

DESIGN OF A VIRTUAL REALITY SIMULATOR OF A DORMITORY BY USING EXCEL VBA

Ali Hasan Ali¹, Hussein. M Jebur²

^{1,2}College of Information Technology, Imam Ja'afar Al-Sadiq University, Baghdad, Iraq

¹ali.hasaan@sadiq.edu.iq, ²hussein.mankhi@sadiq.edu.iq

Zainab marid Alzamili³

³Education Directorate of Thi-Qar, Ministry of Education, Iraq

³zainb.alzamli@utq.edu.iq

Abstract

Excel Visual Basic for Applications, the Programming Industry, and Industrial Controls are what all engineering students, as well as technicians and engineers, should be thinking about. This study thereby addresses the issue. Manufacturing relies heavily on computer-based control, monitoring, and operation systems, making programming languages crucial to the sector. Once upon a time, humans were in charge of maintaining order. In more recent times, software has replaced relays as the primary means of control. The use of programming languages has become ubiquitous in the business world, and this trend shows no signs of abating. The goal of this project is to use the Excel program and the Visual BASIC programming language to create a dorm room interface that will allow students to search for their own names, dorm room numbers, and other personal information stored in a central database.

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Introduction

Visual Basic

With its roots in an earlier version of DOS called In contrast to BASIC, Visual Basic is a more advanced programming language. Short for "Beginner's General Symbolic Instruction Code," or "BASIC" for short. Graphics-oriented programming languages like Visual Basic are one example. Graphics-based languages facilitate the direct manipulation of visual elements. It's not hard to pick up and use once you get the hang of it. Many companies in the software industry have created their own high-level languages, but only a handful of them have found widespread adoption (QBASIC, FORTRAN, and Pascal). Microsoft Visual Basic, on the other hand, has become popular due to its maturity as a programming language and the abundance of

resources available to its users. The Visual Basic programming language was created by Microsoft, designed for use on Windows. The Integrated Development Environment is where Visual Basic programs are built (IDE). Visual Basic code may be created, run, and debugged with ease thanks to the IDE. Using an integrated development environment (IDE) shortens the time it takes to write code from scratch to the point where it can be used by a computer.[1]

Functionality of Visual Basic

Visual Basic's features make it ideal for non-professional programmers. The language allows developers to make anything from the simplest GUI (Graphical User Interface) apps to the most intricate ones. Visual Basic programming is laying out controls and other components on a form, defining their properties and behaviours, and supplementing them with code to give the program its desired functionality. Because components define default properties and operations, a simple program can be created without the programmer writing many lines of code. Previous versions had performance issues, but with faster computers and native code compilation, this is less of an issue. Following are some of the interactive features used in Visual Basic:

1. Make a GUI with the help of some design software.
2. Dot the forms with drawings.
3. Set properties for the individual object on the form
4. Prepare a program to run on a computer
5. Check the software for bugs
6. Take a look at the stuff in the forms
7. Use the software for data manipulation (ODBC)
8. Code in new features to expand the program's capabilities.
9. Distributing the finished product in the form of an executable file programs can you create with Visual Basic

Any program can be modified to suit your needs. Make your lectures more engaging and impactful by developing instructional packages that teach subjects like business, economics, engineering, computer science, accounting, financial management, and information systems. Businesses can benefit from custom-built software for inventory management, point-of-sale operations, payroll processing, financial reporting, and accounting.[2]

The Importance of Visual Basic Program

Variables and procedures are the backbone of programming languages like Basic and Pascal. The term "procedural language" describes exactly what they do. For graphical languages like Visual Basic and Visual C++, this modern method is known as object programming. Everything (a form, a command button, a control) is treated as an object in this programming methodology. Justifications for using Visual Basic applications are provided below.:

1. The code-writing process is simplified by the usage of an integrated development environment (IDE).
2. The user's facility with the visual approach to one visual language will transfer to their ability to utilize any other visual language.
3. As user-communicating windows, input boxes and output boxes are provided.
4. It can access the web and launch Internet Explorer.[2]

Introduction to Excel

The abbreviation "VBA" refers to the programming language Application Visual Basic. It's a hybrid of Excel and Microsoft's, Word, PowerPoint, and other Office programs using Microsoft's event-driven programming language Visual Basic. When Visual Basic IDE is integrated into Microsoft Office, we can create specialized solutions and programs to expand the functionality of such systems. Microsoft Excel VBA is the most widely used version of Visual Basic for Applications. One of the many compelling arguments in favour of learning VBA for Excel is that you can get a solid grounding in Visual Basic programming without ever needing to buy Microsoft Visual Basic. Learning Excel VBA also allows you to create your functions to supplement Excel's standard features. There are a lot of built-in formulae and functions in Microsoft Excel, but sometimes they just aren't enough. For instance, calculating a loan's monthly payment using Excel's built-in formulas is extremely challenging, but it's far simpler to develop VBA code for such a calculation. You can learn Visual Basic for Applications in Microsoft Excel at your own pace with the help of this book. All versions of Microsoft Office (Office 97, Office 2000, Office 2002, Office 2003, Office XP, Office 2007, and Office 2010) support Excel VBA programming. Excel may be used to create highly effective tools through the use of Visual Basic for Applications (VBA), such as financial and scientific applications that can perform financial computations and statistical analysis.[4-5]

Advantages of Excel.

1. The Excel program is distinguished for being advanced in mathematical operations.
2. Because Excel has so many built-in commands, it stands out from other similar programs.
3. It is easy to review the data and the cell in which the data is located.
4. Showing and hiding field elements is easy to do with cursors.
5. So it is easy to display this table in the existing pixels of a web page.
6. Easy to use infographics from web pages.
7. We can use the taskbar to switch between files.

Disadvantages of Excel.

1. Viruses infected with Excel work slowly and the file must be divided into smaller files.
2. As viruses can be present in the program through macros, which are small programs found in the worksheet in Excel.
3. Difficult to use Excel to retain data.
4. It is difficult in the program to make formulas and reference cells.
5. It is also difficult to copy and paste data.
6. Although Excel is easy for people who are not connected to the Internet, it is difficult to share spreadsheets on the Internet.
7. It is difficult to use Excel if you want to analyze the data.
8. It is exposed to a problem if the data grows, increases and you can lose a large part of it.
9. It is difficult for you to add new rows and columns if you want to increase the content and formulas and data must be modified, and the update may not take place.
10. The user of the Excel program can face some problems and complications in the work.
11. Entering data into Excel can take a long time.
12. The user of the Excel program gets bored when entering data, which can lead to boredom, which leads to negligence.

Importance of Excel.

The Excel program is considered one of the important programs, which contains a large number of advantages, as it is frequently searched to identify the advantages and disadvantages of the Excel program, as it is used to make spreadsheets, lists, and some of the budgets for companies and factories as well as the country and also graphs, which led to an increase in the importance of the excel program which is easy to use in some of the complex and difficult operations and among its importance.

1. Where the program can be designed through Microsoft.
2. It is one of the most widely used programs in the world.
3. The number of Excel users is increasing, reaching more than seven hundred and fifty million.
4. It cannot be dispensed with by anyone, and it can be downloaded from the Play Store.[5]

The Objective of The Target

This research aims to reduce the labour force as well as the time by relying on a database prepared by the Registration and Student Affairs, where the Excel program was used with the Vajol Basic programming language to design the interface for the dormitory and it is possible to directly search for any room or student or anything else only in this interface that does not need Too many employees or a long time to search in paper files and write down information

Previous studies

Building an Excel/VBA Application to Analyze Force-Time Curves.

The purpose of this project was to provide a new Excel-Visual Basic for Applications (VBA) tool for use by sport science students and researchers analyzing Bertec force plate form outputs. that streamlines the procedure without requiring knowledge of any programming language or the use of complex-expensive software. The proposed application can automatically do everything from reading the faceplate form, decoding the data, importing the data, charting the data, extracting the data, calculating the data, reporting the data, and archiving the data. Serial numbers, timestamps, and ground reaction forces in three dimensions (Fx, Fy, and Fz) are some of the imported input variables used to generate the calculated force-time variables in an Excel report sheet. Other input variables include the sampling frequency, the beginning and end timestamps, the range of ground reaction forces over time, the maximum and minimum values for each, and the duration of both positive and negative impulses.[7].

1. Preliminary Analysis with Big Data Using Excel and Excel VBA

Trained programmers are experts in the techniques and structure of computer programs. Big data analysis is not a skill they often possess (Raffensperger, 2001, p. 62). However, academics working with Big Data sometimes lack programming expertise. With spreadsheet software (like Excel), non-programmers may perform analysis that was once reserved for experts in the field. Big data researchers are likely to be sceptical of using Excel for this purpose. They will stress that spreadsheets can't handle Big Data because of its size, speed, and variety (Sun, Sun, & Strang, 2018). From multiple vantage points, they are correct.

2.However, the following research questions are attempted to be answered in this chapter.

1. Is there a role for spreadsheets in Big Data analysis?
2. What do you hope to accomplish with Excel VBA programming?
3. Please explain the role that the Excel Power Pivot add-in can play.

This paper does not argue that simple spreadsheets can take the place of more sophisticated methods of analyzing Big Data. It does, however, suggest that spreadsheets have a place in Big Data, much like the apps on your phone do. The convenience and accessibility of today's apps make them a must-have.[8]

3 Workshop in Excel

Excel, the most popular electronic spreadsheet, is a great resource for mathematicians, modellers, and those interested in visualizing mathematical data. It is well suited for use in a wide range of mathematics courses taught at universities, enriching the learning experience for both students and instructors while also providing practical experience with the most widely used mathematical tool in the industry. This workshop offers a quick overview of some of how Excel may be used to make the teaching of mathematics more engaging and effective.[9]

Visual Basic

Visual Basic is an advanced programming language that was developed out of the original BASIC (Beginners All-purpose Symbolic Instruction Code). Dartmouth College professors JOHN KEMENY and THOMAS KURTZ created the BASIC programming language in the 1960s. The primary goal of the BASIC programming language was to facilitate education in computer science. Microsoft Corporation designed Visual Basic in 1991 as the logical progression of BASIC in response to the growing popularity of the Windows GUI in the late 1980s and early 1990s. Creating a program for Microsoft Windows was a distinct procedure before Visual Basic came around, but now it's much easier thanks to Visual Basic. There have been six (6) major releases since 1991, the most recent being September 1998's VISUAL BASIC 6.0. The term "Visual" refers to the process by which the GUI was developed (GUI). The Visual Basic language is an example of an Event-Driven language. The Windows user interface makes it possible for users to accidentally select an item. Therefore, each object requires its code to react to these events (events). As a result, a Visual Basic program is composed of numerous smaller programs that can be run simultaneously or independently of one another. The Integrated Development Environment is where Visual Basic programs are built (IDE). The IDE makes it simple for developers to write, test, and fix their Visual Basic code. Quickly and easily build functional software with IDE. Rapid application development refers to the method by which software can be developed quickly (RAD). As a result, Visual Basic has become the most popular RAD language in the world.[10-11]

Uses of Visual Basic

1. It is used in various applications on Windows, modern corporate applications, and databases.
2. Building the basic screens and interfaces needed to deal with computers.
3. List the different files in Notepad programs.
4. One of the most important uses of Visual Basic is to organize and store the basic data of arrays and variables.
5. Also, it is considered one of the uses of Visual Basic to perform hidden processes in the background of programs through Process Start.[12]

VBA

It's no secret that Microsoft, the same firm that releases a new version of Windows every few years, also created the programming language known as Visual Basic for Applications (VBA). The Visual Basic for Applications language is bundled with Excel and the rest of Microsoft Office (at no extra charge). You and I utilize Visual Basic for Applications (VBA) to create the programs that run Excel. Just picture a robot that is both clever and proficient in Excel. This robot can follow instructions and do Excel tasks quickly and precisely. You program the Excel robot to carry out your instructions by creating a series of robot formulas.[13]

VBA advantages

1. Excel's method of completion is consistent. (Generally speaking) it's preferable to maintain a steady course.
2. You can't beat Excel's speed at doing the job (unless you happen to be Clark Kent, that is).

3. Excel can be programmed to run error-free macros, something that can't be claimed about you or me.
4. If everything is properly set up, even someone who has never used Excel before will be able to complete the assignment.

VBA disadvantages

1. You should be familiar with VBA programming (which is probably why you bought this book). Thankfully, it's not as tough as you may think.
2. If you want other individuals to use your VBA programs, they will require their versions of Excel. Unfortunately, there is no magic button you can click to make your Excel/VBA project run independently (and probably never will).
3. Mistakes are made, and that's okay. That is to say, you can't just trust that your VBA code will run well in any situation. If your macros are being used by others, you have entered the world of debugging and, potentially, technical assistance.
4. An ever-changing VBA. Excel, as you may know, undergoes regular upgrades at Microsoft. Despite Microsoft's best efforts to ensure backwards and forwards compatibility, you may find that your custom VBA code doesn't run smoothly in Excel versions from the past or the future.[14]

Excel versions.

1. To avoid any confusion with Excel for Mac, the first Windows version of Excel was numbered 2, not 1. Excel 2 was released for the first time in 1987, however, it has since been largely abandoned.
2. Version 3 of Excel was released toward the end of 1990; it added support for the XLM macro language. This variant is also rarely used.
3. In early 1992, Excel version 4 became available. The XLM macro language is utilized as well. Only a niche audience persists in using this old version. They believe that nothing should be changed if it isn't broken.
4. Version 5 of Excel was released at the beginning of 1994. For the first time, VBA was implemented (but it also supports XLM). There are fewer and fewer people still using Excel 5.
5. Excel 95: First released in the summer of 1995, it is often known as Excel 7 due to the lack of an Excel 6. You'll need Windows 95 or Windows NT to run this version, as it's a 32-bit program. There are several VBA upgrades, and it is compatible with the XLM programming language.
6. In January 1997, Microsoft released Excel 97, often known as Excel 8. There are many changes and improvements, including a whole new interface for creating VBA macros. A new file format is also utilized by Excel 97. (which previous Excel versions cannot open). I still encounter the occasional user of this ancient version.
7. Excel 2000 is distinguished by its four-digit version number. Excel 2000, or Excel 9 as it was originally known, was released to the public in June 1999. From a developer's standpoint, there aren't very many changes, with most of the changes benefiting users, especially online users. With Excel 2000, you can now digitally sign macros to ensure that the code your users get is legitimately yours. A small but steady user base persists for Excel 2000.

The release of Excel 2002 (also known as Excel 10 or Excel XP) occurred toward the end of 2001. The ability to restore your work after a crash in Excel is probably the most important improvement in this release. There is also the first usage of copy safeguards in this disclosure (known as product activation).

Knowing which version of Excel your recipients use is crucial if you intend to share Excel or VBA files with them. Users stuck on an earlier release will miss out on enhancements made in subsequent revisions. Worksheets created in versions of Excel previous to 2007 could only hold 65,536 rows and 255 columns, so

users of those older versions would receive an error if you referenced cell XFD1048576 (the last cell in a workbook) in your VBA code (the last cell is IV65536). There are new objects, functions, and attributes in Excel 2007 and Excel 2010. If you include them in your code, people running your macro on an older version of Excel will receive an error message. Workbooks created in Excel 2003 and Excel XP can now be opened and saved in the new file format thanks to a Microsoft Office Compatibility Pack. This product (which is, by the way, free) does not add new features to the earlier versions. It only supports the Excel 2007/2010 file format for reading and writing.[15-16-17]

The Visual Basic Editor in MS Excel

Microsoft Excel provides two entry points for novice VBA programmers. The first is to insert a command button into the spreadsheet, then use that button to open the Visual Basic Editor and begin writing code. The second method is to access the Visual Basic Editor via the Tools menu, the Macro submenu, and finally the Visual Basic Editor option. First, let's examine the order switch. Click the View menu option, then click on Toolbars, and then click on the Control Toolbox to bring up the control toolbox bar in MS Excel, as seen in Figure 1. From there, you can click on the command button and draw it on the spreadsheet.

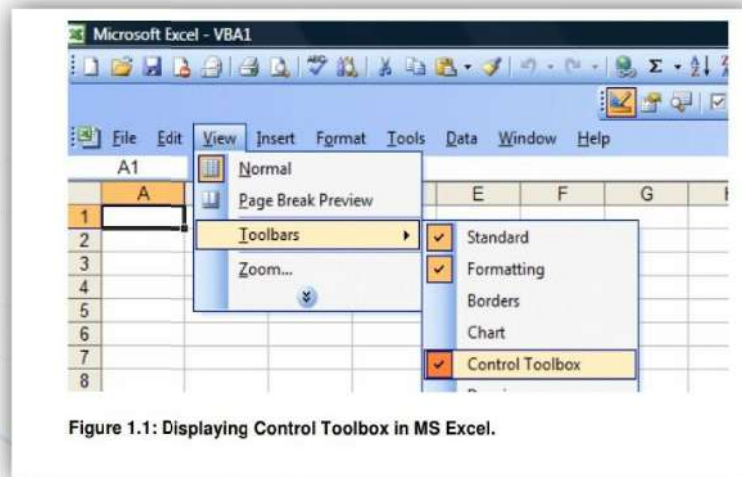


Figure 1.1: Displaying Control Toolbox in MS Excel.

Figure 1 :Displaying control toolbox in Ms Excel.

Applications in Visual Basic for Excel.

In this lesson, you'll learn the basics of using Excel's built-in programming tools. Excel's built-in controls and functions, as well as the VBA IDE and online documentation, are all useful resources. As a follow-up to the overview of the VBA environment, I walk you through a very brief and basic application that derives some sample statistics. In particular, this part will address [16]:

1. The Visual Basic Editor and its features.
2. Excel's built-in programming tools.
3. VBA online documentation is being utilized.

The Visual Basic for Applications IDE (IDE)

Learning how to use the software needed for building your projects is a prerequisite to learning how to program in VBA. Excel, along with the rest of Microsoft Office, comes with Visual Basic for Applications (VBA). When you launch VBA, you enter the integrated development environment (IDE) for your project's programming language, Visual Basic for Applications.[18]

The VBA Programming Primer

Now that you're familiar with the Excel VBA IDE, we'll cover some fundamental programming concepts that apply across languages. Although they aren't exactly riveting, the next three sections will cover the

fundamentals of programming that are required for creating VBA applications. In this subsection, we focus on:[19]

1. Data types and variables
2. Constants
3. Conventional input and output
4. Operations on strings

Conditions and Methods

The two concepts that make up this Section's title aren't inherently related, but they are nonetheless foundational to any computer program. Here, you'll pay special attention to both processes and parameters as you set up the framework for your VBA work. In this section, I will focus on:[17]

1. Sub Procedures
2. Methods of Operation
3. Procedures for Events
4. Conditional Logic

Loops and Arrays

You began laying the groundwork for your programming career in "Procedures and Conditions," where you learned about the If/Then/Else and Select/Case decision-making structures. Here, you'll study looping code structures and arrays, which will greatly expand your previous knowledge. All programming languages rely heavily on loops and arrays because of their ability to greatly increase a program's functionality and simplify its creation. The various looping structures in VBA will be covered first in this chapter, followed by an examination of arrays. In particular, this section will focus on [17]:

1. Loop Around
2. For Loops
3. Arrays
4. Multiple-Dimensional Arrays
5. Variable Arrays

Excel's Primitive Objects

Basic, cross-language programming concepts have been the focus of the earlier chapters. It's time to dive into the intricacies of VBA and Excel programming. You will be working with objects, which are a type of programming tool. These objects may be found in programs like Visual Basic for Applications and Microsoft Excel. What follows is a description of:[18]

1. Objects
2. Excel Objects in Collections
3. Microsoft Excel and the Windows Shell
4. The Spreadsheet Item
5. Ranging Object
6. begin with/conclude with; for/each

I/O Fundamentals and Debugging

Disk I/O is a core concept in most programming languages, allowing for the reading and writing of data to and from a computer's storage devices. In this chapter, we'll take a look at how a programmer can use VBA and Excel to view a computer's file structure and read and write text files. We also cover the additional resources you'll need to handle errors and debug your VBA scripts. In particular, this part will focus on:[20]

1. Debugging
2. Folder menus
3. Making text documents

Examples of Common Excel Use

Excel's primary domain of use is in the corporate world. It finds application in many fields, including business analysis, HR management, operations management, and performance reporting, to name a few. Excel's ability to store, sort, and analyze data, as well as solve mathematical equations, is made possible by its extensive library of preformatted cells. Graphing tools, pivot tables, and algorithms let users organize data in the spreadsheet. Visual Basic for Applications is the spreadsheet's macro programming language.[20]

Microsoft Excel is used for the following purposes in businesses:

1. business information gathering and checking
2. business analysis.
3. Data warehousing and entry.
4. data analysis.
5. Reporting on results.
6. strategic analysis.
7. accounting and budgeting.
8. Management at the executive and administrative levels.

Excel's jargon and its parts

Excel has jargon for its parts, which might be confusing to first-time users. The following are examples of such concepts and parts:[21]

1. Cell. A cell is the junction of a column and a row where information can be entered by the user.
2. Akin to a cell. This is the location of a cell in space.
3. Living tissue. The green box around this cell indicates that it is the active selection.
4. Workbook. This is a Microsoft Excel file with at least one worksheet.
5. Worksheet. These are the several files contained within a Workbook's main file.
6. Calculating tab. The tabs in the far left of your spreadsheet look like this.
7. Titles for each column and row. The cells outside the rows and columns are labelled with numbers and letters. When you click on a column or row header, the entire section is highlighted.
8. Formula. You can get a result from a cell by inserting a formula, which is an equation, cell reference, or function. The equal sign ("=") must be the first symbol in any formula.
9. The calculating bar. To enter data or formulas into cells, utilize the lengthy input bar. It is labelled "fx" at the top of the worksheet.
10. The browser's address input field. To the left of the formula bar is a bar that displays the current cell's numerical and alphabetical coordinates.

Excel skills that go above and beyond

The following are examples of Excel's more sophisticated features:

1. The TREND analysis. Linear trend lines can be computed using this tool by passing a series of Y or X values through them. Time series trend analysis and trend forecasting are two possible applications. Charts can make use of trendlines.
2. VLOOKUP. Using the VLOOKUP function, you may find certain values in a much bigger data collection and copy them into a new table. The formula =VLOOKUP represents the VLOOKUP cell input command (). Within the brackets, you'll need to identify the information you're looking up, the table or database from which you're retrieving it, and the column number containing the value you'd like returned.
3. An array of tables. This is a set of connected tables that brings together information from multiple sources. It's a function of VLOOKUP.
4. Col index num. An optional second value is used when making an array out of a table, designating which column will be used to fill it.
5. Range lookup. If no other variables yield a matching result, this value in VLOOKUP will return the next best match. A true or false label indicates this. If the user enters a value of "False," that value will be returned exactly, however, if they enter "True," a range of values will be returned.
6. MAX and MIN functions. These functions provide the maximum and minimum values from selected data sets. MAX is used to find the maximum value in a function tab and MIN is used to find the minimum value.
7. OR performance. When using this function to look for a value, you can apply multiple filters. The value will be true if the variable meets the conditions and false otherwise. This is how the function's input should look: =AND (logical1, [logical2], ...)

Forms of Excel and XLS

The XLS file format is used by Excel and other spreadsheet programs to store spreadsheet data. This particular extension signifies an Excel Binary File. An XLS file is a composite file in which data is stored as binary streams. The file's streams and substreams document the contents and organization of an Excel worksheet.

Since XLSX is a more accessible and structured format, it has become the standard for Excel versions following 2007. However, XLS files can still be created and read by newer versions of Excel. PDF, TXT, HTML, XPS, and XLSX are just some of the export formats that can be used for workbook information.

Macro-enabled The XLSM extension is used for Excel files. In this context, macros are sequences of commands that can be used to speed up repetitive tasks in Excel. XLSM files are very similar to XLM files, although they are built on the Open XML format used by more recent versions of Microsoft Office.[22]

Excel competitors

Although Microsoft Excel is widely used, it is not the only spreadsheet tool available. Some examples are as follows:[19-21]

1. Google Sheets is a free, open-source spreadsheet application that is competitive with Microsoft Excel. Google Sheets is available to everyone with a Gmail account. Because Google Sheets are stored in the cloud, users may get to them from any computer, tablet, or smartphone. Several people can work together on the same spreadsheet at once.
2. Numbers. Apple's spreadsheet program comes free with every Mac and provides prebuilt templates, charts and graphs. Numbers excel at graphics and charts, but it does not handle large data sets as well as

Microsoft Excel. Numbers are also exclusive to Apple's devices. But it does enable users to save spreadsheets as Excel files, so a Windows user can still open a Numbers spreadsheet in Excel.

3. Calc for Apache OpenOffice. Multiple users can work together in this free open-source spreadsheet program; users can write formulas by typing words; data can be pulled from corporate databases via DataPilot; and users can format cells in a variety of styles. The software does not have as many charting capabilities as Excel and uses a separate macro-scripting language. OpenOffice Calc is compatible with both Windows and macOS. Even though OpenOffice Calc partially supports Microsoft's XLSX format, the Open Document Format is the default.

Excel's Past and its potential future

Back in 1985, Microsoft Multiplan (the precursor to Excel) was released. The Lotus Development Corp.'s Lotus 1-2-3 was one of Microsoft's competitors when it came to spreadsheet software. Multiplan's graphical user interface made it possible for users to navigate with a mouse, but Lotus 1-2-3 is credited with being the first spreadsheet to include cell names and macros. By streamlining these processes, Multiplan simplified working with spreadsheet data. When competing with Lotus 1-2-3 on MS-DOS platforms, Multiplan initially saw a decline in its user base. In 1987, just two years after the debut of Excel, Microsoft released version 2.0. In 1988, with the introduction of Windows platforms, sales of this new version began to exceed those of Lotus 1-2-3 and competing spreadsheet applications. Version 3 of Excel was introduced by Microsoft in 1990, and it included new features like toolbars, 3D charts, and the ability to draw and outline. Version 4 arrived two years later with the auto-fill feature. Excel 5 was offered to the public in 1993. Visual Basic for Applications macros were provided in this release, allowing for the automation of routine procedures. In 2007, Excel saw version 12, one of the next major improvements. The update implemented the new Ribbon menu. A SmartArt library of diagrams was included, and there was enhanced support for named variables and graph formatting. In addition, Excel has shifted to a more organized and accessible XLSX file format. Power View, Power Pivot, and Flash Fill were introduced in Version 15 in 2013. The newer version has better support for multiple threads. Excel 16 was published this year, making it the most recent version available. Microsoft Excel, ever since its inception, has been one of the most widely used business tools, frequently being used in conjunction with other Microsoft products like Word, Outlook, and PowerPoint. Excel still receives bug fixes and enhancements over time, but Microsoft no longer releases new versions of Excel. Microsoft Excel has been used in organizations for quite some time and is often considered one of the best spreadsheet programs available. Excel, however, now faces stiffer competition as a result of the widespread adoption of other modern spreadsheet programs. According to askwonder.com, 2 billion people worldwide use Google Sheets every month, while between 750 million and 1.2 billion people use Microsoft Excel every month around the globe. The monthly usage of Google Sheets and Microsoft Excel are not publicly available, making it difficult to determine their value.[23]

Introduction Excel VBA

VBA (Visual Basic for Applications) is a programming language and set of tools. That can be utilized with a suite of A-face software to streamline processes and include new capabilities. Very potent In Excel, you can use the new ones you make to make new spreadsheets or new applications. It functions inside the host application (such as Excel). Type in a thousand more pieces of data.

You might be shocked at how simple VBA is to use, given how versatile it is. Yes, it provides a wide range of resources that streamline the coding process. As you type your notes, A.D.'s helpful Help system will guide you through the process with tools like auto-completion and error detection, making it one of the greatest software environments available.

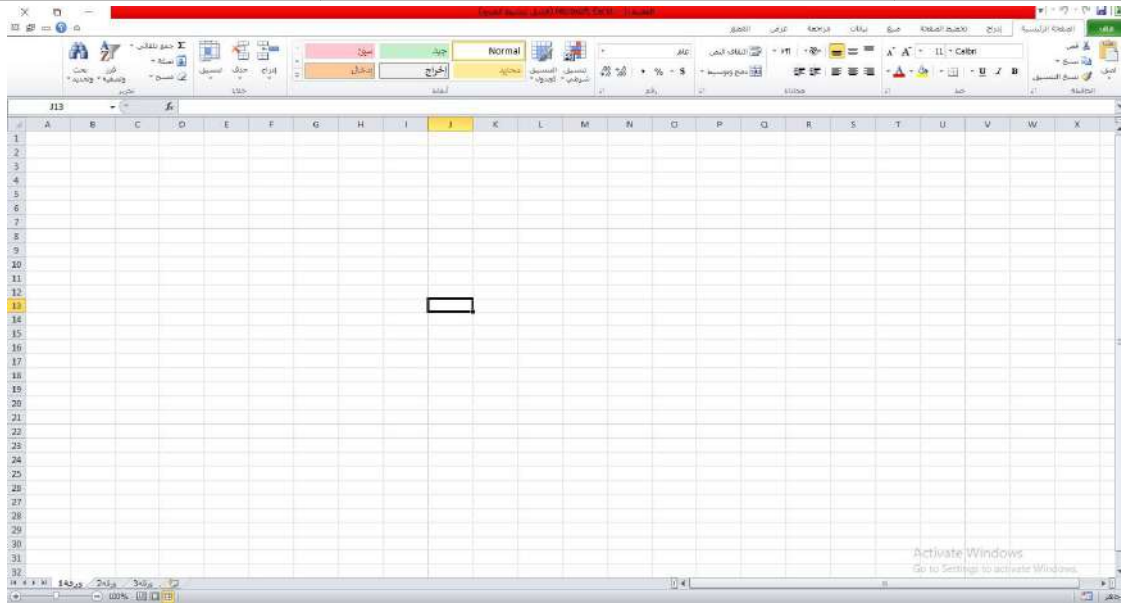


Figure 2 Microsoft Excel's User

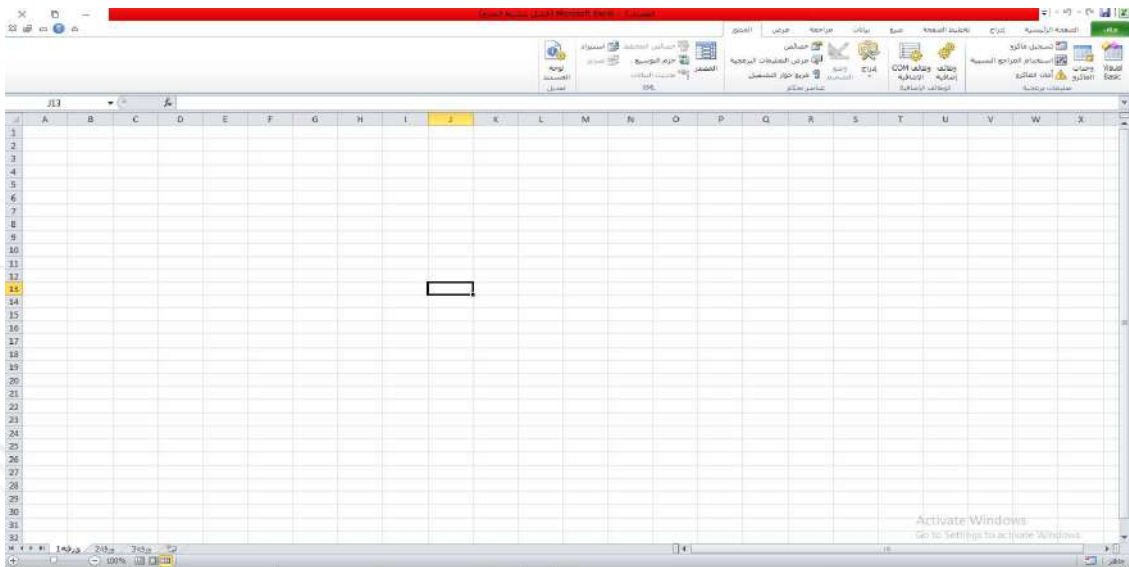


Figure 3 developer

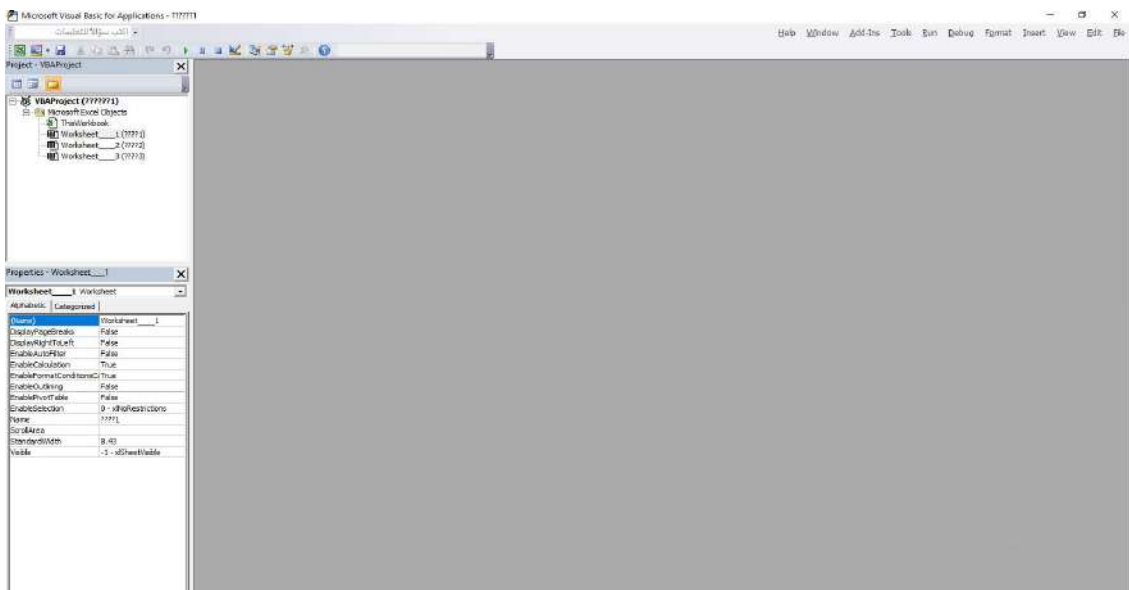


Figure 4 Visual Basic interface

Login code

Private Sub CommandButton4_Click()

Dim lastrow As Long, x As Long

lastrow = Worksheets("3").Cells(Rows.Count, 1).End(xlUp).Row

For x = 2 To the last row

If Worksheets("3").Cells(x, 1).Value = TextBox29.Value Then

UserForm4.Hide

UserForm3.Show

End If

Next x

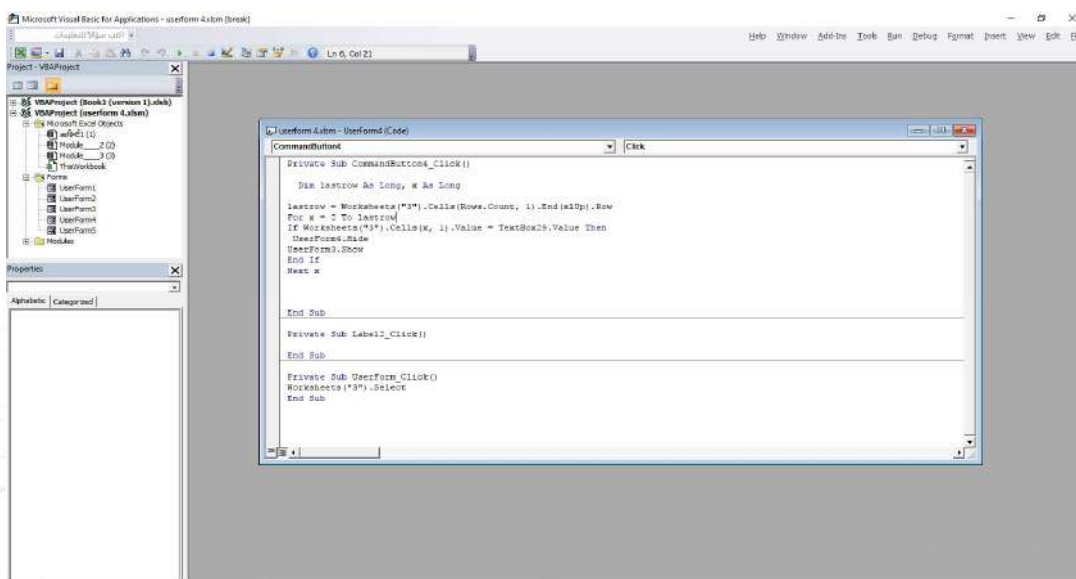


Figure 5 Login code

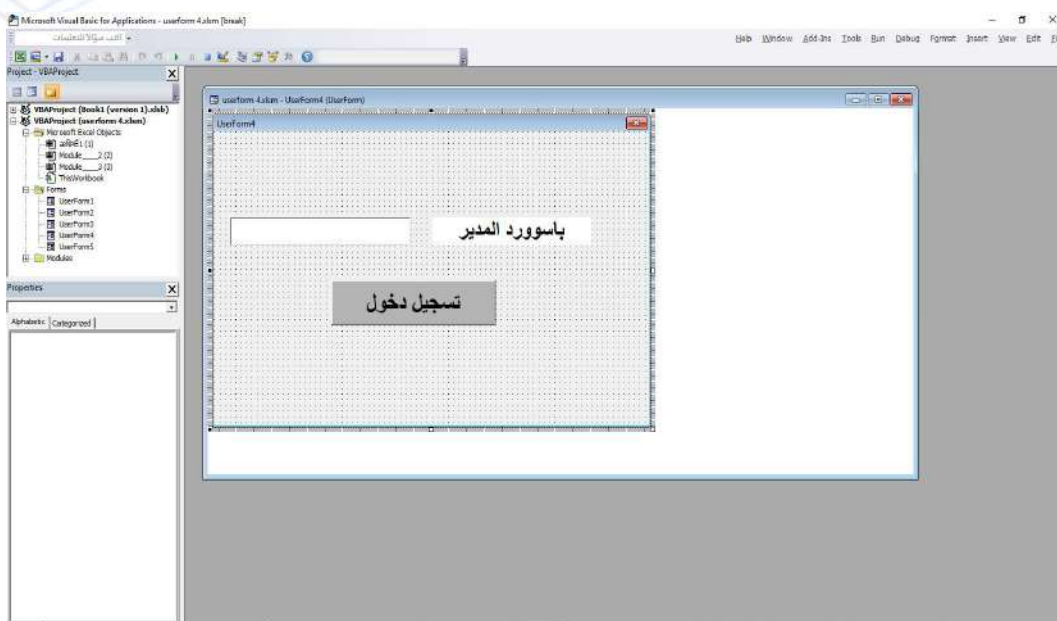


Figure 6 User Form1 Login



Figure 7 User Form2 Main Menu



Figure 8 User Form2 Add a student

Addition Code

Private Sub CommandButton1_Click()

Dim nextrow As Long

nextrow = Worksheets("1").Range("a10000").End(xlUp).Row + 1

With ThisWorkbook .Worksheets("1")

Range("a" & nextrow).Value = TextBox1

Range("b" & nextrow).Value = TextBox2

Range("c" & nextrow).Value = TextBox3

Range("d" & nextrow).Value = TextBox4

Range("e" & nextrow).Value = TextBox5

```

    Range("f" & nextrow).Value = TextBox6
End With
TextBox1 = ""
TextBox2 = ""
TextBox3 = ""
TextBox4 = ""
TextBox5 = ""
TextBox6 = ""
End Sub

Search Code
Private Sub CommandButton2_Click()
Worksheets("1").Select
Dim lastrow As Long, x As Long
lastrow = Worksheets("1").Cells(Rows.Count, 1).End(xlUp).Row
For x = 2 To lastrow
If Worksheets("1").Cells(x, 1).Value = TextBox1.Value Then
TextBox2 = Worksheets("1").Cells(x, 2).Value
TextBox3 = Worksheets("1").Cells(x, 3).Value
TextBox4 = Worksheets("1").Cells(x, 4).Value
TextBox5 = Worksheets("1").Cells(x, 5).Value
TextBox6 = Worksheets("1").Cells(x, 6).Value
Worksheets("1").Cells(x, 1).Select
End If
Next x
End Sub

```

Modification Code

```

Private Sub CommandButton3_Click()
Dim rn As Long
rn = ActiveCell.Row
With ThisWorkbook.Worksheets("1")
    Range("a" & rn).Value = TextBox1
    Range("b" & rn).Value = TextBox2
    Range("c" & rn).Value = TextBox3
    Range("d" & rn).Value = TextBox4
    Range("e" & rn).Value = TextBox5

```

```

Range("f" & rn).Value = TextBox6
End With
TextBox1.Value = ""
TextBox2.Value = ""
TextBox3.Value = ""
TextBox4.Value = ""
TextBox5.Value = ""
TextBox6.Value = ""
End Sub
    
```

Delete Code

```

Private Sub CommandButton4_Click()
Dim rn As Long
rn = ActiveCell .Row
Rows(rn) .EntireRow .Delete
TextBox1.Value = ""
TextBox2.Value = ""
TextBox3.Value = ""
TextBox4.Value = ""
TextBox5.Value = ""
End Sub
    
```

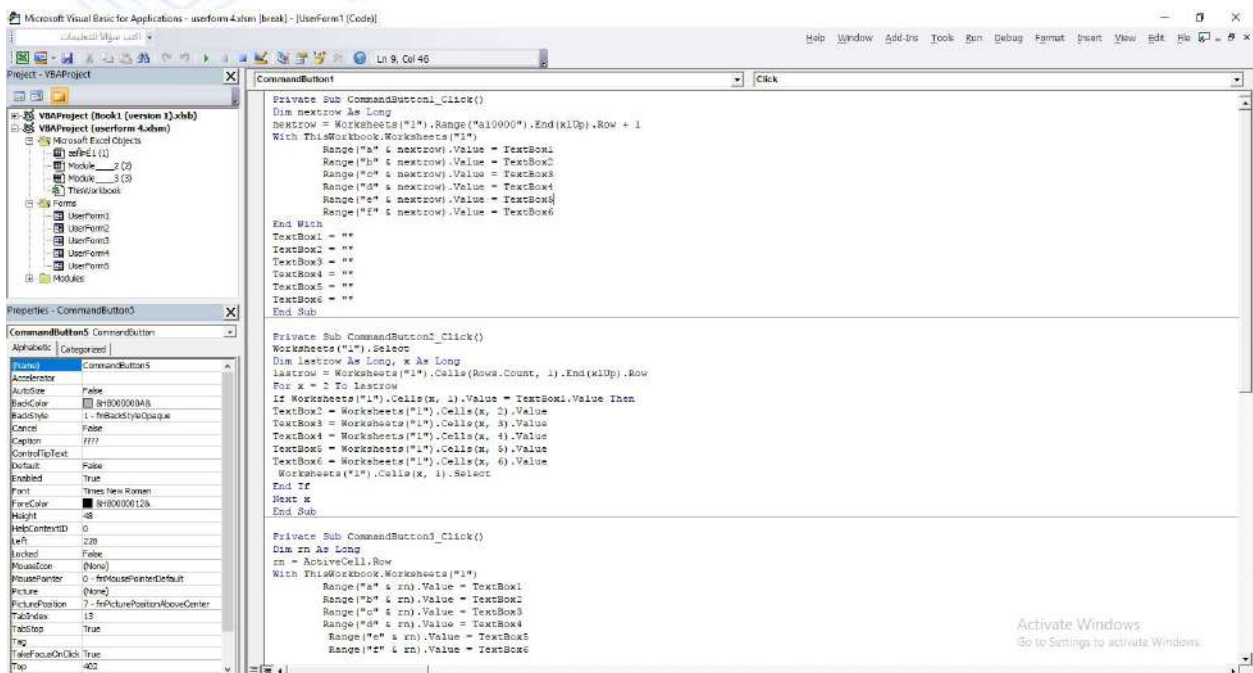


Figure 9 User Form1 Code



Figure 10 User Form3 Add a section

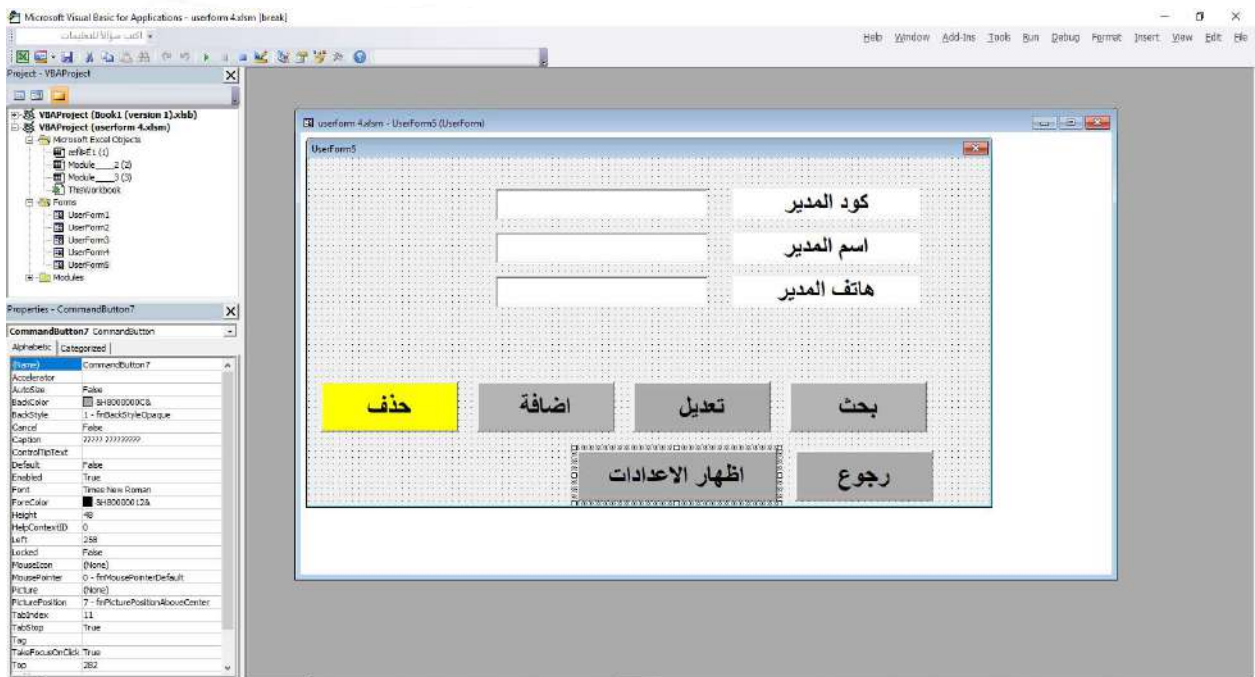


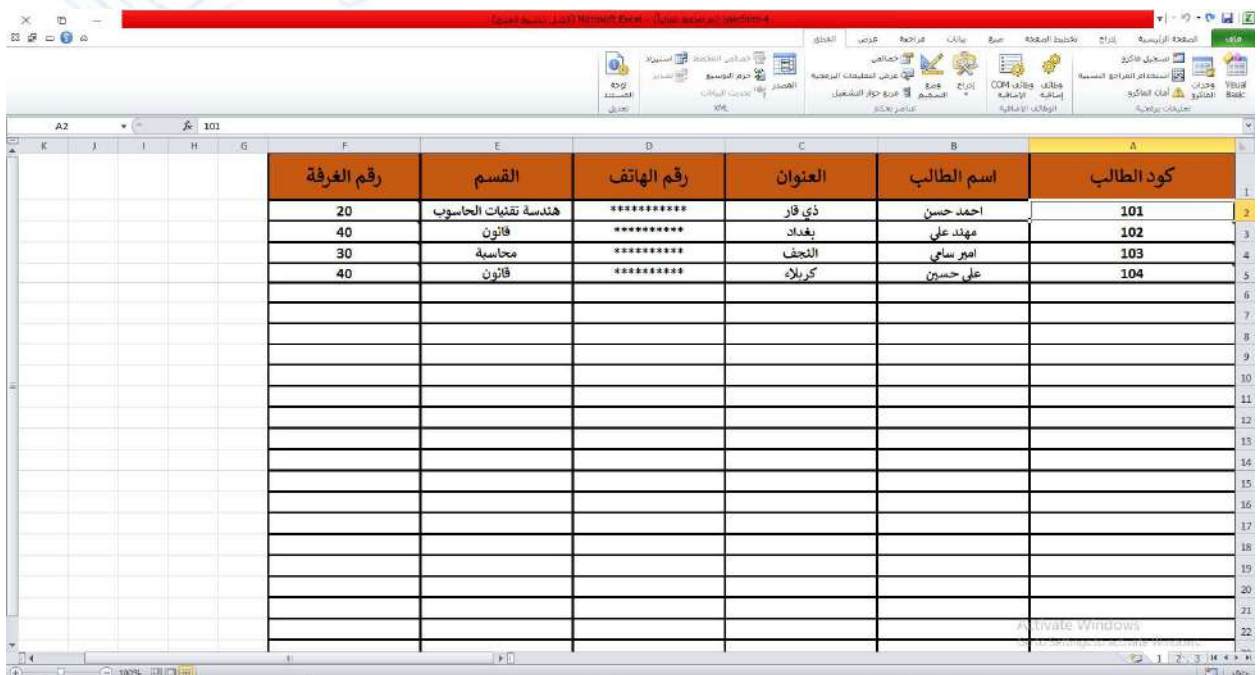
Figure 11 User Form4 Add a manager

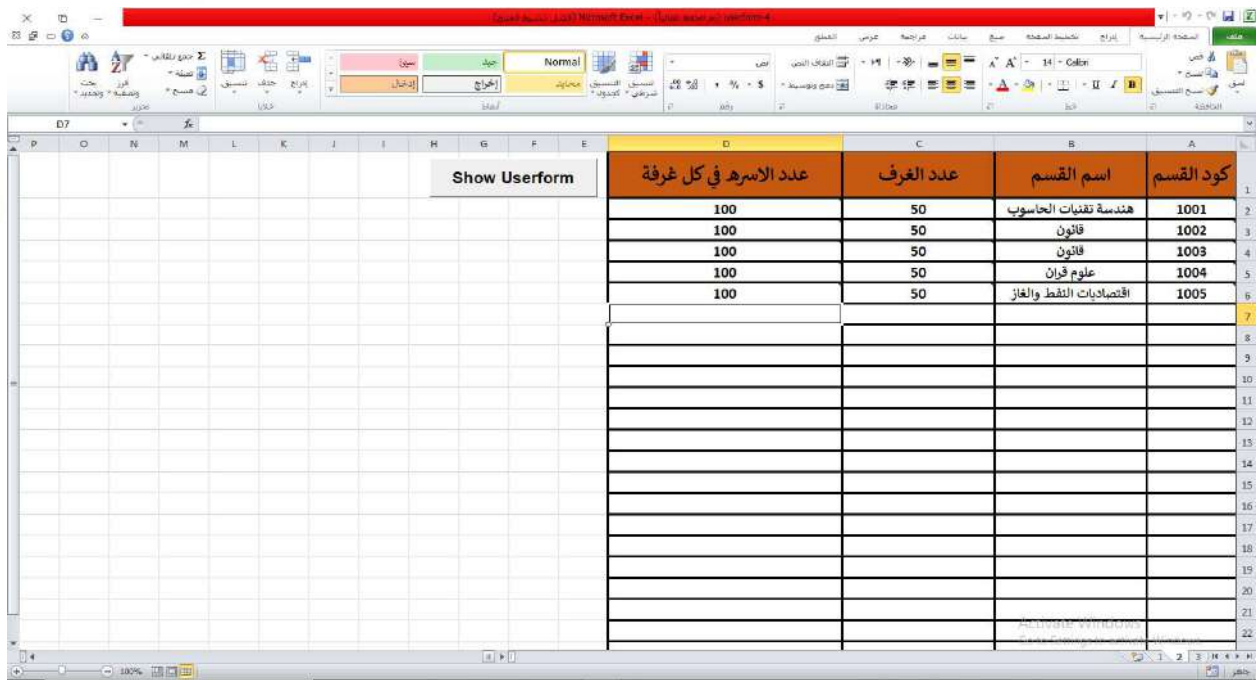
Recommendations And Results

Recommendations

1. A larger database could be used
2. A real database can be used to get better results
3. Visual Access can be used

Results





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