

Excel Introductory Application Capstone Exercise

For Excel
Chapters 1–4

You work for a travel company that specializes in arranging travel accommodations for student tours and vacations in exciting destinations such as Canada, Rome, and the Czech Republic. You created a workbook to store agent names, student IDs, and tour codes. The workbook also contains a worksheet to store lookup tables. You will complete the workbook for your manager's approval. You will insert formulas and a variety of functions, convert data to a table, sort and filter the table, and prepare a chart.

Name the Lookup Tables

The Lookup Tables worksheet contains two lookup tables: one to look up the base price to find the commission rate and the other table to look up the tour package code to find the tour description, departure date, and base cost. You need to assign a range name to each lookup table.

- Start Excel. Open *e00a1Trips* and save the workbook as **e00a1Trips_LastFirst**. Make sure the Lookup Tables sheet is active.
- Assign the range name **rates** to the base price and commission range.
- Assign the range name **tours** to the data for the package, tour description, departure, and base cost.

Insert Functions and Formulas

You need to insert lookup functions that look up the tour code, compare it to the lookup table, and then return the tour description, departure date, and base cost of the trip. Then you need to insert a formula to calculate the cost with taxes and fees, the monthly payment, and the agents' commissions.

- Click **cell D13** on the Data sheet and insert a VLOOKUP function that looks up the tour code, compares it to the tours table, and returns the description.
- Click **cell E13** and insert a lookup function that looks up the tour code, compares it to the tours table, and returns the departure date.
- Click **cell F13** and insert a lookup function that looks up the tour code, compares it to the tours table, and returns the base cost of the trip.
- Click **cell G13** and insert a formula that adds taxes and fees to the base cost of the trip (in cell F13) by using the percentage value in the input area. Use a mixed reference to the cell containing 20% in the input area above the data.
- Click **cell H13** and insert the PMT function to calculate the payments for students who want to pay for their trips in three installments. Use the interest rate and months in the input area above the data. Use appropriate relative, mixed, and/or absolute cell references in the formula. Make sure the result is a positive value.
- Click **cell I13** and calculate the agent commission using the base cost of the trip and a VLOOKUP function that returns the commission rate based on the base cost of the trip using the rates lookup table. The function should then calculate the monetary value of the commission.
- Copy the formulas and functions down their respective columns.

Format Data

You need to format the titles and numeric data in the Data sheet. In addition, you want to freeze the column labels so that they do not scroll offscreen. You also want to apply conditional formatting to emphasize values above the average value.

- Merge and center the main title on the first row over all data columns on the Data sheet. Apply **bold and 18 pt font size**.
- Merge and center the subtitle on the second row over the data columns.
- Apply **Currency number format** to the monetary values in columns F, G, H, and I.
- Hide the Tour Code column.
- Wrap text in the **range F4:I4**. Set the column widths for these columns to **11**, if necessary. Adjust the row height, if necessary.

- f. Freeze the panes so that the row of column labels does not scroll offscreen.
- g. Apply the **Light Red Fill with Dark Red Text conditional formatting** to values in the *Total Cost with Taxes* column when the values are above average.

Add Summary Statistics

The Data worksheet contains a section for Summary Statistics. You insert functions to perform these calculations. Use the total cost, including taxes and fees, for the range in the functions.

- a. Insert a function to calculate the total for all trips in **cell G5**, the average trip cost in **cell G6**, and the median trip cost in **cell G7**.
- b. Insert a function to calculate the lowest trip cost in **cell G8** and the highest trip cost in **cell G9**.
- c. Click **cell G10** and enter a function to display today's date.

Sort and Filter the Data

To preserve the integrity of the original data, you copy the worksheet. You will then convert the data in the copied worksheet to a table, apply a table style, sort and filter the data, and then display totals.

- a. Copy the Data sheet and place the copied sheet before the Summary sheet. Remove the conditional formatting rule on the Data (2) sheet.
- b. Convert the data range in the Data (2) sheet to a table.
- c. Apply the **Table Style Medium 21 style** to the table.
- d. Sort the table by departure date from oldest to newest and then alphabetically by trip description.
- e. Apply a filter to display trips arranged by agents Avery and Ross only.
- f. Display a total row. Add totals for all monetary columns.

Create Sparklines and Insert a Chart

The Summary sheet provides a six-month summary of sales. You want to insert sparklines to display trends for each agent and provide a \$500 bonus if the sales were greater than the average combined sales. Finally, you want to create a chart.

- a. Create Line sparklines in column H in the Summary sheet to display six-month trends for each agent. Show the high point in each sparkline. Apply the **SparkLine Style Accent 1, Darker 50% style**. If needed, apply the **Blue, Accent 1 high point marker color**.
- b. Insert an IF function in column I that displays a \$500 bonus if an agent's average sales are greater than the average of all sales for the six months. Use two nested AVERAGE functions in the logical_test argument of the IF function to make the comparison.
- c. Create a clustered column chart of the agents and their six-month sales, using the chart type that displays the months on the category axis.
- d. Move the chart to a chart sheet named **Sales Chart**.
- e. Apply the **Layout 1 chart layout**.
- f. Type **January–June 2016 Sales by Agent** for the chart title.
- g. Apply the **Style 14 chart style**.
- h. Create a footer with your name on the left side, the sheet tab code in the center, and the file name code on the right side of each sheet.
- i. Apply **0.2"** left and right margins and scale to one page for the Data and Data (2) sheets. Select **Landscape orientation** for the Data (2) sheet.
- j. Save the workbook. Close the workbook and exit Excel. Submit the workbook as directed by your instructor.

Excel Comprehensive Application Capstone Exercise

For Excel
Chapters 5–12

In this project, you will update a workbook to display bank transactions as a PivotTable. You will filter the PivotTable, format the values, display the values as calculations, and create a PivotChart using this data. Additionally, you will sort and subtotal data, create one- and two-variable data tables, and use Goal Seek and Scenario Manager to calculate possible mortgage payments. You will format grouped worksheets, set up validation rules, and create mathematical, logical, and lookup functions. You will also import a text file and XML data and manipulate the imported text. Finally, you will modify the document properties, insert a comment, and mark the workbook as final.

Database File Setup

- a. Open the file named *e00c1Transactions*, click the **FILE** tab, click **Save As**, and then type *e00c1Transactions_LastFirst*. Click **Save**.

Calculate Totals and Create Pivot Table

- a. Make the *JuneTotals* worksheet active. Sort the data in the **range A3:E16** in ascending order by Category. At each change in Category, use the Sum function to add subtotals to the data in column E. Accept all other defaults. Collapse the outline to show the grand total and Category subtotals only.
- b. Create a PivotTable in **cell F1** on the *Annual Exp* worksheet using the data in the range **A1:D17**. Add the Expense field to the PivotTable as the row label, add the Amount field as the value, and then add the Year field as the column label. Change the format of the values in the PivotTable to **Accounting** with no decimal places and set columns **F:J** to **Auto Fit Column Width**.
- c. Add the Category field to the Report Filter area of the PivotTable. Filter the data so that only expenses in the Variable category are displayed. Display the values as percentages of the grand total.
- d. Insert a Year slicer in the worksheet and use the slicer to filter the data so that only data from 2013 is displayed. Change the height of the slicer to 2" and reposition it so that the top-left corner aligns with the top-left corner of cell **I2**.
- e. Create a PivotChart based on the data in the PivotTable using the pie chart type. Change the chart title text to **Variable Expenses** and remove the legend. Add data labels to the Outside End position displaying only the category names and leader lines. Reposition the chart so that the top-left corner aligns with the top-left corner of cell **F13**.

Perform What-If Analysis

- a. Make the *Home Loan* worksheet active. In **cell A10**, enter a reference to the monthly payment from column B. Create a one-variable data table in the **range A9:H10** using the interest rate from column B as the Row input cell.
- b. Enter a reference to the monthly payment from column B in **cell A12**. Create a two-variable data table in the **range A12:H16**, using the interest rate from column B as the Row input cell and the term in months from column B as the Column input cell.
- c. Perform a Goal Seek analysis to determine what the down payment in column B needs to be if you want the monthly payment in column B to be \$2,000. Accept the solution.
- d. Create a scenario named **Maximum** using cells **B2, B3, B5, and B6** as the changing cells. Enter these values for the scenario: **280000, 24000, .075, and 360**, respectively. Show the results and close the Scenario Manager. Undo the last change.

Perform Lookup Functions and Conditional Math

- a. Make the *June2015* worksheet active. In **cell I7**, sum the values in the range **E7:E24** if the purchase in column C is groceries; in **cell I8**, average the values in the range **E7:E24** if the purchase in column C is groceries; and in **cell I9**, calculate the number of times groceries were purchased during the month.

- b. Calculate the total amount spent on groceries using a credit card in **cell I11**, calculate the average spent on groceries using a credit card in **cell I12**, and then calculate the number of times groceries were purchased using a credit card during the month in **cell I13**.
- c. Nest an AND function within an IF function in **cell F7** to determine if the transaction was paid using a credit card and the amount of the transaction is less than -100. If both conditions are met in the AND function, the function should return the text *Flag*. For all others, the function should return the text *OK*. Copy the function down through cell F24.
- d. Use the INDEX function in **cell E4** to identify the transaction amount that aligns with the position in cell C4. Type 5 for the column_num and use the range A7:F24 as the array argument.

Perform Advanced Filtering and Database Functions

- a. Make the June2015 worksheet active. Filter the data in the **range A6:E24** using the criteria in the range A27:E28. Set the filter to copy the data to the range A31:E31. In **cell I17**, use the DAVERAGE function to determine the average amount spent for transactions meeting the criteria in the range A27:E28.

Group and Fill Across Worksheets

- a. Group the June2015 and JuneTotals worksheets together. Fill the contents and formatting from the range A1:F1 on the JuneTotals worksheet across the grouped worksheets. Ungroup the worksheets. In **cell I19** on the June2015 worksheet, insert a reference to cell E26 on the JuneTotals worksheet.

Create Data Validation

- a. Make the June2015 worksheet active. Create a validation rule for the range D7:D24 to only allow values in the list from the range I21:I24. Create an error alert for the selected range that will display after invalid data is entered. Using the Stop style, enter **Invalid Entry** as the title and type **Please select a valid method.** (include the period) as the error message.

Specialized Functions

- a. Make the CarLoan worksheet active. In **cell G10**, use the CUMPRINC function to calculate the cumulative principle paid on the car loan. Use the data in the range E4:E6 when entering the first three arguments in the function. Reference cell A10 as the start and end period arguments. Enter 0 as the type argument. Modify the function to convert the results to a positive value. Make the row references absolute in all arguments, except for the end period. Copy the formula down through cell G19.

Import Data

- a. Open the downloaded, tab-delimited text file *eV2_stocks.txt* in Excel using a data format of general. You do not need to create a connection to the original data file. Copy the **range A1:F5** and close the text file. Paste the copied range onto the Stocks worksheet in **cell A3**.
- b. Make the Stocks worksheet active. Separate the text in the first column into two columns using the asterisk (*), as the delimiter. Insert a function in **cell A3** that will display the text in cell A9 with initial capitalization only.
- c. Import the downloaded XML file *eV2_highclose.xml* into the Stocks worksheet in **cell A11**. Open the XML file in Notepad and find and replace all instances of the text *General Electric* with **General Electric Co** (no period). Save the XML document and close Notepad. Refresh the XML data on the Stocks worksheet.

Apply Workbook Theme and Cell Style

- a. Apply the **Frame** theme to the workbook. Apply the cell style **Accent1** to cells **A3** and **D3** on the **CarLoan** worksheet.

Finalize Workbook

- a. Set the Author property of the workbook to **Exploring Excel Student** and set the Title property to **Personal Finances**.
- b. Change your user name to **Exploring Excel Student**. On the **CarLoan** worksheet, insert the comment **Updated on 7/17/2015** in cell **A1**. Mark the workbook as final.
- c. Ensure that the worksheets are correctly named and placed in the following order in the workbook: **JuneTotals**, **June2015**, **AnnualExp**, **HomeLoan**, **CarLoan**, and **Stocks**. Close the workbook and exit Excel. Submit the workbook as directed.