Spreadsheet II

Senior Computer Studies - Hands-on

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Introduction

In this section we will discuss the following:

- Launching a spreadsheet.
- Creating a workbook and a worksheet.
- Saving, closing, and opening a workbook.
- Entering data in a worksheet
- Editing and formatting data in a worksheet.
- Protecting a workbook.

Note!: to the instructor/teacher:
- Make sure the lessons are carried out in a computer lab and **demonstration** to the students is a **must**.
- MS Excel package is a minimum requirement for this course.

Note!: to the student:
- Study, Practice, Repeat.

Launching a spreadsheet

- Launching a spreadsheet refers to the **process of opening** or starting a spreadsheet application/program.
- In this class we will be using **Microsoft Excel** as our spreadsheet application, which is running on **windows 10** operating system.
- **Figure 1** below shows application icons for Microsoft Excel.

***Figure 1**: MS Excel icons*

Steps to follow when starting a spreadsheet application (Microsoft Excel).

1. Click on **Start button** (windows icon) in the left bottom corner on the screen.
2. In the **search box**, type **Excel**.
3. Click on **Microsoft Excel** from the **search results**.
4. Wait for Excel **to open**.

Launching a spreadsheet

Alternative steps to launch Microsoft Excel:

1. Click on windows **Start** menu.
2. **Scroll** through the list of applications to find the Microsoft Office folder or Microsoft Excel if it appears directly.
3. Click on Microsoft Excel from the list and wait for it to open.

Figure 2 shows a snapshot of Microsoft Excel window after opening.

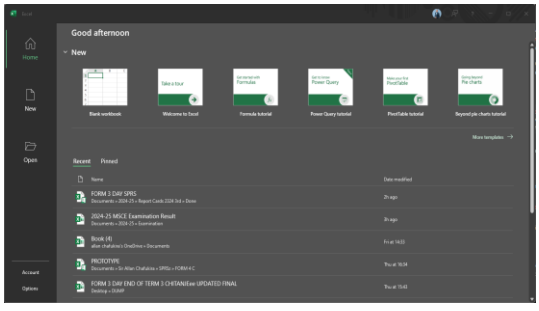


***Figure 2:** Ms Excel window Start screen snapshot*

Creating a workbook and a worksheet in a spreadsheet

- From the previous lessons, we learnt that a ***workbook is a container for storing related worksheets***.
- To create a workbook in Microsoft excel, do:
  1. On the Microsoft Excel **start screen**, click on **Blank Workbook**.
- A new workbook will be created. In this new workbook we can now create **one or more worksheets**.
- Once a workbook is created, it automatically starts with one worksheet, usually named **Sheet 1**.
- To create more worksheets, do:
  1. On the **worksheet tabs** (located at the bottom of the work area), click the **+** (*plus sign*). A new worksheet named **Sheet 2** will be created next to Sheet 1.

Note: Worksheets can be **renamed** by right clicking the worksheet tab and selecting **rename**, then typing the name you want.

Saving a workbook

- **Saving** a workbook refers to the process of **storing** the current state of your workbook data and settings to a file on a computer.
- Saving is very important because it **allows us to preserve our work and access it later**.
- To save a workbook in Microsoft Excel, do:
  1. In the **Ribbon**, click on **File**, then select **Save As**.
  2. Select a **location** (browse) in which you want your file to be saved.
  3. On the **Save As** dialog box, in the **File name box**, type a desired name for your file.
  4. Click on **Save** button to save the file.
- We can also use the keyboard shortcut to save the workbook by pressing the keys: **Control** and **S** at the same time.
- The shortcut is:

```
Ctrl + S
```

Closing a workbook

- **Closing** a workbook means exiting the current opened spreadsheet file.
- Closing will only **disconnect** you from your workbook, but **not delete** your workbook or worksheets.
- Upon closing a spreadsheet file, Microsoft Excel will ask you to save all unsaved changes made in your workbook.

Note: Always remember to **save** your work when working in a computer lab, and **close** the applications after using them.

- Below are ways of closing a workbook in Microsoft Excel:
  1. In the **Ribbon**, click on **File** (or Office button), then on the navigation panel click on **Close**.
  2. On the **window control buttons**, click on the close button " **x** " to close the workbook.
  3. Using a keyboard shortcut, press **Control** and **W** on the keyboard at the same time to close the opened workbook, thus:

     `Ctrl + W`

Opening a workbook

- **Opening** a workbook refers to the process of accessing a **previously saved spreadsheet file** in a spreadsheet application like Microsoft excel to **view**, **edit**, or **analyse** its content.
- In windows operating system we can open an existing workbook in **two** ways:
  1. If you are sure that a spreadsheet application is installed on your machine do:
     a. **Double click** the spreadsheet file containing your workbook to open it.
     b. **Right click** the spreadsheet file containing your workbook , and from the context menu select **Open** to open the file.
  2. Through the spreadsheet application:
     a. **Open** the spreadsheet application (Microsoft excel).
     b. In the **Ribbon**, click on **File** (Office button).
     c. Click **Open** in the navigation bar, then **Browse** the location where your spreadsheet file is stored.
     d. **Select** your File and Click the **Open** button.

Entering data in a worksheet

- **Entering** data refers to the process of inputting data or information such as text, numbers, dates, or formulas into the **individual cells** of a spreadsheet.
- In a spreadsheet data can be entered through:
  a. **Manual entry** – click on a cell and type in it using the keyboard, then press **enter** to move to the cell below it.
  b. **Copy and Paste** – copy data from another document such as a worksheet, word document, or website, and paste it in a cell by pressing **Ctrl + V**.
  c. **Data from external sources** – data can be imported from external sources such as databases, pdf files, text files and more.

Ways of confirming the data entry in a spreadsheet.

- After entering data in a cell, we can confirm by doing the following:
  a. Pressing the **Enter key** on the keyboard.
  b. Pressing the **Tab key** on the keyboard.
  c. Pressing one of the **Arrow keys**.
  d. Clicking on **another cell** apart from the active cell. ***(do not use this when dealing with formulars)***
  e. Pressing the **Enter key** when the cursor is in the **formular bar**.
  f. Using **Auto Fill** feature.

Practical Question 1: Student Grade Tracker

a. Create a spreadsheet document titled 'Student Grade Tracker'.
b. Open a new workbook and rename the first worksheet to 'Grades'.
c. On the Grades worksheet, enter the data as shown in the table below:

Student Name	Maths	English	Science
Sarah	80	75	85
Mary	70	92	78
Alex	55	62	88
James	68	52	82

d. Save the workbook.
e. Close the workbook.
f. Reopen the workbook, and add another student below James. Use the details below:
   Name: John
   Math: 80
   English: 75
   Science: 85
g. Save and close the workbook.

Entering data by Auto Fill in a spreadsheet

- **Auto Fill** is a spreadsheet feature that allows users to **automatically populate** (fill) cells with a sequency of data or replicate data patterns.
- In Microsoft excel Auto Fill is achieved by dragging the Fill handle.
- A Fill handle is a small square at the bottom right corner of the cell pointer.
- **Figure 3** shows the Fill handle.

***Figure 3**: Fill handle.*

- Auto Fill can extend ***numbers***, ***dates***, ***formulas***, or ***text*** across adjacent cells.
- Auto Fill is important during data entry in a worksheet because it enable the user to:
  a. Save time.
  b. Increase efficiency.
  c. Reduce manual input errors.
  d. Simplify complex tasks.

Editing and Formatting data in a worksheet

- **Editing** in a spreadsheet refers to the process of **modifying** or **updating** data that has already been entered into a worksheet.
- In a spreadsheet, editing may include the following:
  - Correcting mistakes.
  - Modifying existing values.
  - Updating formulas.
  - **Formatting** data.

- **Formatting** in a spreadsheet refers to the processing of **changing the appearance** of data and cells to improve **readability** and **presentation**.
- In a spreadsheet application like Microsoft excel, formatting may include the following:
  - Changing fonts, colours, alignment, number formats.
  - Applying borders and background colour (shading).
  - Use of conditional formatting.

Deleting data in a worksheet

- Deleting data in a worksheet refers to the process of **removing** the content from one or more selected cells, rows or columns.
- This process clears the existing data in a cell and leaves it empty.

Note: that we can also delete the individual ***rows***, ***cells***, and ***columns***.

- To delete **cell content (1)**, do:
  - **Select** the cell containing the data to be deleted.
  - Press the **Delete key** on the keyboard.

OR

- To delete **cell content (2)**, do:
  - **Select** the cell containing the data to be deleted.
  - In the **Ribbon**, Click on **Home Tab**, then Click **Clear** in the **Editing** group of commands.
  - From the drop down menu select **Clear Contents**.
- **Figure 4** shows an icon for a Clear command.

***Figure 4**: Icon for clear command.*

Deleting row and columns in a worksheet

- To delete a row or rows in a worksheet do:
  - **Select** the rows from the **row headings**.
  - **Right click** the selected rows, then press **D** on the keyboard or click **Delete** from the context menu.

OR

  - **Select** the rows from the **row headings**.
  - In the **Home tab**, go to **Cells group of commands**, then select **Delete**.
  - From the drop down menu, click on **Delete Sheet Rows**.

- To delete a column or columns in a worksheet do:
  - **Select** the columns from the **column headings**.
  - **Right click** the selected columns, then press **D** on the keyboard or click **Delete** from the context menu.

OR

  - **Select** the columns from the **column headings**.
  - In the **Home tab**, go to **Cells group of commands**, then select **Delete**.
  - From the drop down menu, click on **Delete Sheet Columns**.

Practical Question 2: Demonstrating editing and formatting in a workbook

a. Create a workbook and save it in a flash drive as '**Monthly Expenses**'.

b. Create a worksheet named '**Expenses**'.

c. Enter the data as shown as in the table below:

	A	B	C
1	Item	Cost	Date
2	Rent	150000	01/10/2024
3	Groceries	100000	05/10/2024
4	Utilities	80000	10/10/2024
5	Transport	40000	01/10/2024
6	Internet Bundle	12000	03/10/2024

d. Insert a **Total** row below Internet bundle.

e. Insert a suitable formula to calculate the Total Cost of all the expenses in **B7**.

f. Change the cost of Rent to **100000** and the date to **02/10/2024**.

g. Format the values in column B to currency format (MWK), e.g **MWK 40,000.00**.

h. Make the headers bold and change the font size to **14**.

Practical Question 2: Demonstrating editing and formatting in a workbook

i. Apply cell borders to the table and adjust the width of columns so the no text should be cut off.

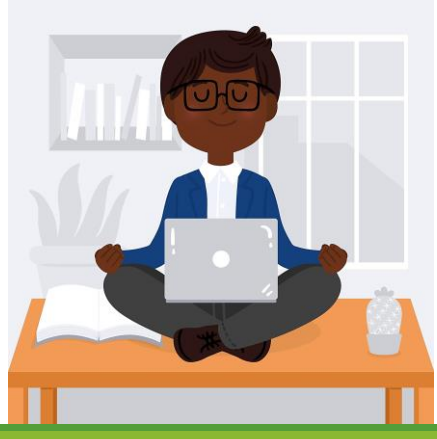
j. Apply a light grey cell shading to the headers as background colour.

k. Change the date format to: **2024-10-01** and align centre the contents of **column C**.

l. Change the page orientation to **landscape**.

m. Insert your group name as a **left footer**.

n. Print the worksheet.



Freezing panes in a worksheet

- **Freezing pane** is a feature in a spreadsheet application that allows the user to **lock** specific rows and columns in place so that they remain visible while **scrolling through the rest** of the of the worksheet.
- The Freezing pane feature is very **useful for keeping headers or labels visible** when working with large amounts of data.
- An example of Freezing pane is when the top row containing headers stay out while you scroll down to view the rest of the data in a worksheet.

- To freeze the top row in a worksheet do:
  - **Select** the row below the row or rows that you want to keep visible when you scroll.
  - In the **Ribbon**, Click on **View tab**, then in the **Window group of commands**, click on the **Freeze Panes** command.
  - From the drop down menu click on **Freeze Top Row**.

Quick Question

- Outline that can be followed to freeze the first column in a worksheet. ***(5 marks)***

Hiding and unhiding rows and columns in a worksheet

- **Hiding rows and columns** in a worksheet refers to the process of temporarily removing certain rows and columns from view without deleting data.
- **Unhiding** row and columns reverses the hiding process by making the hidden rows and columns visible.
- The hiding and unhiding feature is important snice it **simplifies the view** of the worksheet when working with large dataset.

- To **hide and unhide a row** in a worksheet do:
  - **Select** the row that you want to hide.
  - In the **Ribbon**, click on the **Home** tab and go to **Cells** group of commands.
  - Click on the **Format** command, then move the mouse pointer to **Hide & Unhide** option.
  - Click on hide row or Unhide row depending on the action you want to perform.

Question

- Highlight the steps that can be followed to hide a column.

Hiding and unhiding rows and columns in a worksheet

- We can also use the following keyboard shortcuts to hide and unhide rows and columns in a worksheet:
- To hide columns do:

  Press: **`Ctrl + 0`**
- To hide row do:

  Press: **`Ctrl + 9`**
- To unhide columns do:
  a. Select columns around the hidden column.
  b. Press: **`Ctrl + Shift + 0`**
- To unhide rows do:
  a. Select rows around the hidden column.
  b. Press: **`Ctrl + Shift + 9`**

Inserting Rows and Columns in a worksheet

- This is a process of **adding** new rows and columns into an existing spreadsheet.
- Inserting new rows and columns will not overwrite or delete the current content in a worksheet but, **shift** the current content to provide room for the new rows and columns.
- To insert a row and a column in a worksheet follow the steps on the right:
  a. Activate the ***cell to the right of the desired blank column or below the desired blank row***.
  b. In the **Ribbon**, click on the **Home** tab.
  c. In the **Cells** group of commands, click on **Insert** command drop down arrow.
  d. Click on either **Insert sheet column** or **Insert Sheet rows**.

Keyboard shortcuts:

- Press: **`Alt + H + I + C`** to insert a column.
- Press: **`Alt + H + I + R`** to insert a column.

Deleting Rows and Columns in a worksheet

- In groups of two, create a spreadsheet file and save it as '*deleting*'.
- Enter the data as shown in the table below:

SCORE0	SCORE1	SCORE2	SCORE3	SCORE4
January	February	March	April	May
February	March	April	May	June
March	April	May	June	July
April	May	June	July	August
May	June	July	August	September

- Insert a column between **SCORE3** and **SCORE4**.
- Insert a row between row **4** and **5**.
- Delete **SCORE2** column.
- Delete row number **3**.
- In your notebooks, write down the steps that can be followed when deleting a column in a spreadsheet.

Protecting workbooks

- In spreadsheet, in is possible to **lock** worksheets and workbooks in order to restrict access and prevent unauthorised changes to your work.
- Protecting a workbook refers to the process of **applying security measures** on your workbook to **prevent unauthorised access and data modification**.
- We have **two** types of workbook protection:
  - **Protect workbook structure.**
  - **Protect workbook with a Password.**

Protect workbook structure

- This type of protection prevent unauthorised users from deleting, adding, hiding, or moving worksheets within the workbook.

Protect workbook with password

This type of protection prevent unauthorised users from access the entire workbook.

In this type of protection a password is required to open or modify the workbook.

Protecting workbooks

- To protect a workbook structure, do the following:
  a. In the **Ribbon**, click on the **Review** tab.
  b. On the **Protect** group of commands, click on **Protect Workbook**.
  c. Enter a password and choose to protect the workbook for structure.
  d. Re-enter the password to confirm.
  e. Click **Ok**.

- To protect a workbook with a password, do the following:
  a. Click **File** or **Office button** in the Ribbon.
  b. Click on **Save As**.
  c. Browser the location in which you want to save your file.
  d. In the Save As dialog box, type the File name, then click on the **Tools** drop down arrow.
  e. Select **General Options**.
  f. Type in the password to **open** and to **modify**, then click Ok.
  g. Re-enter both the passwords and click Ok each time.

Summary Questions

- Answer all the questions below:
  a. Define the term editing as used in spreadsheets.
  b. Outline the steps that must be followed when protecting a workbook so that others should not modify its content.
  c. How can you insert a new column between column A and column B?
  d. State the shortcuts for the following tasks in a spreadsheet:
     i. Saving a workbook
     ii. Closing a workbook
     iii. Inserting a row in a workbook

Next: Spreadsheet III : Formulas and Functions.