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A short report about Excel Macros & VBA

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VBA (VISUAL BASIC for APPLICATIONS)

Microsoft Office tools play a huge role in the preparation and management of documents, emails, databases, forms, spreadsheets and presentations, making office and business life easier. MS Office tools such as Excel, Word, Access and PowerPoint are among the most well-known programs.

Visual Basic for Application is the *event-driven* programming language developed by Microsoft and is the common programming language of all Office programs. It is one of the ways to write, format, and manipulate documents, emails, databases, spreadsheets, and presentations created using Office programs.

Event-Driven Programming: They are programming languages in which the flow of the program is directed according to user movements (mouse-keyboard inputs, etc.).

With VBA programming, every process created with mouse, keyboard or communication panels that provides interaction between computer and user can be automated. It enables continuous and repetitive processes to be automated. It is very useful for users to speed up their daily routines.

VBA is a common programming language for Office programs. However, this report covers Excel, an Office program used to create spreadsheets.

VBA WITH EXCEL

MS Excel contains many built-in functions. However, these functions remain so basic that they are not sufficient to make more complex calculations and customize the operations to be performed according to the needs. For example, calculating the monthly repayment of a loan using Excel's built-in formulas would be too much. In this way, using VBA programming in solving more complex problems will make things much easier.

VBA EXCEL & MACROS

It can be said that Excel Macros is a tool that records the operations done on the Excel worksheet step by step and allows you to play these steps over and over again later. The user interface can be modified and customized by creating personalized toolbars, menus, dialog boxes, and forms using macros. Macros save users time while automating repetitive actions. You don't need to know any coding to use macros, but using macros without VBA is just like a simple recorder that emulates the user's actions. Macros coded with VBA will undoubtedly become much more powerful and customizable.

Access VBA Window and Macros

Macros are generally a function created for developers. For this reason, the Developers tab is not displayed by default. To activate, the Developer field must be checked in Settings Customize the Ribbon.

Some Excel VBA Terminologies

Modules: Modules are the area where VBA codes are written. When a new project is created with VBA, the module is not created at first. Add - Module can be used when you want to add a new module.

Procedure: Codes written in a module are written in a Procedure. A Procedure or Sub-Procedure consists of a series of VBA statements that tell users what to do when coding. It consists of a group of statements that describe how to perform a task in Excel. The tasks

performed within the module can be very simple or consist of much more complex operations. However, it is good practice to break down complex procedures into smaller chunks. There are two main procedures; Sub and Function.

Function: Functions are groups of code that can be called and used anywhere in the program. It eliminates the need to write the same code over and over. It helps to break down a complex program into a series of small and controllable parts.

Sub-Procedures: Sub procedures that work similarly to functions may or may not return a value, while functions may or may not return a value. Sub-procedures must always be defined within Sub and End Sub statements.

Excel VBA Data Types

Variables used in almost all programming languages are no different in VBA either. Variables represent an area in computer memory where data can be stored when working with VBA. Each variable holds data according to its own data type. Variables hold values that can be changed during script execution, while Constants hold a value that never changes.

Variables must be defined before they can be used in VBA. There are two ways to define variables, Implicitly and Explicitly.

Explicitly: Dim Num as Integer

Implicitly: num=4

Declaring constants: Const CommissionRate As Double = 0.1

*Dim: which is short Dimension

The type of variables and constants should be specified when coding, so that the program creates a good coding example. In this way, VBA ensures that only the specified type of space is reserved in memory. This can make the code run more efficiently.

Following tables display the numeric and Non-Numeric data types and the allowed range of values.

Type	Range of Values
Byte	0 to 255
Integer	-32,768 to 32,767
Long	-2,147,483,648 to 2,147,483,648
Single	-3.402823E+38 to -1.401298E-45 for negative values 1.401298E-45 to 3.402823E+38 for positive values.
Double	-1.79769313486232e+308 to -4.94065645841247E-324 for negative values. 4.94065645841247E-324 to 1.79769313486232e+308 for positive values.
Currency	-922,337,203,685,477.5808 to 922,337,203,685,477.5807
Decimal	+/- 79,228,162,514,264,337,593,543,950,335 if no decimal is use +/- 7.9228162514264337593543950335 (28 decimal places).

Type	Range of Values
String (fixed length)	1 to 65,400 characters
String (variable length)	0 to 2 billion characters
Date	January 1, 100 to December 31, 9999

Boolean	True or False
Object	Any embedded object
Variant (numeric)	Any value as large as double
Variant (text)	Same as variable-length string

Why Do We Use Excel Macros?

Every person has some habits and routines that they have in their life. In the same way, companies have their own business and transactions that must be carried out regularly at certain periods.

For example, some of the payments that a company receives from its customers may be made through a bank. This data needs to be collected regularly from the bank and formatted as necessary. This data can be formatted as needed with Excel, but this is something that should be done regularly. In this way, routine operations such as data import and reporting can be automated using Excel Macros.

SOURCES

[Office Visual Basic for Applications \(VBA\) reference | Microsoft Docs](#)

[VBA Tutorial \(tutorialspoint.com\)](#)

[Online Excel VBA Tips & Tutorials \(Resource Guides + Videos\) \(trumpexcel.com\)](#)

[Wikipedia, the free encyclopedia](#)