

# Spreadsheet Fundamentals

In this module, learners learn fundamental data concepts, and then they use spreadsheets to enter, organize, modify, and work with data. They learn how to enter values manually, perform basic formatting operations, use the menu bar and keyboard shortcuts, work with cell addresses and data ranges, perform copy, cut and paste operations, and import data from CSV files and from the web. Finally, learners learn how to use formulas to leverage the data that is in the columns and rows of spreadsheets.

## Section 1: Data literacy and introduction to spreadsheets

- Data literacy and its four main components.
- Why everybody needs to be data literate today.
- Brief history of spreadsheets.
- Two main spreadsheet products.
- The spreadsheet environment.
- The different roles of rows and columns in a table of data.
- Row and column labels, and cell positions (addresses).
- Enter values in cells.
- Locate cells using the name box.
- Enter or edit values in the formula bar.
- The functionality provided in the main menu and on the toolbar.
- Search and search-and-replace in spreadsheets.
- Select all cells in the spreadsheet.
- Importance of learning keyboard shortcuts.
- Navigate the spreadsheet with the keyboard.

## Section 2: Cell ranges

- Identify cell ranges in the spreadsheet.
- Select cell ranges with the mouse.
- Select cell ranges which are entire rows or columns, or their parts.
- Select multi-row and multi-column ranges.
- Modify cell ranges with the shift key and arrows.
- Select cell ranges via the name box.
- Select open-ended row and column ranges.
- Remove values from selected columns or rows.
- Remove formatting from selected columns or rows.
- Remove selected columns or rows completely.
- Perform basic operations with cell ranges.

- Print out selected cell ranges, whole sheets, and entire workbooks.
- Format data for printing (set ranges, margins, scaling, alignment, page breaks, headers and footers, etc.).

### Section 3: Data manipulation and formatting I

- Take full advantage of the cut, copy, and paste functionality.
- Move values and formatting between individual cells.
- Move content between columns, rows, and ranges.
- Format numbers in many different ways.
- Change text font and font size.
- Use alternating colors to make spreadsheets easier to read.
- Change the default column width and height.
- Fit column width to data.
- Align text horizontally and vertically.
- Wrap or clip text which exceeds the width of the column.
- Add borders to individual cells, rows, columns, and arbitrary cell ranges.
- Rotate text in cells or stack it vertically.

### Section 4: Data manipulation and formatting II

- Change text color and cell background color.
- Apply conditional formatting to text, dates, and numerical values.
- Clear cells, columns, rows, and arbitrary cell ranges.
- Delete cells, columns, rows, and arbitrary cell ranges.
- Insert cells, columns, rows, and arbitrary cell ranges.
- Move columns, rows, and multi-column and multi-row ranges.
- Hide columns, rows, and multi-column and multi-row ranges.
- Sort the spreadsheet according to a selected column.
- Take advantage of the Format Painter tool on the toolbar.
- Use copy-and-paste to fill arbitrary cell ranges with data.
- Refine copying and pasting with paste special.
- Use paste special to transpose tables.

### Section 5: Data manipulation and formatting III

- Copy and paste tabular data from the web into spreadsheets.
- Import data stored in Comma-Separated Values (CSV) files.
- Copy and paste text CSV data into spreadsheets.
- Clean imported data and reformat tables.
- Use column stats to discover typos in text data.

- Correct typos with the help of the Spell Checker.
- Create custom filters and save them as filter views.
- Merge cells to improve spreadsheet structure.
- Group columns and rows.
- Freeze columns and rows.
- Insert and manipulate images.
- Create and apply data validation rules.
- Use additional keyboard shortcuts.
- Perform tedious low-level text editing operations efficiently.

## Section 6: Formulas and basic calculations

- Perform simple calculations in cells using the arithmetic operations  $+$ ,  $-$ ,  $*$ ,  $/$ , and  $^$ .
- Perform arithmetic operations in the correct order (PEMDAS).
- Avoid some common mistakes in spreadsheet calculations.
- Write formulas which contain variables.
- Display formulas in the spreadsheet.
- Copy formulas to other cells and ranges.
- Take advantage of autofill and autocomplete suggestions.
- Understand error messages in formulas.
- Perform calculations with entire columns.
- Work with absolute and semi-absolute cell addresses.