirley asks you to clean and format the data. Complete the following:

1. Open the **Youth** workbook sent to you by email. In the Documentation worksheet, enter your name and the date. **(0.5 + 0.5 point)**
2. In the Members worksheet, rename the table **MemberTbl**. **(0.5 point)**
3. Insert a blank column to the left of column B. Change Column headings of column A to **Last Name** and Column B to **First Name**. **(0.5 + 0.5 point)**
4. Split names in column A into columns A and B: **Last Name** and **First Name**. **(1 point)**
5. In cell H1, enter **Status** as the column header. In cell H2, use the IF and LEFT functions to display the word **Discard** if the address begins with PO; otherwise, leave the cell blank. **(0.5 + 2 point)**
6. In cell I1, enter **Street** as the column header. In cell I2, enter a TRIM formula to trim the extra spaces from the address. **(0.5 + 0.5 point)**
7. In cell J1, enter **Cty** as the column header. In cell J2, enter a formula to convert the data in the City column to proper case. **(0.5 + 0.5 point)**

8. In cell K1, enter **St** as the column header. In cell K2, enter a UPPER formula to convert the data in the State column to uppercase. **(0.5 + 0.5 point)**
9. In cell L1, enter **City, State** as the column header. In cell L2, combine the city and state data from columns J and K into one column using the format: *City, State*. **(0.5 + 2.5 point)**
10. Format the data in the Phone column (column F) with the Phone Number format. **(0.5 point)**
11. Auto fit column width of columns A-L. Save the workbook, and then close it. **(0.5 point)**

**Problem 3.** Sally wants to know how many times each piece of equipment has been serviced. You will perform advanced filtering tasks that focus on items with service contracts in the Field garage that have been serviced more than five times. Complete the following:

1. Open the **Service** workbook sent to you by email. In the Documentation worksheet, enter your name and the date. **(0.5 + 0.5 point)**
2. In the Equipment worksheet, copy the field names in the range A6:J6 to the range A1:J1, and make sure row 1 has the same formatting as row 6. This establishes the criteria for advanced filtering. **(0.5 point)**
3. Enter the And criteria to select equipment at the Field garage that has been serviced more than five times. **(1 point)**
4. Enter the Or criteria to select any Trimmer/Edger that has reached Max Service. **(1 point)**
5. Filter the data in the EquipTbl table based on the criteria you entered and copy the results at \$L\$6. Use the same format in the results range as the EquipTbl table. Auto fit column width of columns L-U. **(2 point)**
6. In the Equipment Summary worksheet, enter criteria for equipment at the Broad, Field and Oak garages and whether they have reached Max Service in the ranges G5:H6, G9:H10, G14:H15, J5:K6, J9:K10, and J14:K15. **(3 point)**
7. In the range C5:D7, enter the DAVERAGE function using the criteria you entered in the criteria ranges to calculate the average value of equipment that has reached its max service at each garage and that has available service at each garage. **(3 point)**
8. In the range C11:C13, enter the COUNTIFS function using EquipTbl Status equal to A and the specified Times Serviced values. For example, cell C11 will have Times Serviced <5, cell C12 will have Times Serviced = 5, and the cell C13 will have Times Serviced > 5. **(3 point)**
9. In the range D11:D13, enter the SUMIFS function using EquipTbl Status equal to A and the specified Times Serviced values. **(3 point)**
10. In the range E11:E13, enter the AVERAGEIFS function using EquipTbl Status equal to A and the specified Times Serviced values. **(3 point)**
11. Save the workbook, and then close it.

**Problem 4.** Emma created a workbook of calendar data for Waves World. This workbook contains calendars listing the size of the staff (administrative, half, or full), the daily high temperature, and the hours of operation (closed, three quarter, half, or full). She wants you to format these tables, add graphical elements to the workbook, and create a unified design theme. Complete the following:

1. Open the **Season** workbook sent to you by email. In the Documentation worksheet, enter your name and the date. **(0.5 + 0.5 point)**

2. Create a new custom cell style named **WavTitle** with the following formatting:
  - Font – 14-point bold in white **(0.5 point)**
  - Fill – Blue, Accent 1 background color (5th theme color in the first row of the palette) **(0.5 point)**
  - Alignment – Text centered horizontally **(0.5 point)**
  - Border – Double line (lowest on the right column of Style box) **(0.5 point)**
3. Apply the WavTitle cell style to the titles above each monthly calendar in the Staff Calendar, Temperature Calendar, and Hours Calendar worksheets. **(3 point)**
4. In the Events Table worksheet, add a new table style named **WavTable** with the following formatting:
  - Header row – white text on a Blue, Accent 1 background (5th theme color in the 1st row of the palette) and double line (lowest on the right column of Style box) outline border **(0.5 point)**
  - First row stripe – Stripe size 2, Blue, Accent 1, Lighter 80% background fill (the fifth color in the second row of the color palette) **(0.5 point)**
  - Second row stripe – Stripe size 2, white background fill **(0.5 point)**
5. Apply the WavTable table style to A4:C22 in the Events Table worksheet. **(0.5 point)**
6. In the Staff Calendar worksheet, which indicates the staffing at the waterpark for the upcoming season, select the Staff\_Dates range from the Name box, and then apply the following conditional formatting rules:
  - a. Highlight cells that contain the text “admin” in cell C4 with a medium gray fill color to match the color in cell C5. **(1 point)**
  - b. Highlight cells that contain the text “half” in cell D4 with a light green fill color to match the color in cell D5. **(1 point)**
  - c. Highlight cells that contain the text “full” in cell E4 with a medium green fill color to match the color in cell E5. **(1 point)**
7. In the Temperature Calendar worksheet, which contains the daily high temperature for each day of the upcoming season, select the Temperature\_Dates range from the Name box, and then apply the 2-Color scale that ranges from White to Orange, Accent 2 (the sixth color in the first row). **(2 point)**
8. Format cell A4 with a fill effect that uses a gradient Two colors fill with Vertical Shading style ranging from White for low temperatures to Orange, Accent 2 to indicate high temperatures in the table. **(2 point)**
9. In the Hours Calendar worksheet, which contains how many hours the park is open each day, select the Hours\_Dates range from the Name box, apply the following rules, and show only the icon to the selected range:
  - When the value is  $\geq 80$  percent, display a full black circle. **(0.5 point)**
  - When the value is between 60 percent and 80 percent, display a three-quarter back circle. **(0.5 point)**
  - When the value is between 40 percent and 60 percent, display a half circle. **(0.5 point)**
  - When the value is between 20 percent and 40 percent, display a quarter circle. **(0.5 point)**
  - Otherwise, display an empty circle. **(0.5 point)**
10. In the Documentation worksheet, insert a SmartArt graphic: Click Picture in the left pane, and then choose Picture Accent Blocks (the third graphic in the fourth row). Add the

captions **South Dakota's**, **Best**, and **Waterpark** to the three blocks and display the **image1**, **image2**, and **image3** JPEG image files as the block images. You can find the image files on Canvas (Module 4: Home Work 4). **(3.5 point)**

11. Move the SmartArt graphic so the three image blocks roughly wrap around the lower-right corner of cell B5. **(0.5 point)**
12. Change the brightness of the three pictures to +40% and the contrast to -40%. **(1.5 point)**
13. Apply the Wisp theme to the workbook. **(1 point)**
14. Change the theme fonts to Arial Black for the heading font and Garamond for body font. Name this font **WFont (1 point)**
15. Change the theme colors to Orange Red. **(0.5 point)**
16. Save the revised workbook theme as **WTheme. (0.5 point)**
17. Save the workbook, and then close it.

#### SUBMISSION PROCEDURE:

Create a zip file of the four workbooks **Mountain**, **Youth**, **Service** and **Season**, and name it as YourFirstName-Your Lastname.zip. Submit it on Canvas. Or, upload individual workbooks on Canvas.

Note: No credit for late submission or wrong submission. Remember your last submission is your final submission!