**Excel Assignment - 18**

**1. What are comments and what is the importance if commenting in any**

**code?**

Comments are non-executable lines of text within a codebase that provide explanations including or notes about the code. These comments are meant for human readers including developers and future maintainers to understand the purpose , functionality and reasoning behind the code.

Importance of commenting:

1.Comments acts as documentation for the code,helping other developers understand how the code works without having to decipher it from scratch.

2. Code can often complex and difficult to follow. Comments provide context and clarify the meaning of code blocks, making the code easier to rea and comprehend.

3. In collaborative projects, multiple developers work together. Comments allow team members to communicate ideas,flag potential issues and provide explanations to ensure everyone is on the same page.

4. Comments can help identify the cause of bugs or issues, as they can highlight the reasoning behind certain design choices or code sections.

5. Code often evolves over time with changes and updated properly commented code allows developers to maintain and update the codebase efficiently,reducing the likelihood of introducing the error.

6. Comments can be valuable during code reviews or audits helping reviewers understand the code and provide constructive feedback.

7. For new developers joining a project, well-commented code acts as a learning aid, allowing them to understand the codebase faster.

**2. What is Call Statement and when do you use this statement?**

In VBA the ‘call’ statement is used to invoke a sub procedure or function procedure. It is an optional keyword that allow you to call procedures explicitly, through it is not required in modern VBA code.

Uses of ‘Call’ statement:

1. Calling Sub Procedure:

When you want to execute a sub procedure, you can use the ‘call’ statement followed by the name of the sub and any required arguments. However in modern VBA the use of the ‘call’ statement is optional , and you can directly call the sub without using the ‘call’ keyword.

1. Using ‘Call’ with parentheses.

When you wanted to call a sub procedure and pass arguments, you had to use the ‘call’ keyword followed by the procedure name and arguments enclosed in parentheses.

**3. How do you compile a code in VBA? What are some of the problem that**

**you might face when you don’t compile a code?**

VBA code compilations is an automatic process that occurs whenever you save your VBA project or run/debug the code. Unlike some other programming language, VBA does not have a separate step for explicit compilations like compiling into machine code or creating an intermediate binary file.

When you run or debug your VBA code, the VBA compiler checks the syntax and structure of your code and converts it into P-code. If there us any syntax error or other issues the complier will highlight them, and the code will not run until those error are fixed.

Some of the problems you might face when you don’t compile your VBA code:

1. Syntax errors: If you have syntax errors in your code,the VBA compiler will not generate the P-code and code will fail to run until the errors are fixed.Syntax error can include missing or misplaced keywords, incorrect variable declarations or unclosed code blocks.
2. Undetected Errors: If you don’t compile your code,you may have undetected error that only surface during runtime. These errors can lead to unexpected behavior, crashes or incorrect results in your program.
3. Inefficient code: The VBA compiler optimizes the code during the compilation process, which can lead to more efficient execution.
4. Unused variable or procedures: Compiling the code may revel unused variable procedure, helping you clean up your code and improve maintainability.

**4. What are hot keys in VBA? How can you create your own hot keys?**

In VBA hotkeys are also known as keyboard shortcuts, are key combination that allow you to quickly perform specific actions without using the mouse or navigating through menus. These shortcuts are designed to streamline your workflow and enhance productivity by providing quick access to frequently used commands.

There are built in hotkeys in VBA for various actions such as running code,opening the VBA editor, debugging code and navigating through the code. Some common built in hotkeys in VBA editor like:

F5: run the code

F8 : step into the code

Shift + F8 : step over the code

Ctrl + F2 : Switch between the VBA editor and Excel

Creating the hot keys for a VBA macros:

1. Open the VBA editor by pressing ‘Alt + F11’.
2. In the VBA editor, insert a new module by clicking on ‘insert’ in the menu and selecting ‘Module’.
3. Write your VBA macro inside the module.
4. Close the VBA editor by pressing ‘Alt + Q’.
5. Press ‘Alt + F8’ to open the “Macro” dialog box.
6. In the “Macro” dialog box ,select your macro from the list
7. Click the “Options” button
8. dialog box, you can now assign a shortcut key to your macro. Enter a letter or number in the “shortcut key” field.
9. Click “Ok” to close the “options”dialog box.
10. Click “cancel” to close the “Macro” dialog box

**5. Create a macro and shortcut key to find the square root of the following**

**numbers 665, 89, 72, 86, 48, 32, 569, 7521**

1.Open the Excel workbook where you want to create a macro.

2.Press ‘Alt + F11’ to open the VBA editor.

3. In the VBA editot ,click on ‘Insert’ in the menu, and then select ‘Module’ to insert a new module.

4. In the module window paste the VBA code:

Sub FindSquareRoots()

Dim numbers As varient

Dim number As verient

Dim result As Double

Dim i As Long

numbers = Array(665, 89, 72, 86, 48, 32, 569, 7521)

For i = LBound(numbers) To UBound(numbers)

number = numbers(i)

result = Sqr(number)

MsgBox "Square root of " & number & "is" & result

Next i

End Sub

**6. What are the shortcut keys used to**

**a. Run the code**

**b. Step into the code**

**c. Step out of code**

**d. Reset the code**

1. Run the code: F5

Pressing the F5 key will execute /run the entire VBA code or start the execuation from the current line where the cursor is located.

1. Step into the code: F8

Pressing the F8 key will execute the VBA code line-by -line allowing you to step through the code and examine the behavior of each line.

1. Step out of the code: Shift + F8

While debugging , pressing shift + F8 will run the code until it encounters the line of code calling another procedure .

1. Reset the code: Ctrl + Break

Pressing Ctrl+ Break will halt the execution of VBA code and stop it. This is particulary useful when the code is an infinite loop or taking too long to execute.