Eastern Mobile

Shelly Cashman Excel 2019 | Module 8: SAM Project 1a



ANALYZE DATA WITH CHARTS AND PIVOTTABLES

# GETTING STARTED

* Open the file **SC\_EX19\_8a\_*FirstLastName*\_1.xlsx**, available for download from the SAM website.
* Save the file as **SC\_EX19\_8a\_*FirstLastName*\_2.xlsx** by changing the “1” to a “2”.

If you do not see the **.xlsx** file extension in the Save As dialog box, do not type it. The program will add the file extension for you automatically.

* With the file **SC\_EX19\_8a\_*FirstLastName*\_2.xlsx** still open, ensure that your first and last name is displayed in cell B6 of the Documentation sheet.

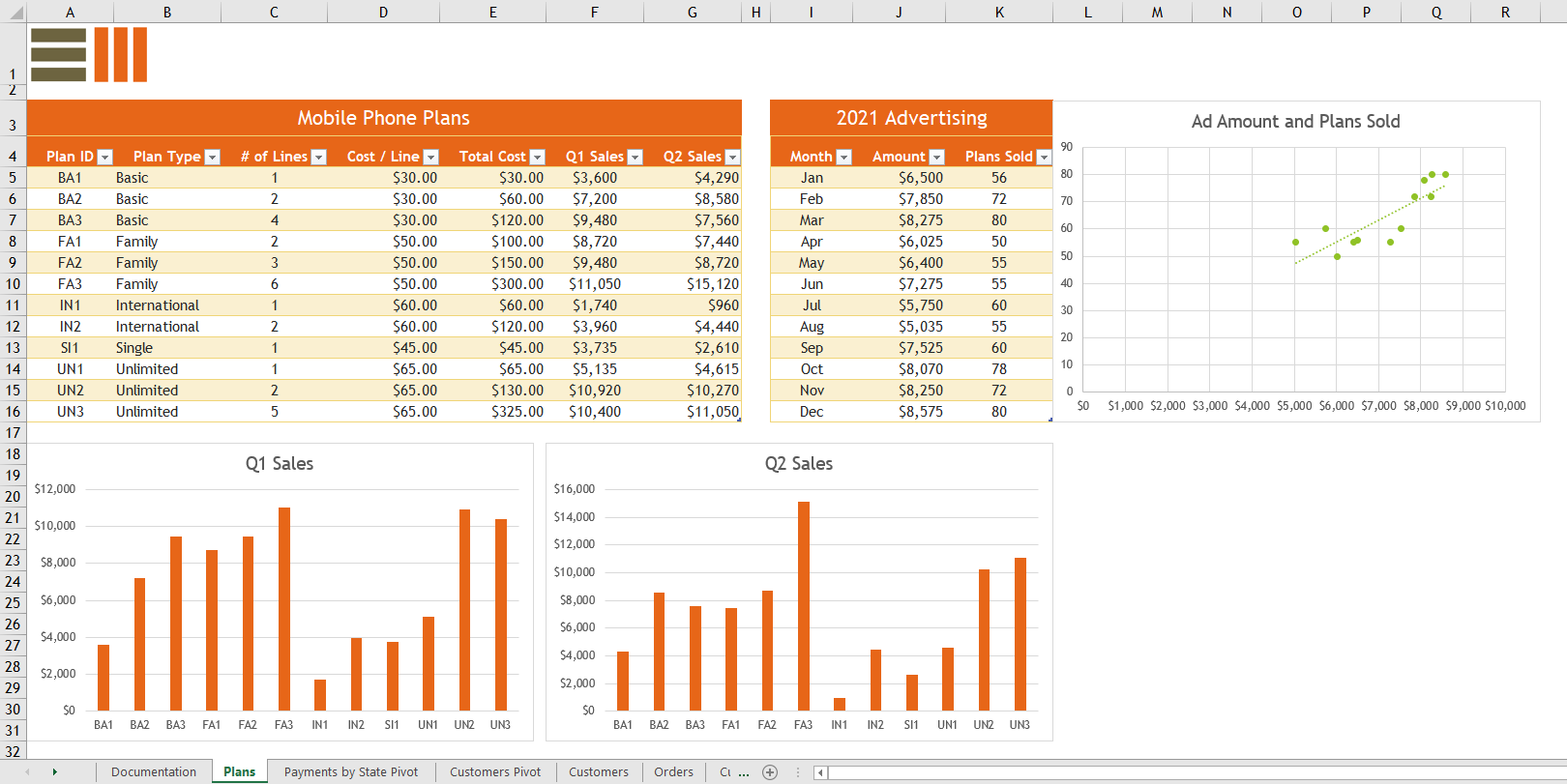
If cell B6 does not display your name, delete the file and download a new copy from the SAM website.

* To complete this project, you need to add the Analysis ToolPak. If Data Analysis is not listed under the Analysis section of the Data ribbon, click the File tab, click Options, and then click the Add-Ins category. [Mac - Click the Tools menu, and then click Excel Add-ins.] In the Manage box, select Excel Add-ins and then click Go. In the Add-Ins box, check the **Analysis ToolPak** check box, and then click OK to install. [Mac - In the Add-Ins available box, select the **Analysis ToolPak** check box, and then click OK.] If Analysis ToolPak is not listed in the Add-Ins available box, click Browse to locate it.
* PROJECT STEPS

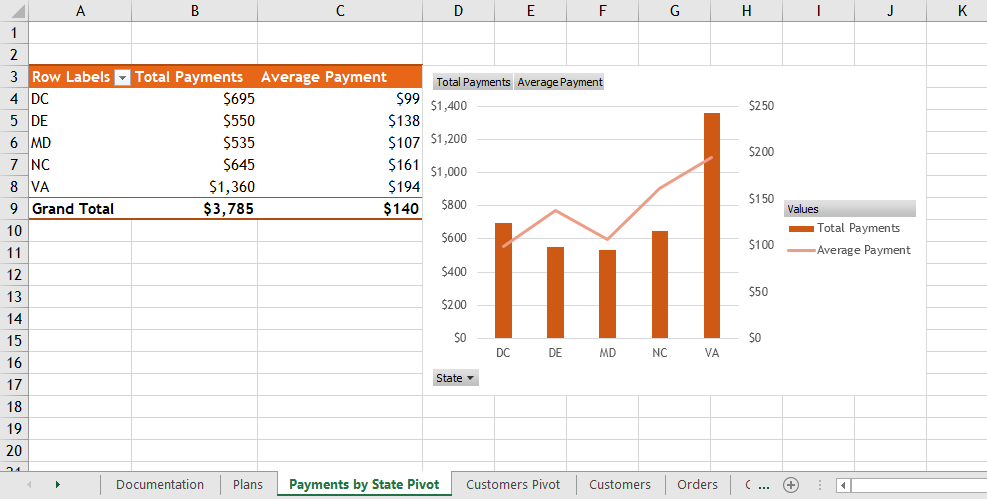
1. Marina Andros works in the Financials Department of Eastern Mobile, a communications company in Alexandria, Virginia. She is using an Excel workbook to analyze the company's recent financial performance, and asks for your help in creating advanced types of charts and PivotTables to provide an overview of mobile phone plans, customers, and orders. Go to the *Plans* worksheet, which contains a column chart in the range F18:K31 showing sales of each plan type in Quarter 2. Marina wants to create a similar chart showing the Quarter 1 data.  
     
   Provide a chart showing Quarter 1 data as follows:
   1. Copy the Q2 Sales chart.
   2. Paste the chart in cell A18.
   3. Select the copied chart and drag the blue outline from the range G4:G16 to the range F4:F16 to change the data shown in the chart.
2. The Ads table in the range I4:K16 compares the amount of advertising purchased in the previous year and the number of mobile phone plans sold. Marina asks you to create a chart that shows the relationship between the advertising spent and the plans sold.
   1. Insert a **Scatter** chart that shows the relationship between the advertising amount (range **J4:J16**) and the number of plans sold (range **K4:K16**).
   2. Resize and position the Scatter chart so that it covers the range L3:R16.
   3. Use **Ad Amount and Plans Sold** as the chart title.
3. Marina wants to analyze the relationship between advertising spent and the plans sold.  
     
   Add a **Linear** trendline to the scatter chart.
4. Go to the *Customers* worksheet, which contains customer details in a table named **Customers**. Marina wants to display the payments customers made in each of five states where Eastern Mobile does business.   
     
   Insert a recommended PivotTable based on the Customers table as follows:
   1. Insert the **Sum of Payment by State** recommended PivotTable. [Mac Hint: Use the State field in the Rows area, the Payments field in the Values area, and show grand totals for rows and columns.]
   2. Use **Payments by State Pivot** as the name of the new worksheet.
   3. Apply the **Light Orange, Pivot Style Medium 12** style to the PivotTable.
   4. Add a second copy of the **Payment** field to the Values area of the Field List, and then change its summary function to **Average** so that Marina can compare the average payments to the totals.
   5. Change the Number format of the two value fields to **Currency** with **0** decimal places and the **$** symbol.
   6. Use **Total Payments** as the column heading in cell B3, and use **Average Payment** as the column heading in cell C3.
5. Insert a PivotChart based on the new PivotTable as follows to help Marina visualize the data:
   1. Insert a **Combo** PivotChart based on the Payments by State PivotTable.
   2. Display the Total Payments as a Clustered Column chart and the Average Payment as a Line chart.
   3. Include a secondary axis for the Average Payment data.
   4. Hide the Field List so that you can format the value axis of the chart.
   5. Change the maximum bounds for the value axis on the left to **1,400**.
   6. Change the PivotChart colors to **Monochromatic Palette 4**.
   7. Resize and position the chart so that it covers the range D3:J17.
   8. Display the Field List again.
6. Marina also wants to insert a PivotTable that includes other Customer information so that she can analyze Family plan customer data. Return to the *Customers* worksheet, and then create a PivotTable based on the **Customers** table as follows:
   1. Place the PivotTable on a new worksheet, and then use **Customers Pivot** as the name of the worksheet.
   2. Display the order location as column headings.
   3. Display the state field and then the customer field as row headings.
   4. Display the years as the values.
   5. Display the plan type as a filter, and then filter the PivotTable to display customer information for **Family** plans only.
   6. Hide the field headers to reduce clutter in the PivotTable.
7. Go to the *Orders* worksheet. The Deliveries table in the range A4:C27 lists the number of days between a customer order and the delivery of a mobile device. Marina wants to know how many orders were delivered in the periods listed in the range E5:E8.   
     
   Insert a histogram as follows to provide this information for Marina:
   1. Use the **Data Analysis** tool to create a histogram.
   2. Use the number of days until delivery (range **C5:C27**) as the input range.
   3. Use the Bin list (range **E5:E8**) as the bin range.
   4. Use cell **A29** as the output range.
   5. Show a cumulative percentage and chart output in the histogram.
8. Modify the Histogram chart as follows to incorporate it into the worksheet and display the data clearly:
   1. Resize and position the Histogram chart so that it covers the range A35:G48.
   2. Display the legend at the bottom of the chart to allow more room for the data.
9. The Order\_Summary table in the range G4:J15 shows the sales for three categories of mobile device orders, with each category divided into types and then into models. Marina wants to display these hierarchies of information in a chart.  
     
   Insert a Sunburst chart to display the hierarchies for Marina as follows:
   1. Insert a **Sunburst** chart based on the mobile device order data in the range G4:J15.
   2. Resize and position the chart so that it covers the range G16:K34.
   3. Use **Mobile Device Orders** as the chart title.
10. Go to the *Customers by Plan* worksheet, which contains a PivotTable showing the payments, customers, and lines for each plan. Marina does not need to display the number of lines, but does want to show subtotals in a different layout since Eastern Mobile is running a special on unlimited plans with three or more lines. Marina wants to know where the current customers of these plans reside so that she can encourage sales representatives to promote the plans in those states.  
      
    Modify the PivotTable for Marina as follows:
    1. Remove the **Sum of # of Lines** field from the Values area.
    2. Change the report layout to **Tabular Form**.
11. Go to the *Sales Pivot* worksheet, which contains a PivotTable comparing sales for plans in Quarter 1 and Quarter 2. Marina wants to know the difference between the two quarters.  
      
    Reorder the fields and add a calculated field to the PivotTable as follows:
    1. Change the order of the fields in the Values area to display the Total of Q1 Sales before the Total of Q2 Sales.
    2. Create a calculated field using **Difference** as its name.
    3. The formula should subtract the **Total Q1 Sales** field value from the **Total Q2 Sales** field value to calculate the difference.
    4. Use **+/- Q1 to Q2** in cell D1 as the column heading for the calculated field.
12. Go to the *Location Pivot* worksheet, which contains a PivotTable and PivotChart that should show customer plan payments made according to where customers ordered their plans.   
      
    Move the **State** field below the Order Location field in the Rows area so that the PivotTable is easier to interpret.
13. Eastern Mobile is raising the cost per line of their Family plans. Marina wants you to fine-tune the PivotChart on the *Location Pivot* worksheet, but first asks you to update the data.
    1. Return to the *Plans* worksheet, and then change the cost per line to **$50.00** for the three Family plans.
    2. Refresh the PivotChart data on the *Location Pivot* worksheet so that it displays accurate data.
14. Now you can make the PivotChart easier to understand and use as follows:
    1. Change the PivotChart to a **Stacked Column** chart.
    2. Apply **Layout 4** to the PivotChart to display values in the columns, and then apply the **Monochromatic Palette 4** colors if the colors changed when you changed the chart type.
    3. Increase the height of the chart until the lower-right corner is in cell G30.
15. Add a slicer to the PivotTable and PivotChart as follows to make it easy for Marina to filter the data:
    1. Add a slicer based on the **Plan Type** field.
    2. Without resizing the slicer, position it so that its upper-left corner is in cell I9.
    3. Use the slicer to filter the PivotTable and PivotChart to display **Family** and **Unlimited** plans only.

Your workbook should look like the Final Figures on the following pages. Save your changes, close the workbook, and then exit Excel. Follow the directions on the SAM website to submit your completed project.

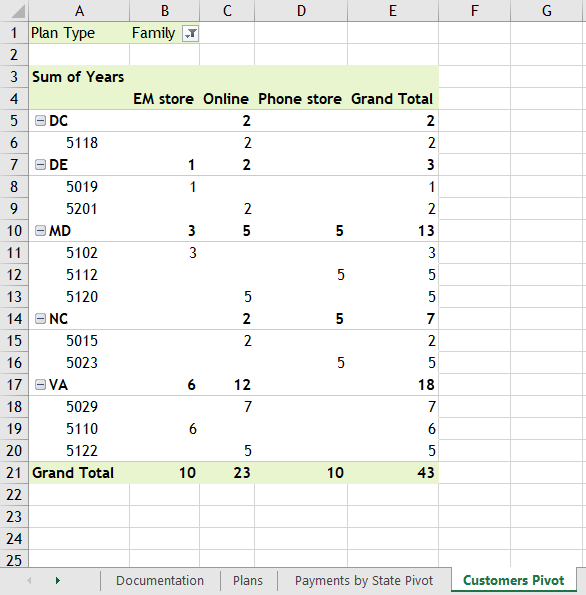
* Final Figure 1: Plans Worksheet



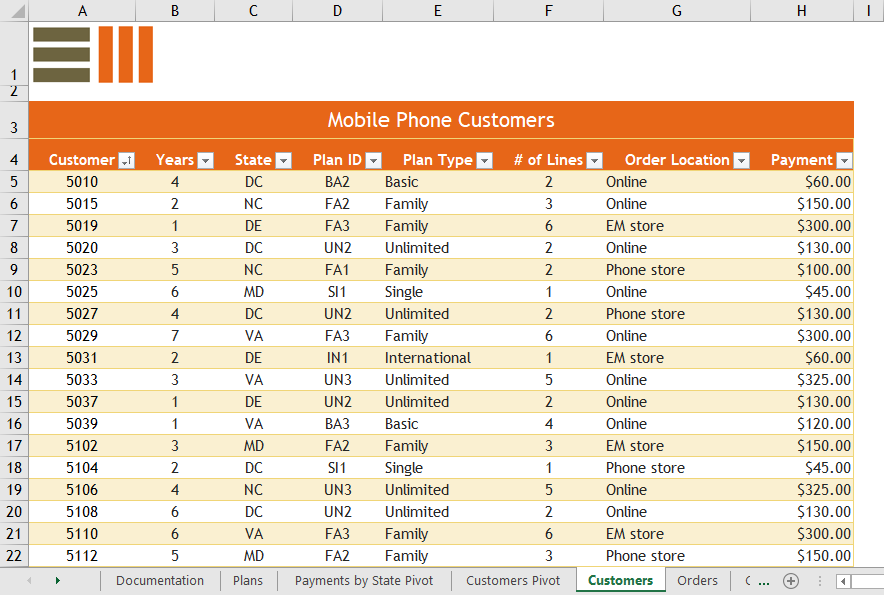
* Final Figure 2: Payments by State Pivot Worksheet



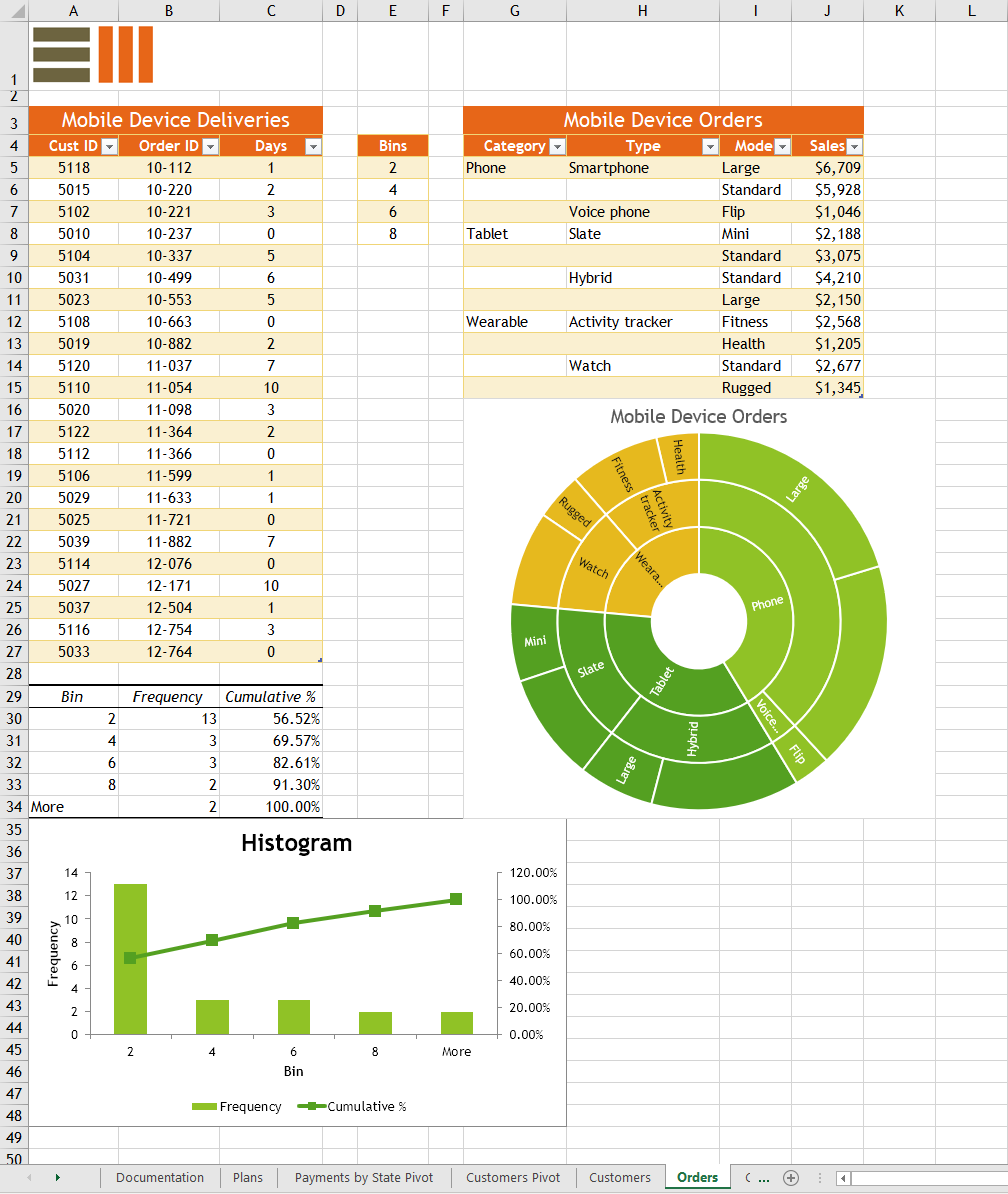
* Final Figure 3: Customers Pivot Worksheet



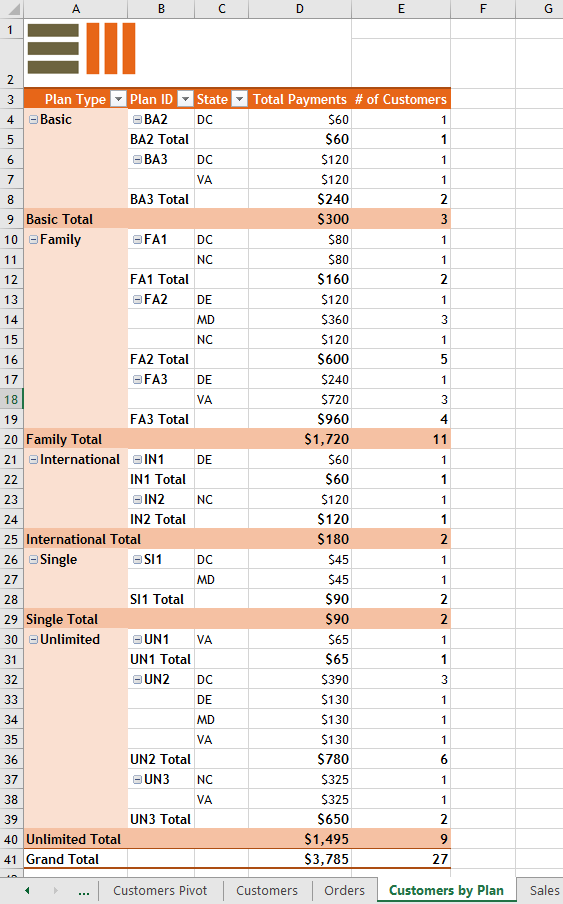
* Final Figure 4: Customers Worksheet



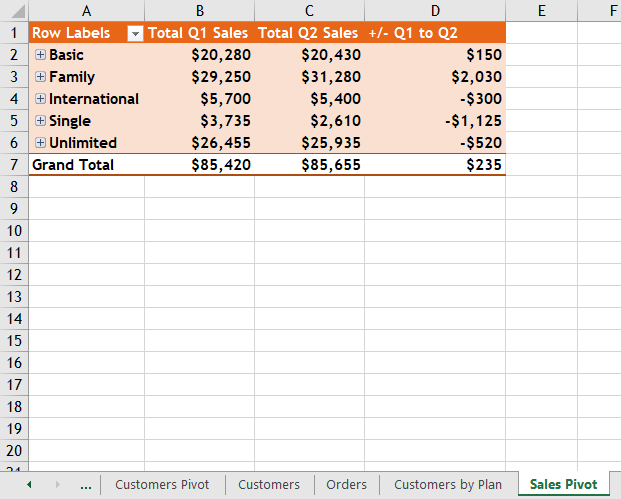
* Final Figure 5: Orders Worksheet



* Final Figure 6: Customers by Plan Worksheet



* Final Figure 7: Sales Pivot Worksheet



* Final Figure 8: Location Pivot Worksheet

