RPA Design and Development

v4.0

UiPath

Lesson 11 | Excel Automation

Excel Exam Topics

1. Explain how Excel Automation works.

2. Use the modern Excel Integration activities like Excel Process Scope, For Each Excel Row, Use Excel File, Remove Duplicates, Copy/Paste Range, Insert Column, VLookup, Write Cell, Create Pivot Table and Insert Chart.

3. Use the Excel Workbook activities like Read Range Workbook, Write Range Workbook, Get Cell Workbook, Write Cell Workbook, Append Range Workbook

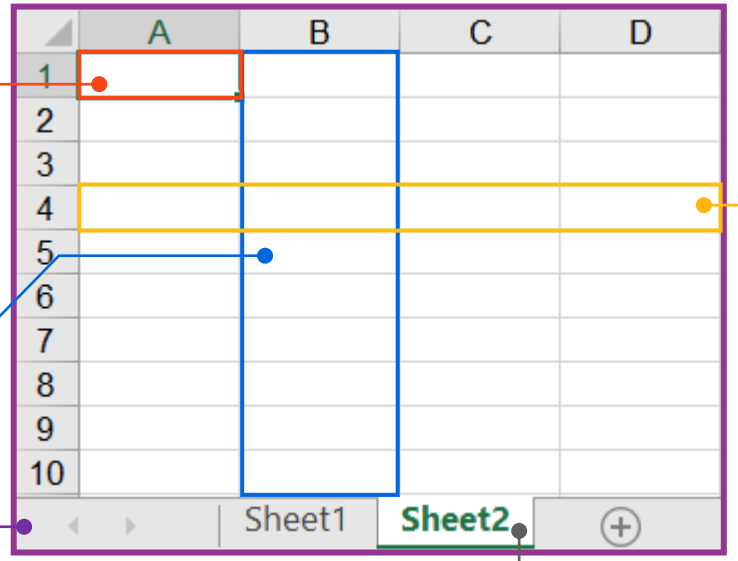
Excel and Workbook

There are various components in an Excel file:

Cell: The basic data storage unit in an Excel file, identified with a vertical and a horizontal coordinate

Column: A vertical line of entries, uniquely identified

Workbook: A collection of worksheets used for organizing tabular data



Row: A horizontal line of entries, uniquely identified

Worksheet: A single spreadsheet that contains cells, organized by rows and columns

Excel Add-In

What's Excel -add in ?

The Excel Add-In is a powerful tool that enables UiPath Studio to integrate seamlessly with Microsoft Excel, facilitating easy interaction with Excel files directly from UiPath Studio automation workflows.

Why Excel Add-in is important ?

With the Excel Add-in, users can leverage modern design experience features in UiPath Studio, such as indicating data directly from Excel, automating Excel tasks, and optimizing Excel-based processes. This integration empowers users to create efficient and effective automation solutions for Excel-related tasks, streamlining their workflow and maximizing productivity.

Excel and DataTables

Why are DataTables important in Excel automation?

1. **Efficient handling of large amounts of data**: When working with large datasets, DataTables allow for more efficient handling of data, including sorting, filtering, and grouping.

2. **Improved data accuracy**: DataTables can be used to validate data and ensure accuracy before exporting to Excel, reducing the risk of errors or mistakes.

3. **Programmatic manipulation of data**: DataTables can be manipulated programmatically using various programming languages, allowing for more advanced data manipulation and analysis.

4. **Better data organization**: DataTables can help organize data in a structured format, making it easier to navigate and understand.

5. **Integration with other systems**: DataTables can be integrated with other systems or applications, allowing for seamless data transfer and analysis across different platforms.

Manipulating Workbooks

Studio offers two sets of activities to access and manipulate workbooks:

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Workbook Activities

- All workbook activities are executed in the background
- Doesn't require Microsoft Excel to be installed on the computer
- Is faster and more reliable for some operations when the user doesn’t open the file
- Works only for .xlsx files

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Excel Activities

- Studio opens Excel just like a human
- Requires Microsoft Excel to be installed on the computer. If the file isn't open, it will be opened, saved and closed for each activity
- All activities can be set to either be visible to the user or run in the background
- Works with .xls and .xlsm, and it has some specific activities for working with .csv

Excel Activities verses Workbook Activities

Criteria	Workbook Activities	App Integration Activities
Excel Installation Required	No	Yes
Compatibility	Works with .xlx and .xls	Compatible with .csv, .xlsx, .xls, and .xlsm
Functionality	Limited to basic Activities	Wide range of Activities
Advantages	Can be executed in the background without opening the Excel application, resulting in faster and more reliable operations	Can perform a wide range of operations, including advanced Excel features such as macros and pivot tables

All activities used to work with Excel in UiPath are derived from the **UiPath.Excel.Activities package**

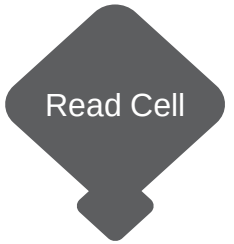
UiPath.Excel.Activities package provides two ways to interact with Excel workbooks:

- Workbook or File Access Level
- Excel or Excel App Integration

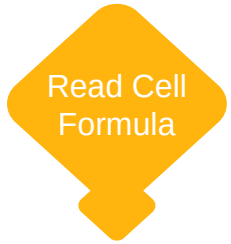
Common Activities for Workbook and Excel Automation

Adds the information from a DataTable to the end of a specified Excel spreadsheet.

Locates & extracts the range of an Excel table from a specified spreadsheet.



Reads the content of a given cell & stores as a string.



Reads the formula from a given cell & stores it as a string.

Reads a column starting with a cell inputted by the user.

Reads a specified range and stores it in a DataTable.

Reads a row starting with a cell inputted by the user.

Writes a value into a specified cell.

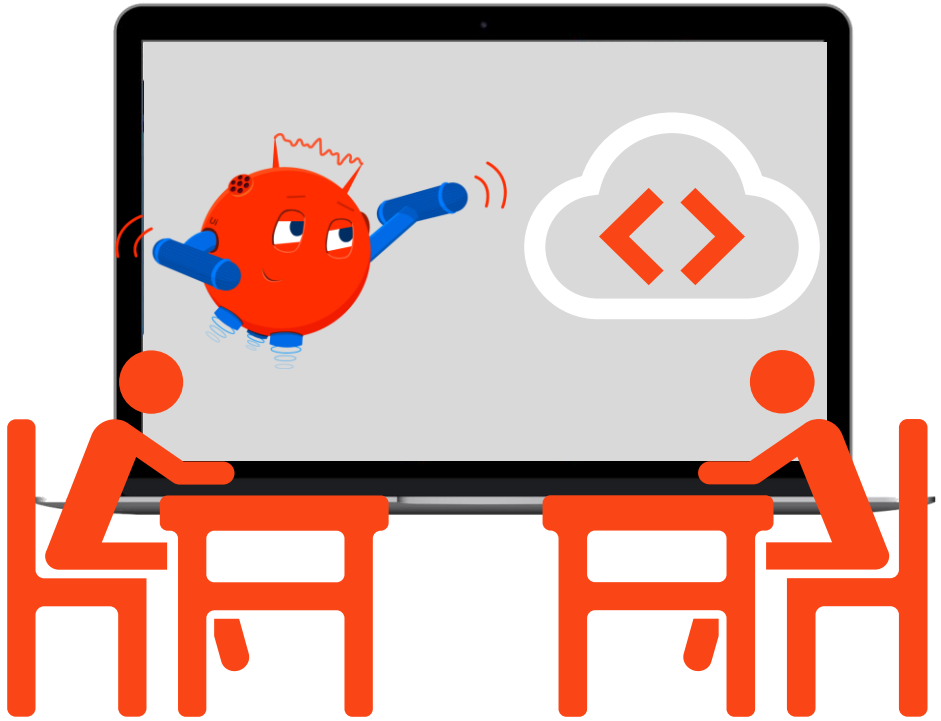
Writes the data from a DataTable variable in a spreadsheet starting with the cell indicated in the StartingCell field.

Classroom Exercise

Demonstrate the use of **Read Range** activity by printing data from a workbook in the output panel.
Create an excel file containing ages of ten students

- Read the data using the Read Range activity
- Loop through each data and subtract it with current year to get the year of birth
- Display the result in the Output panel

Practice Exercise

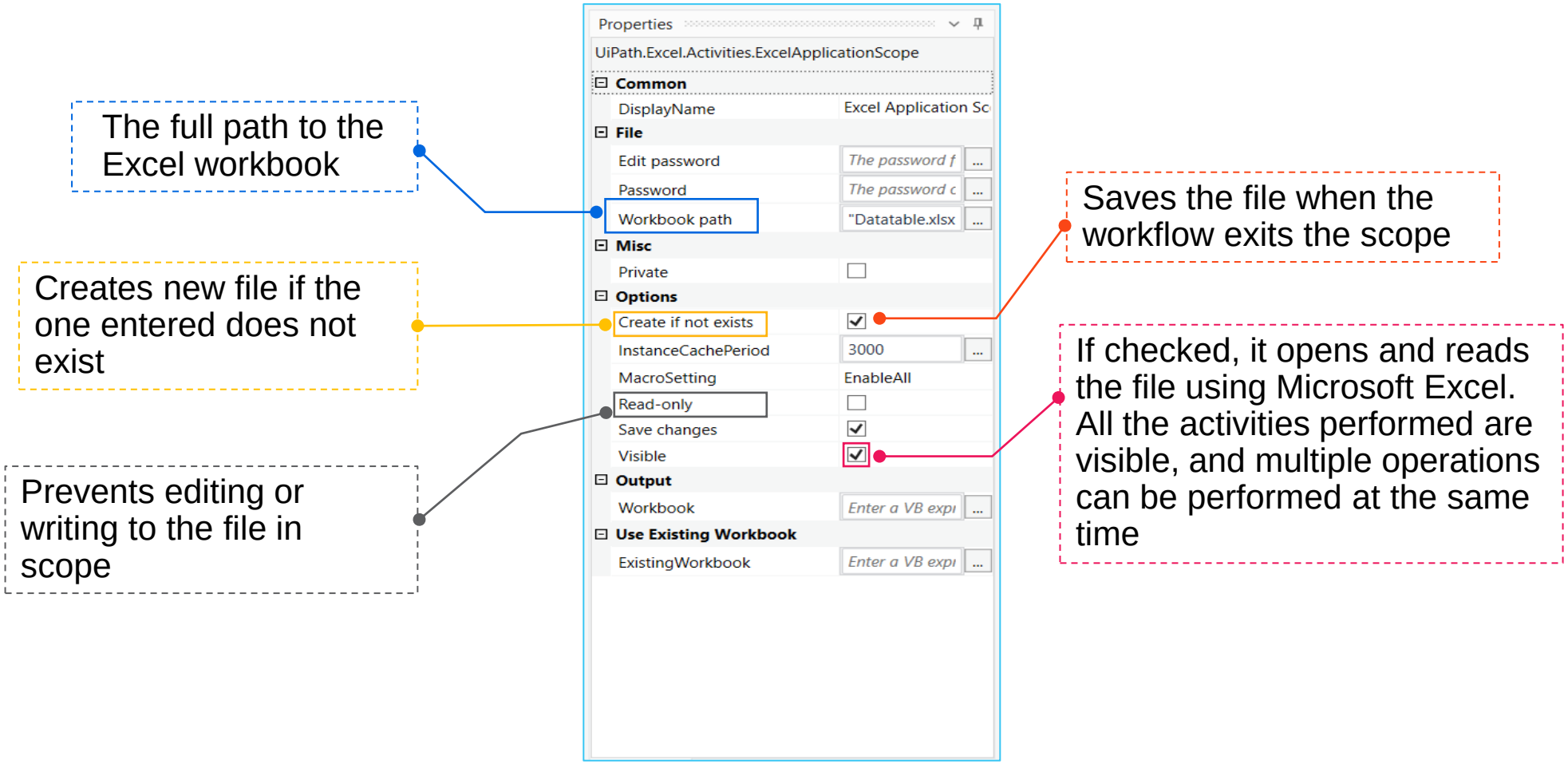


Build a workflow using the **Read Range** and **Append Range** activity to read data from a workbook and append that data to another workbook.

- Create an excel file containing names of any five cities in Lowercase
- Read the data from the file using the Read Range activity
- Convert all city names in Uppercase
- Add the updated names in a new spreadsheet using the Append Range activity

Excel Application Scope

The integration with Excel is enabled by using an Excel Application Scope container. All the other activities used to work with the specified Excel file are placed inside the container.



Activities Specific to Excel App Integration

Range

Read data, insert & delete rows & columns, & copy/paste ranges.

Activities:

- **Insert/Delete Columns**
- **Insert/Delete Rows**
- **Select Range**

Table

Create, filter and sort tables directly in Excel files.

Activities:

- **Filter Table**
- **Sort Table**
- **Create Table**

File

Work directly with the Excel files, either by saving or closing them.

Activities:

- **Close Workbook**
- **Save Workbook**

Cell Color

Capture and modify the background color of cells in Excel files.

Activities:

- **Get Cell Color**
- **Set Range Color**

Sheet

Perform various actions over the sheets in an Excel file.

Activities:

- **Get Workbook Sheet**
- **Get Workbook Sheets**
- **Copy Sheet**

PivotTable

Facilitate working with pivot tables in Excel files.

Activities:

- **Refresh Pivot Table**
- **Create Pivot Table**

Macro

Execute macros already defined in the Excel file or invoke from other files.

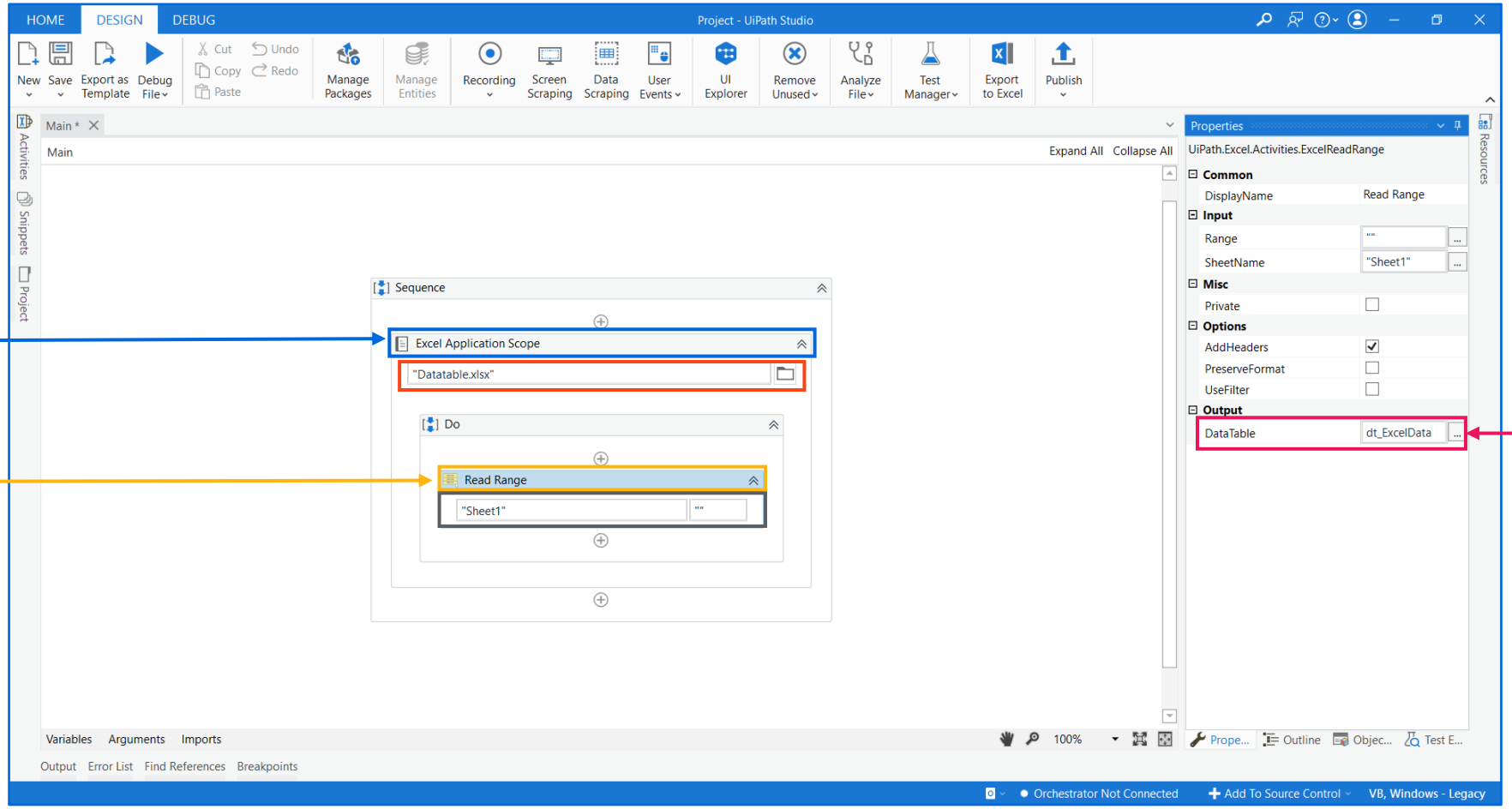
Activities:

- **Execute Macro**
- **Invoke VBA**

Techniques for Excel Automation: How to Read from an Excel Spreadsheet

Drag and drop an “Excel Application Scope” activity

Drag and drop a “Read Range” activity

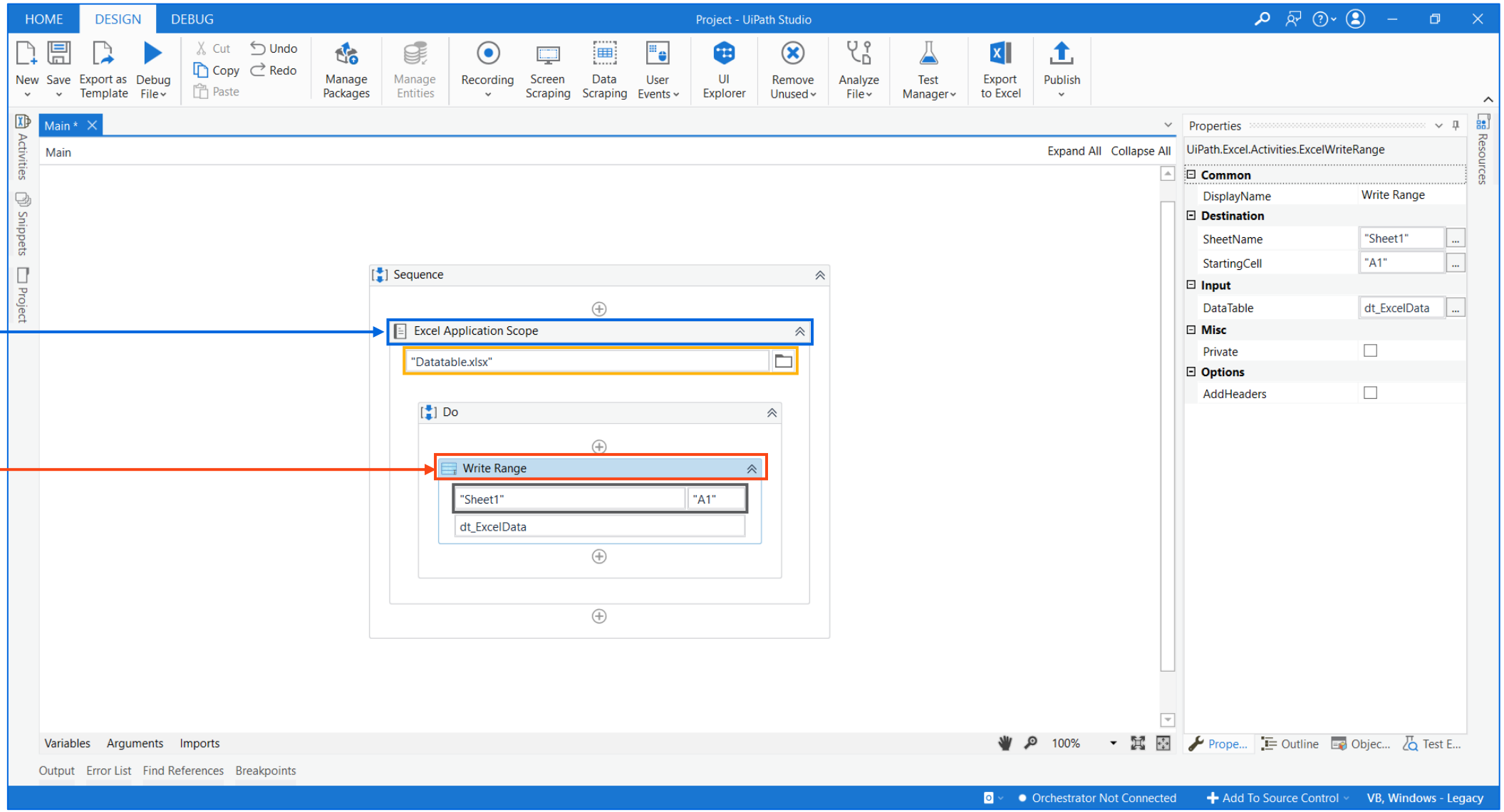


Ctrl+K to store the read data

Techniques for Excel Automation: How to Write to an Excel

Drag and drop an "Excel Application Scope" activity

Write Range activity to write the already read data in the excel file

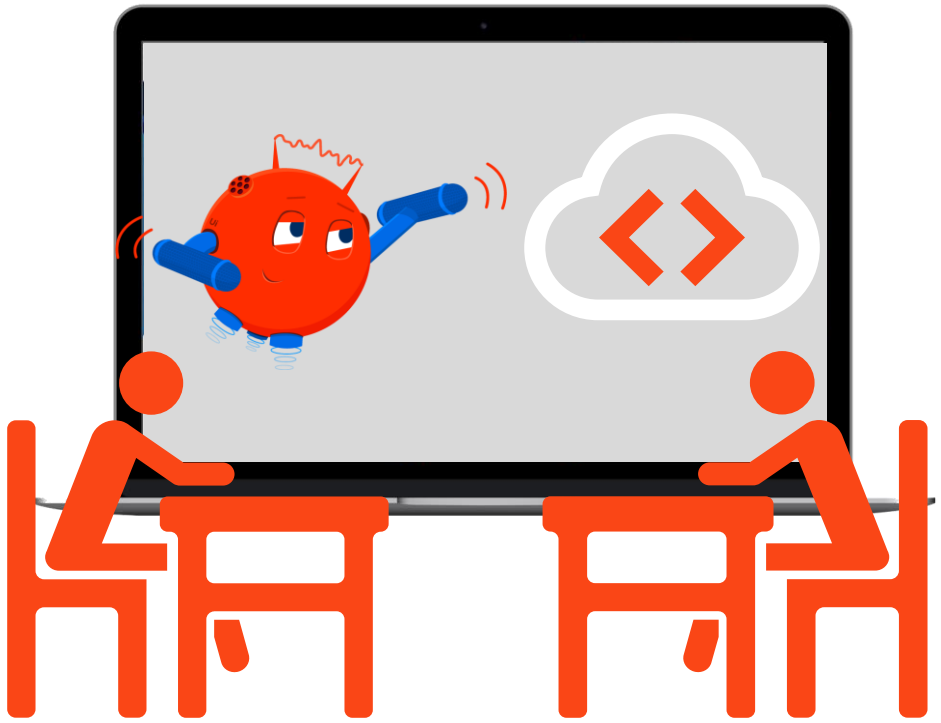


Classroom Exercise

Demonstrate the use of **Excel activities** by reading and writing in Excel by comparing the first two columns and inserting result in the third column. Create an excel file containing ten random numbers between 1 to 100 in two columns

- Read file and transport into data table, and add a third column
  - If value in the first column is greater than the second column, enter “Greater” in the third column as the result
  - If value in the first column is less than the second column, enter “Lesser” in the third column as the result
  - If value in the first column is equal to the second column, enter “Equal” in the third column as the result
- Write back the updated data table in the same excel file in a new sheet

Practice Exercise



Build a workflow that calculates total monthly deposit of a bank from an Excel file and store output in a new sheet.

- Download the Excel file link given for practice
- The file contains three deposit categories – Cash In, On-Us Check, and Not On-Us Check
- Calculate the total amount received in all three categories for June
- Store calculated values in a new sheet in the same excel file

Note: Download initial Excel data for this practice from: www.uipath.com/hubfs/Documentation/WorkflowExamples/QueueItem_Example_Reports.xlsx