

Manual scenario creation

1.

Let's set up a new sheet to begin our fresh analysis.

- Create a new sheet and rename it "Scenario Analysis".
- Insert a table in A1 and name it "Scenario1".

Hint

- To add the new worksheet:
 - Click on the + on the bottom ribbon to add another *worksheet*.
 - Double-click the new *worksheet* tab and type "Scenario Analysis".
- To insert the new table:
 - Click on *Table* under the *Insert* ribbon, then click OK.
 - Type in "Scenario1" for the *Table Name* under the *Table Design* ribbon.

2.

Let's start our analysis in the Scenario1 table by finding the total opportunity.

- Create a column called "Upsell Opportunity" that uses SUM() to calculate the total Current Upsell \$ from the Account Sales History worksheet.

Hint

- The formula for `Upsell Opportunity` should be:
- `=SUM(Sales[____])`

3.

Now, let's calculate a projected upsell amount that assumes a certain amount of Upsell Opportunity will convert to actual sales.

- Create a column called "Conversion Rates" and set this to "50%".
- Create a column called "Projected Upsell Amount" that multiplies Upsell Opportunity and Conversion Rate

Hint

- The formula for `Projected Upsell Amount` should look like this: `= ____ * ____`.

4.

This was a pretty interesting and simple scenario analysis so far. If 50% of our opportunity is converted to actual sales; Bananas could make \$19,046.50 more per month. However, let's say each subscription type has a

different conversion rate. This makes sense because we expect less conversion as the subscription price increases.

- Insert a *table column* called "Subscription Type" to the left of Upsell Opportunity.
- Ensure the new column and Conversation Rates are filled as below:

Subscription Type	Conversion Rates
Basic	50%
Premium	45%
Business	30%
Enterprise	15%

Hint

To insert a column, right-click on the Scenario1 table > *Insert > Table columns to the left*.

5.

We must update the inputs for our Projected Upsell Amount formula.

- Change the Upsell Opportunity formula to a SUMIF() function that calculates the Current Upsell \$ for each Subscription Type.
- Add in a row total using the *Table Design* feature.

Hint

- The Upsell Opportunity formula should look like this:
- =SUMIF(____,____,Sales[Current Upsell \$]).
- The Projected Upsell Amount formula should look like this: =[@[Conversion Rates]]*[____]
- To add the row total, check *Total Rows* in the *Table Design*.

6.

What is the total Projected Upsell Amount? Format your answer as a currency with 2 decimals (i.e. \$10,000.00).

\$15945.70

Hint

1. The formula for Upsell Opportunity should be: =SUMIF(Sales[Subscription Type],[@[Subscription Type]],Sales[Current Upsell \$])

=[@[Upsell Opportunity]]*[@[Conversion Rates]]

- The final table should look like this:

Subscription Type	Upsell Opportunity	Conversion Rates	Projected Upsell Amount
Basic	\$ 18,350.00	50%	\$ 9,175.00
Premium	\$ 8,460.00	45%	\$ 3,807.00
Business	\$ 8,475.00	30%	\$ 2,542.50
Enterprise	\$ 2,808.00	15%	\$ 421.20
Total			\$ ____

If you're still stuck, review the solution in *3_1_scenario_analysis.xlsx* from the *Workbooks* folder.

Using Goal Seek

1.

In order for *Goal Seek* to work, we need to construct a scenario model. We will create a new table and construct our scenario model, then run the analysis tool.

- Continue working in the Scenario Analysis worksheet.
- Insert a table in A9 of your worksheet and name it "Scenario2".

Hint

- Click on *Table* under the *Insert* ribbon and then click *OK*.
- Type in "Scenario2" for the *Table Name* under the *Table Design* ribbon.

2.

First, let's find the last month's sales to have a base for our scenario model.

- Create a new column called "Sales Last Month" that uses SUMIF() and MAX() to calculate the Sales Amount for the last Sales Month from the data in the Account Sales History sheet.
- Format this as a \$ with 0 decimals.

Hint

- The formula for Sales Last Month should look like this:
- `=SUMIF(Sales[____],MAX(Sales[____]),Sales[Sales Amount])`

3.

Now we need to construct our formula.

- Create a new column in the table called "Growth Rate" and insert any random percentage you feel like.
 - Format this as a %
- Create a formula in a new column called "Sales Target" that calculates how much sales would be given the Sales Last Month and the Growth Rate
 - Format this as a \$ with 0 decimals.

Hint

- Remember that a growth rate calculation needs to be $1 + r$.
- The Sales Target formula should look like this: `=____*(1+____]`

4.

The Sales Target probably looks strange right now because the growth rate is currently just a random number.

- Use *Goal Seek* to find what the Growth Rate needs to be if Sales Target = \$100,000.

Hint

- Click on *Data > What-If Analysis > Goal Seek*.
- Set the Sales Target cell to 100000.
- Reference the Growth Rate cell in the *By changing cell* section.

5.

What does the growth rate need to be in order to hit \$100,000 in monthly sales? Format your answer as a percentage with 0 decimals (i.e. 5%).

24%

Hint

- The formula for Sales Last Month should be: `=SUMIF(Sales[Sales Month],MAX(Sales[Sales Month]),Sales[Sales Amount])`

- The formula for Sales Target should be: $=[\text{Sales Last Month}] * (1 + [\text{Growth Rate}])$

If you're still stuck, review the solution in 3_2_goal_seek.xlsx from the Workbooks folder.

What-if analysis with Scenario Manager

1.

First, let's set up a new table for our analysis. Since Basic subscriptions are the free product version, we'll leave them out.

- Continue working in the *Scenario Analysis* worksheet.
- Insert a new table in A13 and name it "Scenario3".
- Create the two columns and add the values as per the table below:

Subscription Type	License Price
Premium	\$ 10.00
Business	\$ 25.00
Enterprise	\$ 23.00

Hint

- Click on *Table* under the *Insert* ribbon, then click *OK*.
- Type in "Scenario3" for the *Table Name* under the *Table Design* ribbon.

2.

We must find the Licenses Bought for each Subscription Type.

- Create a new column called "Licenses Bought" that uses SUMIFS() and MAX() that can add all the Licenses Bought in the last Sales Month for each Subscription Type.

Hint

- The `Licenses Bought` formula look like this:
- `=SUMIFS(Sales[Licenses Bought], Sales[Sales Month], MAX(), Sales[], [@[]])`

3.

Finally, we need to create our calculation for the scenario analysis.

- Create a new column called "Projected Sales" that finds the sales amount based on the License Price and Licenses Bought

- Add a row total at the bottom.

Hint

- The Projected Sales formula should look like this: $=[@[Licenses Bought]]*[@[License Price]]$
- To add the row total, check *Total Rows* in the *Table Design*.

4.

Nice! Now we're going to create two different scenarios to reflect proposed price changes.

- Add a scenario called "Current" that changes the License Price:
 - Premium = \$10
 - Business = \$25
 - Enterprise = \$23
- Add a scenario called "High" that changes the License Price:
 - Premium = \$15
 - Business = \$35
 - Enterprise = \$33

Hint

To add scenarios to the *Scenario Manager*:

- Click *Data > What-If Analysis > Scenario Manager*, then click on *Add*.
- Add the corresponding *Scenario Name* from the table given.
- Set the cells for Licenses Price in the *Changing Cells*, then click *OK*.
- Type in the values for each cell, then click *OK*.
- Repeat this for each scenario: Current and High.

Scenario Name	Premium	Business	Enterprise
Current	10	25	23
High	15	35	33

5.

Click on *Show* to run the various scenarios. Take your time to review how the Projected Sales change.

Hint

Make sure the *Scenario Manager* is open.

6.

We can also export a summary of all the results to make it easier to compare.

- Create a summary of results for the row total in Projected Sales.
- Find the difference in total Projected Sales between the Current scenario and the High scenario.

Hint

To create the summary table:

- In the *Scenario Manager* window click on *Summary....*
- Select the *Scenario summary* report type.
- Reference the row total cell for Projected Sales and click *OK*.
- This will create a new *worksheet* called *Scenario Summary*.
- To find the difference, simply subtract the results for High by the results for Current.

7.

What is the difference between the projected sales for the current scenario and the high scenario? Format your answer as a currency with 2 decimals (i.e. \$10,000.00).

\$35390.00

Hint

- The Licenses Bought formula should be: =SUMIFS(Sales[Licenses Bought],Sales[Sales Month],MAX(Sales[Sales Month]),Sales[Subscription Type],[@[Subscription Type]])
- The Projected Sales formula should be: =[@[Licenses Bought]]*[@[License Price]]
- The summary table should look like this:

Scenario Summary

	Current Values:		Current	High
Changing Cells:				
	\$B\$14	\$10.00	\$10.00	\$15.00
	\$B\$15	\$25.00	\$25.00	\$35.00
	\$B\$16	\$23.00	\$23.00	\$33.00
Result Cells:				
	\$D\$17	\$ 80,305.00	\$ 80,305.00	\$ 115,695.00

Sensitivity analysis with Data Tables

1.

Let's perform our sensitivity analysis based on the Projected Sales. We will create a new list of prices that the *Data Table* tool will plug into our formula. **DO NOT** put this into a table. Find an open space in the Scenario Analysis worksheet.

- Create a new list of license prices starting in cell A21, ranging from \$12.50 to \$25.00 at \$2.50 intervals.
- Navigate to cell B20 and reference the Projected Sales for Premium subscriptions.
- **Hint**
- Your new data should look like this:

=D14

\$ 12.50

\$ 15.00

\$ 17.50

\$ 20.00

\$ 22.50

\$ 25.00

2.

Run the scenario analysis with *Data Table* by changing the License Price for Premium subscriptions from the Scenario3 table.

Hint

To run the analysis with *Data Table*

- Highlight the entire table from cell A20 to B26.
- Click on *Data > What-If Analysis > Data Table....*
- Reference the License Price cell (B14) for Premium subscriptions in *Column input cell*, then click *OK*.

3.

When prices go up, demand goes down. This is known as **elasticity of demand**. Let's add this assumption to our calculation.

- Insert a column to the left of Projected Sales on the Scenario3 table called "Elasticity".
- Fill in the new column with -5% for "Premium", -3% for "Business", and -2% for "Enterprise" subscription types.
- Format the column as a % with 2 decimals.

Hint

- Select the header of the column Projected Sales.
- Under the *Home* tab, click on *Insert*, then click on *Insert Table Columns to the Left*.

4.

Update the Projected Sales formula to consider the negative impact of the Elasticity of demand on sale.

- *Hint: Remember to add 1 when multiplying a rate of change.*

Hint

- The new Projected Sales formula should look like this: `=[@[Licenses Bought]]*[@[License Price]]*(1+_____)`.

5.

We can run another scenario analysis with these two variables to see their relationship. We'll need to move some things around first.

- Delete the second column of your *Data Table* analysis.
- Reference the Projected Sales for "Premium" subscriptions in cell A20.
- In B20, start a range of percentages from -1.25% that double until -80.00% in cell H20.
- Run the scenario analysis with *Data Table* by changing the License Price and Elasticity for "Premium" subscriptions.

Hint

Your new table should look like this:

=Cell Reference	-1.25%	-2.50%	-5.00%	-10.00%	-20.00%	-40.00%	-80.00%
\$ 12.50							
\$ 15.00							
\$ 17.50							
\$ 20.00							
\$ 22.50							
\$ 25.00							
\$ 25.00							

To run the analysis with *Data Table*

- Highlight the entire table, from A20 to H26.
- Click on *Data > What-If Analysis > Data Table....*
- Reference the Elasticity cell for Premium subscriptions in *Row input cell*.
- Reference the License Price cell for Premium subscriptions in *Column input cell*, then click *OK*.

6.

Great work! Let's format the *Data Table* and add some conditional formatting to make this easier to read.

- Ensure any values that are not percentages are \$ with 2 decimal places
- Add the title "Elasticity of Demand - Premium" above the column headers.
- Set the conditional formatting to highlight the rows in the *Data Table* that are less than "\$21,014".

Hint

- Select all the monetary values in the table from cell B21 to H26.
- Click on *Home > Conditional Formatting > _Highlight Cells Rules > _Less Than..._*.
- Type in 21014 and then click *OK*.

7.

At which elasticity of demand do projected sales first become less than \$21,014?

- -5.00%
- -10.00%
- -20.00%
- -40.00%
- -80.00%

Hint

- The updated Projected Sales formula should be: $=[@[Licenses Bought]]*[@[License Price]]*(1+[@[Elasticity]])$
- The table should look like this before you run the *Data Table* analysis:

=E14	-1.25%	-2.50%	-5.00%	-10.00%	-20.00%	-40.00%	-80.00%
\$ 12.50							
\$ 15.00							
\$ 17.50							
\$ 20.00							
\$ 22.50							
\$ 25.00							

If you're still stuck, review the solution in *3_4_data_table.xlsx* from the *Workbooks* folder.