UNIVERSITÀ DEGLI STUDI DI BERGAMO | Dipartimento di Ingegneria Gestionale, dell'Informazione e della Produzione

22059 – APPLIED TOPICS IN MANAGEMENT ENGINEERING

Excel, Access and Matlab

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AGENDA

Lecture VI

- MACRO

  - WHAT IS A MACRO?

  - HOW TO GENERATE IT?

    - Macro Recording

    - Visual Basic for Applications (VBA)

  - CONCLUSIONS

- FURTHER MATERIAL

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MACRO

WHAT IS A MACRO?

- A macro is a program written in Visual Basic for Applications (VBA).

- It is an action or a set of actions that you can run as many times as you want.

- It is very useful when you have to carry out the same tasks repeatedly.

- A macro's instructions correspond to mouse clicks, keystrokes, command selections and settings.

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MACRO

HOW TO GENERATE A MACRO?

- You can generate a macro in two different ways:

    - Recording

        - It is the easiest way to generate a macro.

        - It turns every operation performed by a user with a mouse and keyboard into a series of instructions contained within a macro. This allows the user to repeat the entire sequence of operations simply by starting the macro.

    - Using VBA programming language.

        - It consists of writing a code that allows certain operations to be performed.

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Macro recording

1. Select an empty cell
2. Click on Visualizza Tab
3. Select "Macro" Tab

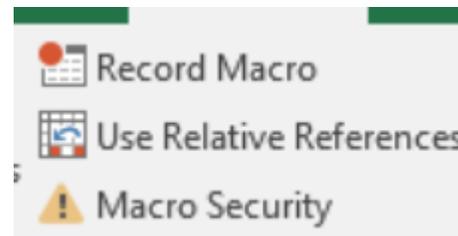**Fig.1**: «Macro» in Visualizza Tab

4. Click on Record Macro

Fig.2: Record Macro on Macro Tab

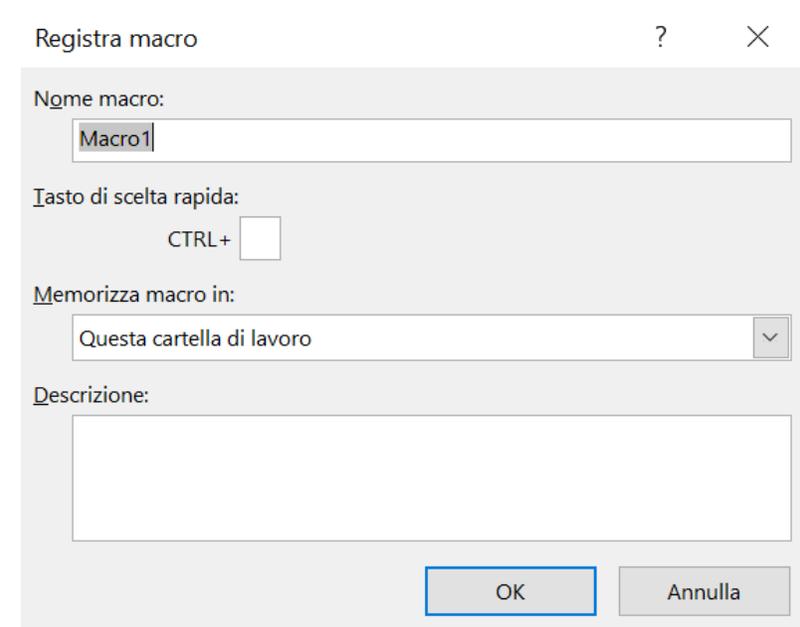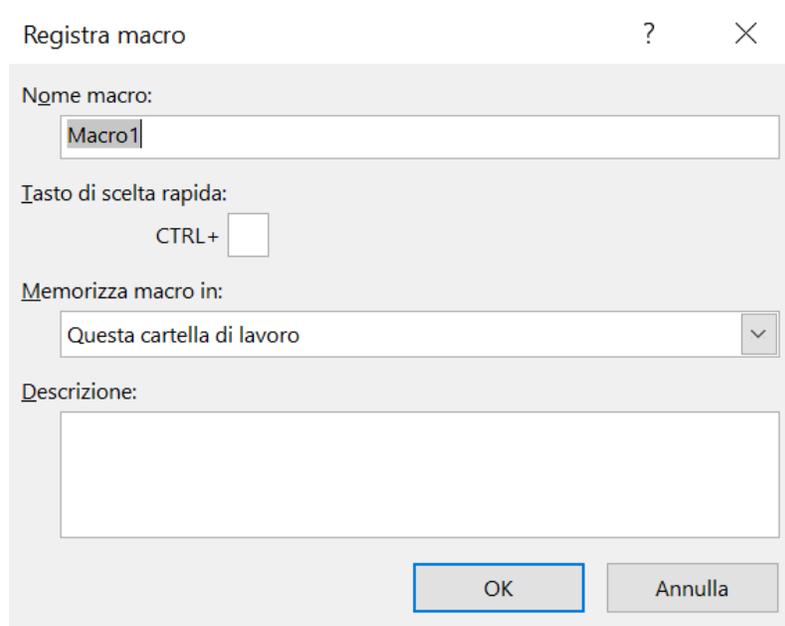5. The following dialogue window will appear

Fig.3: Dialogue window

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Macro recording

Fig.3: Dialogue window

- Dialogue window is composed by:

    - *Macro name*: It allows you to assign a name that makes the macro easily identifiable. The macro name helps you understand its purpose.
    - *Shortcut key*: It allows you to associate a keystroke to a macro.
    - *Store macro in*: It allows you to choose the folder in which to save the macro.
    - *Description*: It allows to insert a descriptive note of the macro.

- After clicking "OK", the macro recorder is active.
- You can start executing the operations you want to memorize.

Macro recording

EXAMPLE:

- Suppose you have to copy a column of cells as values into another column. Later, these values will be centered and put in bold.
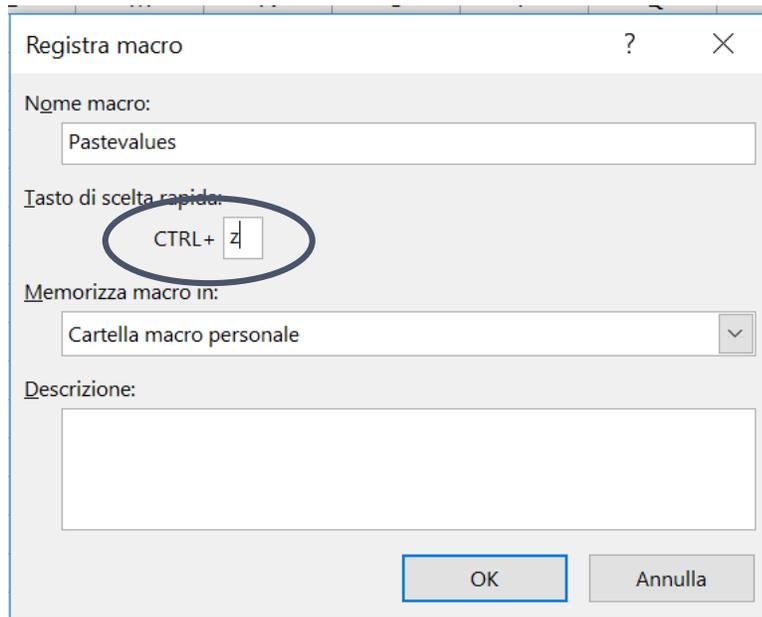
- First, the macro is recorded:

- Starting column:

Fig.4: Dialogue window with Shortcut key

Fig.5: random numbers using RAND() function

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Macro recording

EXAMPLE:

- Click Ctrl+z or recall the macro by selecting "visualizza macro" on Macro Tab.
- In a few second, the corresponding macro will be executed.

From:

	A
1	0,6821
2	0,4989
3	0,5213
4	0,7349
5	0,6184
6	0,8732
7	0,9670
8	0,3932
9	0,2536
10	0,2400

Fig.5: Starting Column

To:

	A	B
1	0,9683	0,682127585
2	0,6475	0,498912402
3	0,3019	0,521323044
4	0,1527	0,73485548
5	0,0414	0,61836478
6	0,6617	0,873230851
7	0,9475	0,966960741
8	0,5708	0,393198907
9	0,0611	0,253612101
10	0,1680	0,240019852

Fig.6: Macro result

Visual Basic for Applications (VBA)

- This is the VBA code of "Pastevalues" macro.

CONCLUSIONS

- It would have been possible to write the macro with the VBA language, but it would have been more complex than recording in Excel.

- To modify a macro you have to:

    - Click on Macro Tab
    - Select the macro that you want to modify
    - Make the desired changes to the code
    - Save changes
    - In Visual Basic Editor, click on File, then select Close and return to Microsoft Excel

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FURTHER MATERIAL

To review and deepen the topics of this lecture

1. https://www.youtube.com/watch?v=uyj_OIjPIcU

2. Alexander, M., Kusleika, R., & Walkenbach, J. (2018). Excel 2019 Bible. John Wiley & Sons