Activity 1: Apply conditional formatting to a Google Sheet

In this activity, you apply conditional formatting to make it easy to identify where monthly performance shows a substantial difference from forecasted sales for a region. You turn cells green or yellow to identify any values not in the -5% to +5% range.

Complete the following steps:

1. Open the OTR regional sales Excel spreadsheet in Google Sheets, and save it as a Google Sheets spreadsheet.
2. Close the preview and Excel spreadsheet tabs.
3. Select column F, "Forecast Delta."
4. Open the **Format** menu and select **Conditional formatting** to open the Conditional format rules panel.
5. From the drop-down menu, choose to format cells if **Greater than** and type in 5% in the field beneath.
6. Click **Done** to apply the rule.
7. Select **Add another rule** and keep the same range (column F).
8. From the drop-down menu, choose to format cells if **Less than** and type in -5% in the field beneath.
9. From formatting style, choose fill color **Light yellow 2**. Select **Done** to apply the rule.
10. Review your data. See how values greater than 5% are highlighted in green and values less than -5% are highlighted in yellow.

Do not close your Google Sheets spreadsheet. You use it in the next activity.

Activity 2: Use the IFS function in Google Sheets

In this activity, you create a formula using the IFS function. You continue working with your Google Sheets spreadsheet from the previous activity.

Complete the following steps:

1. In your spreadsheet "OTR regional sales.", create a new column (G) and name it "Sales status."
2. Move to cell G2, and from the **Functions** drop-down, choose **Logical** and select **IFS**.
3. Create a formula to show text "Above forecast" if the forecast delta (column F) is greater than zero, and "Below forecast" if that is not true.

   Use =IFS(F2="","",F2>0,"Above forecast",F2<0,"Below forecast")

4. Copy a relative reference to the rest of column G. Select the bottom-right corner of the cell and drag it down all the cells in the column. Note: Google Sheets may actually prompt you to autofill the formula in all rows for you.

Do not close your Google Sheets spreadsheet. You use it in the next activity.

Activity 3: Create a data validation rule and name a range

In this activity, you continue working with your spreadsheet from the previous activity. You name a range for the bakery products. You then use a data validation rule to ensure that everyone entering products into the spreadsheet uses the correct value. You then repeat the process for regions.

Complete the following steps:

Create a named range:

1. Select **E2:E289**, right-click, and select **View more cell actions** > **Define the named range.**
2. Type **Products** as the range name.
3. Experiment using the named range in an empty cell. For example, create a formula that uses the named range to find the average sales forecast.
   Use =AVERAGE(Products)
4. Delete the formula from step 3 before proceeding to the next step.

Create a data validation rule:

5. Select **A2:G289**. From the **Data** menu, select **Data cleanup** > **Trim whitespace**, then click **OK**. (Before you create a data validation rule for the bakery products, you want to make sure that there are no leading trailing whitespace characters in the product column.)
6. Select any cell to clear the selection. Now, from the **Data** menu, select **Data validation**.
7. In the **Data validation rules** panel, click **+ Add rule**.
8. For the Cell range, use C2:C289**.**
9. For criteria, choose **Dropdown** and type in **Cinnamon bun** into the **Option 1** box and **Rye bread** for the **Option 2** box.
10. Click **Add another item**, and then type **Pastries** into the empty box, and then click **Done**.
11. Review the Products range as you note that there are some invalid entries in this range. Find all the instances of invalid data and correct them by choosing a selection from the drop-down list.
12. Create another data validation rule for regions. Are there any errors?

Do not close your Google Sheets spreadsheet. You use it in the next activity.

Activity 4: Create a chart using Google Sheets

In this activity, you create a chart using some data in your spreadsheet from the previous activity. You want to show the actual April sales for each product in the AsiaPac region compared to the sales forecast.

Complete the following steps:

1. Select the products, sales forecasts, and actual sales for the AsiaPac region in April (C1:E4).
2. From the **Insert** menu, select **Chart** to open the Chart editor panel.
3. For Chart type, choose **Bar chart.**
4. Give the chart a title. Select **Customize**, then **Chart and axis titles.** Type "AsiaPac April Sales" for the **Chart title** text.
5. Make the chart easier to read by selecting **Gridlines and ticks** and then enabling **Minor gridlines** for the Horizontal axis.
6. Close the Chart editor panel, then resize the chart by dragging an anchor on one of the corners to enlarge it.
7. Move the chart to its own sheet. Click the three dots in the top right corner of the chart, then click **Move to own sheet**.
8. Return to the default sheet 'Sheet1'.

Do not close your Google Sheets spreadsheet. You use it in the next activity.

Activity 5: Create a pivot table based on existing data

In this activity, you demonstrate how much easier it is to analyze large amounts of data by applying a simple pivot table. You use the data that you have been working with in "OTR regional sales."

Thomas Omar wants to know the sales forecast by product type by region.

Let's start by naming the current version of your spreadsheet.

Complete the following steps:

1. From the **File** menu, select **Version history** and select **Name current version**.
2. Name this version 'For pivot table example.'

Try summarizing data using formulas and other Sheets features.

3. Select the entire table, A1:F289.
4. From the **Data** menu, select **Sort range** > **Advanced range sorting options**, and check **Data has header row**.
5. You first want to sort by Region in alphabetical order, so keep that default setting.
6. Select **Add another sort column.**
7. For **then by**, click the down arrow to see all the choices, select **Product** and **A→Z,** and then select **Sort**.
8. Select the entire Column E. From the **Insert** menu select **Columns** > **Insert 1 column left**.
9. Look at the table. See how the three products are now sorted by region? Now sum the Sales forecast for each product in each region.
10. In Cell E13, sum the Cinnamon bun's **Sales forecast** using this formula, =sum(D2:D13).
11. Repeat for each product group in each region, 23 more times.

Restore the previous version of the file.

12. From the **File** menu, select **Version history** and then **See version history**.
13. Select the Sheet's version that you saved, For pivot table example, and **Restore this version**.
14. Select **Restore**.

Now create a pivot table to summarize the data.

15. From the **Insert** menu, select **Pivot table**.
16. In the **Create pivot table** dialog, choose your data range, A1:F289.
17. To show the pivot table in this sheet, at **Insert to** choose **Existing sheet**. Then select the cell in which you want the pivot table to appear. Select **Create**.

To determine the Forecasted sales by product in each region.

18. For Rows, **Add** Region. Choose Ascending **Order**, **Sort by** Region**,** check the **Show totals** box.
19. For Columns, **Add** Product. Choose Ascending **Order**, **Sort by** Product**,** check the **Show totals** box.
20. For Values, **Add** Sales forecast. **Summarize by** SUM and **Show as** Default.
21. Close the Pivot table editor.

What took you 32 steps sorting data and using formulas took you 6 steps using a pivot table.

Can you think of ways you could enhance your productivity using pivot tables to analyze information?

Activity 6: Explore publishing options

In this activity, you look at how to publish a chart to the web. You publish the chart only and set it to dynamically update when your spreadsheet changes.

Complete the following steps:

1. Open the sheet containing the chart you created earlier. Select **Publish chart.**
2. To publish the chart only, select the chart name from the drop-down menu on the Publish to the web card.
3. To allow viewers to see values and additional chart information, select **Interactive.**
4. To allow for dynamic updates, expand **Published content & settings** and check **Automatically republish when changes are made**.
5. Click **Start publishing**, copy the link, and open it in a new browser tab to see your chart.
6. Click **Stop publishing**. Test the link again in a new browser tab. Can you see the chart now?
7. You can now close your OTR regional sales spreadsheet.

Activity 7: Create a Google Form

In this activity, you create a Google Form from a Google Sheet. This particular Form is used by On the Rise to simplify their recruitment process. Responses from the Google Form are automatically added to the linked Google Sheet. This use case is just one example of how Google Forms can be used to help organizations better coordinate and manage their data. Let's create a Google Form now.

Complete the following steps:

1. Open On the Rise Hiring Questionnaire and make a copy in your My Drive.
2. From the **Tools** menu, select **Create a new form**.
3. Add the form **Title**, On the Rise hiring questionnaire, and a **Form description**, Please answer all the following questions before submitting your form.
4. Add each of the four questions from the Google Sheet. Use the drop-down menu to select the type of response and mark each as required. Enter the potential responses as shown in Column D of the spreadsheet.
   Tip: Copy the values from the spreadsheet and paste them into the Options list in the form to quickly add the allowable options for each question.
5. Select **Customize Theme**, change the theme color to #ffbf00, and click **Add**.
6. Select **Preview** to view the form.
7. Close the Preview tab but leave the Form tab open as you use it in the next activity.

Tip: You can always find your forms at forms.google.com.

Activity 8: Share a Google Form

In this activity, you share the Google Form from the previous activity using email and generate a shareable link. For this form, you want to be able to identify respondents' email addresses with their responses.

Complete the following steps:

1. Send a Google Form by email.
    a. Return to the form tab from the previous activity and select **Settings**.
    b. Select **Verified** from the **Collect email addresses** dropdown**.**
    c. **Publish** the form to accept responses.
    d. Select the **Share** icon.
    e. Enter your own email address.
    f. Add an optional message and select **Send**.
    g. Open Gmail. Can you see the form in your inbox?
2. Generate a link to the Google Form.
    a. Select the **Copy responder link** icon.
    b. Check the box to **Shorten URL** and select **Copy**.
    c. Paste the URL into a new browser tab. Can you see your form?
3. Close both tabs that contain your form.

Business challenge: Formulating forecasts

In this activity, you help Thomas Omar and the On the Rise team solve their business challenge using Google Sheets.

Task 1

The Leadership team wants to quickly and securely collect sales data from new On the Rise stores in the Asia Pacific region (AsiaPac). They share a Google Sheet named "On the Rise AsiaPac sales." The team asks that you create a Google Form that automatically populates data into this spreadsheet.

Complete the following steps:

1. Open [On the Rise AsiaPac sales](#) and make a copy in your My Drive.
2. From the **Tools** menu, select **Create a new form**.
3. Add the form **Title**, On the Rise AsiaPac sales, and a **Form description**, Actual sales for On the Rise bakeries in the AsiaPac region.
4. Add each of the seven questions from the spreadsheet. Use the drop-down menu to select the type of question and mark each as required. Enter the potential responses as shown in Column D of the spreadsheet.
5. Select **Customize Theme**, change the theme color to #ffbf00, and **Add**.
6. Select **Preview** to view the form.
7. Notice you now have two tabs in the On the Rise AsiaPac sales Google Sheet:
   - **Sheet1** contains the questions and responses
   - A **Form Responses** tab that contains the questions

Task 2

You've set up the Google Form "On the Rise AsiaPac sales." Now, the Leadership team asks that you share the form with several of the On the Rise bakers to get their feedback. As well, they want you to ensure that the form gathers the data correctly.

Over the coming days, you frequently open the Google Sheet and check the Responses tab. You see this tab populate with new data as the bakers complete the Google Form.

Complete the following steps:

1. From the "On the Rise AsiaPac sales" form, select **Send**.
   Here's where you would send the form to your intended recipients, the On the Rise bakers. For this training however, you play the part of the bakers and submit several responses yourself on their behalf.
2. Select **Verified** from the **Collect email addresses** dropdown, then close the Send form dialog.
3. Select **Preview** to view the form and enter the following data for five different cities in AsiaPac. You are submitting five responses in total:

City	Lahore
Country	Pakistan
Region	AsiaPac
Month	May
Cinnamon buns	10377
Rye bread	10363
Pastries	9255

City	Bangalore
Country	India
Region	AsiaPac
Month	May
Cinnamon buns	10347
Rye bread	9280
Pastries	9084

City	Sanur
Country	Indonesia
Region	AsiaPac
Month	May
Cinnamon buns	3794
Rye bread	4161
Pastries	3513

City	Singapore
Country	Singapore
Region	AsiaPac
Month	May

Cinnamon buns	11834
Rye bread	11583
Pastries	11612
City	Seoul
Country	South Korea
Region	AsiaPac
Month	May
Cinnamon buns	8813
Rye bread	8471
Pastries	9243

4. Review the **Form Responses** tab in your "On the Rise AsiaPac sales" Google Sheet. Was the form information added to the spreadsheet? Is the data in the correct columns? Is your email address being captured?

Task 3

A few weeks pass and the Google Sheet grows larger and more complex as many respondents complete the Google Form. The Leadership Team determines they have enough data for a meaningful analysis. They send you a new, up-to-date version of the Google Sheet, which they have formatted and renamed "Sheets advanced topics APAC forecast report_Challengefinal."

The Leadership Team would like you to help them analyze the actual and forecasted sales of products in AsiaPac. They want to uncover which products are selling the best and which locations are doing well, and which may need some additional support. You think a pivot table provides great insight.

Complete the following steps:

1. Open Sheets advanced topics APAC forecast report_Challengefinal and make a copy in your My Drive.
2. From the **Insert** menu, select **Pivot table**.
3. In the **Create pivot table** dialog, choose your data range, A1:G505.
4. To show the pivot table in this sheet, at **Insert to** choose **Existing sheet**. Select the cell in which you want the pivot table to appear. Select **Create**.

To determine the actual sales by product in each region

5. For Rows, **Add** City. Choose Ascending **Order**, **Sort by** City**,** check the **Show totals** box.

6. For Columns, **Add** Product. Choose Ascending **Order**, **Sort by** Product**,** check the **Show totals** box.

7. For Values, **Add** Sales - Actual. **Summarize by** SUM and **Show as** Default.

What city has the greatest sales? What city has the lowest sales?

Now let's look at forecasted sales by product in each region.

8. Create a second pivot table but when adding Values, choose Sales - Forecast instead of Sales - Actual. **Summarize by** SUM and **Show as** Default as before.

What city has the greatest sales forecast? What city has the lowest sales forecast?

Tip: Instead of creating a new pivot table you could have added the forecast values to the existing table by adding a second Values row for Sales - Forecast. To format the pivot table correctly with multiple values, ensure **Values as** is set to Rows (not Columns).

Task 4

The Leadership Team wants to give Thomas Omar a more visual representation of the data. They know he wants to see the numbers, but they also want to provide him a way to review the data that gives him insight into the data at a glance. They ask for your thoughts and suggestions. Understanding the team's need to have both the numbers and a visual, you propose creating a bar chart alongside the pivot table.

Complete the following steps:

1. Use the "Sheets advanced topics APAC forecast report_Challengefinal" you have been working with.

Create charts for actual sales

2. Highlight the area of the Actual sales pivot table from 'City' to the last 'Grand Total' for 'Tokyo.'

3. From the toolbar menu select **Insert**, and then **Chart**. Move the chart next to the Actual sales pivot table.

4. Select the three ellipses in the chart area and then select **Edit chart**.

5.   For **Chart type**, select **Column chart**.
6.   For Series, remove **Grand Total.**
7.   Customize the chart. For **Chart & axis titles**, select **Chart title**, and for **Title text** enter 'OTR actual sales by product by city.'
8.   Create another chart by highlighting the same area of the pivot table; from 'City' to the last 'Grand Total' for 'Tokyo.'
9.   From the toolbar menu select **Insert**, and then **Chart**. Move the chart next to the 'OTR actual sales by product by city' chart.
10.   Select the three ellipses in the chart area and then select **Edit chart**.
11.   For **Chart type**, select **Column chart**.
12.   For Series, remove **Cinnamon bun, Pastries,** and **Rye bread.**
13.   Customize the chart. For **Chart & axis titles**, select **Chart title**, and for **Title text** enter 'OTR actual sales by city.'

Create charts for forecast sales

14.   Repeat steps 2-13 and create two charts using the Forecast sales pivot table.
15.   Review the charts. What city has the greatest actual sales? What city has the lowest sales forecast? Is it easier to identify this information using charts or pivot tables?
16.   You have the four charts inserted next to the pivot tables, but want to make a few changes so the charts look more professional. Double-click on one of the charts, select the three ellipses in the chart area, and then select, **Edit chart**.
17.   Customize the chart style using Chart Editor. Change the font and background color. also drag the chart to resize it.
18.   Do the same for the other charts.

Task 5

The Leadership Team is pleased with your work and wants to share the 'Actual sales by city' chart with Thomas Omar. The team asks you to publish the Google Sheet to the Web and share it with Thomas through Gmail.

Complete the following steps:

1.   Use the "Sheets advanced topics APAC forecast report_Challengefinal" you have been working with.
2.   Select the three ellipses in the upper right corner of the chart and choose **Publish chart.**
3.   To publish the chart only, select the chart name from the drop-down menu on the Publish to the web card.

4. To allow viewers to see values and additional chart information, select **Interactive.**
5. To allow for dynamic updates, expand **Published content & settings** and check **Automatically republish when changes are made**.
6. Click **Publish**, then **OK** to confirm that you want to publish the chart.
7. Copy the link provided and open it in a new browser tab to see your chart.
8. Optionally, share the link through email with a colleague and ask them to test the link.
9. Click **Stop publishing**.

Case wrap up

It's Monday morning and Thomas Omar opens his laptop. He's delighted to see that the Leadership Team has shared the information from the "Sheets advanced topics APAC forecast report_Challengefinal" spreadsheet by publishing the Actual sales by city chart to the web. Thomas is surprised at the scale of the data. He reflects that Google Forms has been very effective as a means to collect information from his globally dispersed teams. As he scans the Google Sheet, he notes that the pivot table and bar chart really assist him in quickly making business determinations. He can immediately see that most On the Rise stores are doing well. Thomas understands the lower sales in the small tourist town of Sanur, but was surprised at the lower volume in Shanghai, Seoul, and Kuala Lumpur. He believes these locations could use additional support. He takes some personal notes and sends some emails to his team in those three stores. Thomas finishes his day by sending another email to the Leadership Team. He thanks them for their work and requests they do the same for the stores in On the Rise's other global locations.