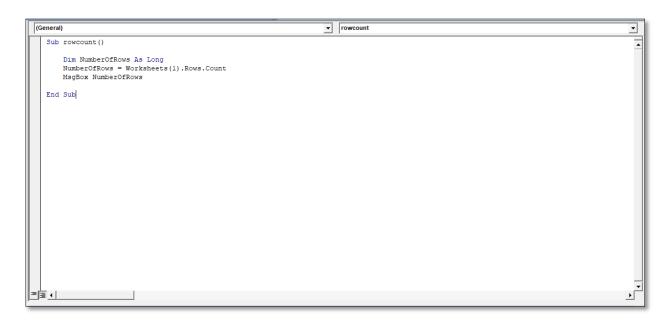
IENG314 / MANE314 Operations Research – II VBA – Session 4

Other Variable Types in Excel VBA

Excel VBA data types can be grossly divided into various types as shown in this table:

Variable Type Name	Variable Values
Byte	Whole numbers between 0 and 255 no fractions
Integer	Whole numbers from -32,768 to 32,767, no fractions
Long	Whole numbers from -2,147,483,648 to 2,147,483,647, no fractions
Single	Numbers with seven digits of precision from negative 3.402823E38 to positive 3.402823E38
Double .	Numbers with fifteen digits of precision from negative 1.79769313486232E308 to positive 1.79769313486232E308
Currency	Fixed decimal point number from negative 922,337,203,685,477.5808 to positive 2,337,203,685,477.5807
Date	January 1 0000 to December 31 9999
String	Character string. On 16-bit systems - 0 to approximately 65,000 characters. On 32-bit systems - 0 to 2E-32

Create a new Sub in a coding window



\frown		~																		_	~
Ga	1	- (° -) -								Book1	- Microsoft	Excel								- 0	×
	Home	Insert	Page La	yout F	ormulas	Data Rei	view Vi	ew Deve	loper												- = x
~		Carl Record I	Macro	l R	ert Design Mode Contro	Properties		🖶 Map Proj	perties 📑	Import	a										
16.000		Use Rela	tive Referer	nces 🤊		View Code		📸 Expansio	n Packs 📑	Export	2 9										
Basi	c Macros	🔥 Macro S	ecurity	11150	Mode	Run Dialog	Source	📽 Refresh 🛙	Data		Panel										
		Code			Contro	ols		XN	IL		Modify										
	A1	-	()	f _x																	*
	А	В	С	D	E	F	G	Н	1	J	К	L	М	N	0	Р	Q	R	S	Т	U
1																					
2																					
3																					
4																					
5																					
7																					
8										Micros	oft Excel	×									
9																					
10										10485	76										
11																					
12										_		-									=
13											OK										
14																					
15																					
16																					
17 18																					
19 20																					
21																					
22																					
23																					
24																	Activ	vate Wi	ndows		
25																	Go to	Settings t	to activate	Windows	
		eet1 She	et2 / She	et3 🦯 🞾									I 4				Ш				
Ready	y 🛅																		100% 😑		

When you run your Sub, though, you should see a message box appear:

Now change As Long to As Integer

		_
(General)	rowcount	•
(General) Sub rowcount() Dim NumberOfRows As Integer NumberOfRows = Worksheets(1).Rows.Count MsgBox NumberOfRows End Sub	r rowcount	
=] ⊒ (
		_

Try running your Sub again. This time, you should see an error message:

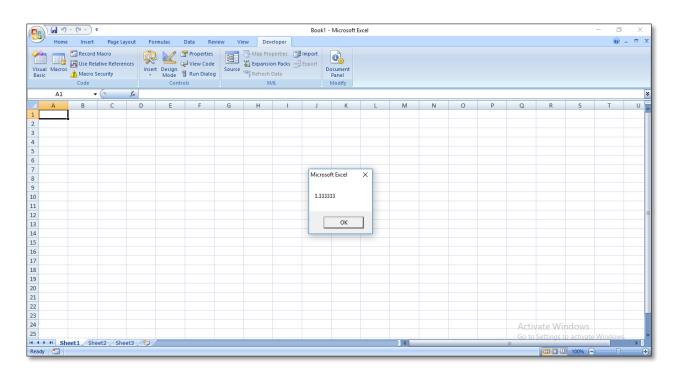
(General)	_	rowcount	-
	Sub rowcount() Dim NumberOfRows As Integer NumberOfRows = Worksheets(1).R	ows.Count		•
	MsgBox NumberOfRows	Microsoft Visual Basic		
	End Sub	Run-time error '6': Overflow		
		Continue End Debug	Help	
	End Sub			
E	₫		•	•

The error is **Overflow**. You get this error because the value you're trying to store in your variable is too big for the variable type.

Add a new Sub and call it Floats.

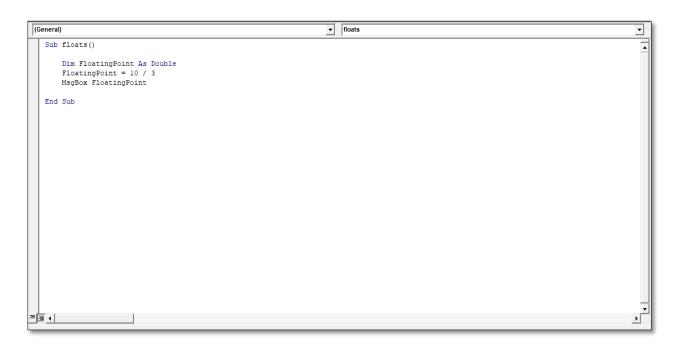
	(General) 💌 floats	•	1
	Sub floats()	•	
	Dim FloatingPoint As Single FloatingPoint = 10 / 3 MsgBox FloatingPoint		
	End Sub		
2			
Ē		•	I

After running this sub, you should see a Message Box appear



The value in the variable called **FloatingPoint** is being displayed in the Message Box. It is showing the answer to 10 divided by 3 to six decimal places

Now change your code:



Run your code again and the Message Box will display the following:

		- (2 -);								Peel-1	Microsoft E									- 0	
63	1				Formulas	Data Da		Day	eloper	BOOKI -	MICrosoft E	xcei									_ = x
Visu Basi					Asert Design Mode Contr					Export	Document Panel Modify										
							Л.				, ,										3
	A		C		E	F	G	н		J	K	L	М	N	0	Р	Q	R	S	т	U
1	A	D	C	U	C	F	0	п		,	N	L	IVI	IN	0	۲	ų	n	3	1	
2																					
3																					
4																					
5																					
6																					
7										Microsof	t Even	X									
8										WIICIOSO	LILICEI	^									/
9																					
10										3.33333	3333333333										I
11 12										-		_									
12											ОК										
15												-									
15																					
16																					
17																					
18																					
19																					
20																					
21																					/
22																					
23																					T
24																			ndows		
25	N Ch	eet1 / She	ota / Cha	at2 /8													Go to	Settings	to activate	Windows	
		eeti / She	ecz / Sne	ets / t	J /											_	111		100% (=		
			_	_			_		_	_									100/0 [-		

Change your code to this:

(General)	test 🗸	
	Sub test()	-	-
	Dim FloatingPoint As Single FloatingPoint = WorksheetFunction.Pi MsgBox FloatingPoint		
	End Sub		
⊒	 ≣		-

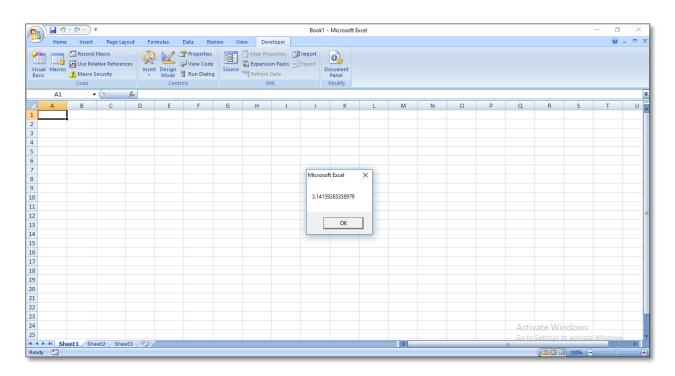
When you run your code, the Message Box will be this.

		· (° ·);								Rook1	Microsoft	liveal								- 0	×
6		Insert		avout	Formulas	Data Re	view Vi	ew Deve	loper	BUUKI -	MICIOSOIL	xcei									_ = x
Visua Basi					sert Design Mode Contr					Export D	ocument Panel Modify										
	A1		. (*
	А	В	С	D	E	F	G	н	1	J	к	L	М	N	0	р	Q	R	S	т	U
1																					
2																					
3																					
4																					
5																					
0 7																					
8										Microso	ft Excel	×									
9																					
10										3.1415	93										
11																					
12											0.11										7
13											ОК										
14 15																					
15																					
17																					
18																					
19																					
20																					
21																					
22 23																					
23 24																					
24																			ndows		
	► H She	eet1 / She	et2 / She	et3 / 🕈													Go to	Settings	to activate	Windows	
		Jack Jack Since																mo	100% 🗐		(÷

Now change As Single to As Double.

(General)	 ▼ test	•
[General] Sub test() Dim FloatingPoint As FloatingPoint = Works MsgBox FloatingPoint End Sub	 r test	
<u>=</u>] <u>च</u> _4		• •

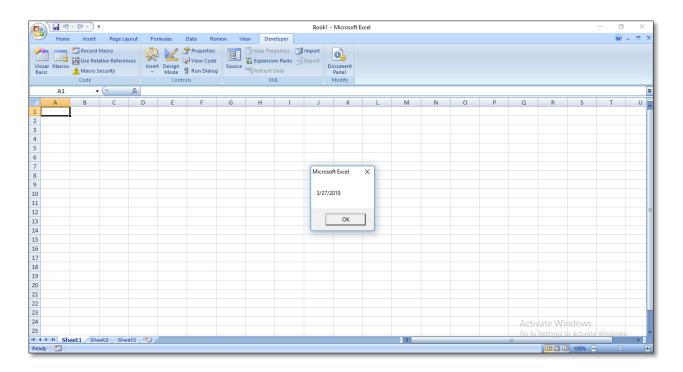
When you run your code this time, the Message Box will be as follows



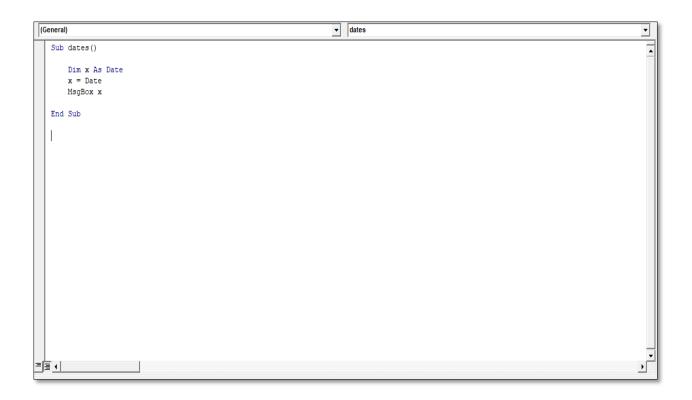
In order to define a Date variable in Excel Macro, the following procedure should be done:

(General)	▼ dates	•
Sub dates() Dim x As Date x = \$3/27/2019 MsgBox x		-
End Sub		

Run the code and this message will come:



To show the current date, "date" is used:



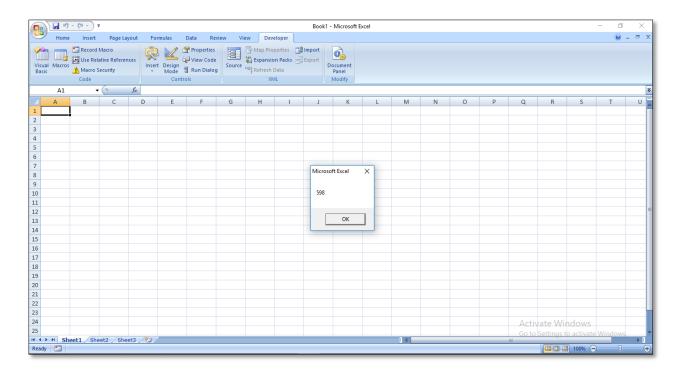
After clicking run button, current date will be shown:

	1 🖬 🤊	- (<u> </u>	Ŧ							Book1 -	Microsoft E	xcel								- 0	×
	1			yout Fo	rmulas	Data Re	view Vi	ew Dev	eloper											0	_ = x
Visu Bas	al Macros	Record Use Rel Macro S Code	Macro ative Referer Security	nces inse				Map Pro		Import Export Do	Cument Panel Modify										
	A1		• (0	f _x																	×
	А	В	С	D	E	F	G	Н	1	J	К	L	М	N	0	Р	Q	R	S	Т	U
1																					
2																					
4																					
5																					
6																					
7										Microso		×									
8										WICroso	t Excel	~									
9																					
10										11/5/2	017										
11										_		_									
12 13											ОК										
13											•										
15																					
16																					
17																					
18																					
19																					
20																					
21																					
22																					
23 24																					
24 25																			ndows		
	E H Sho	oot1 Chr	et2 / She	ot3 /97				-				-	14				Go to	Settings	to activate	Windows	
	y 🛅	Sect / Sile	Setz / Sile															mo	100% (=		÷
uu		_	_	_	_		_		_	_	_	_	_		_	_	_		10000	, · · · · ·	

If we want to find out the number of days between two dates, we can use subtraction:

(General)	▼ dates	•
(General) Sub dates() Dim x As Date Dim z As Integer x = Date y = #3/17/2016# z = x - y MsgBox z End Sub	dates	
≡]≣ ∢		- - -

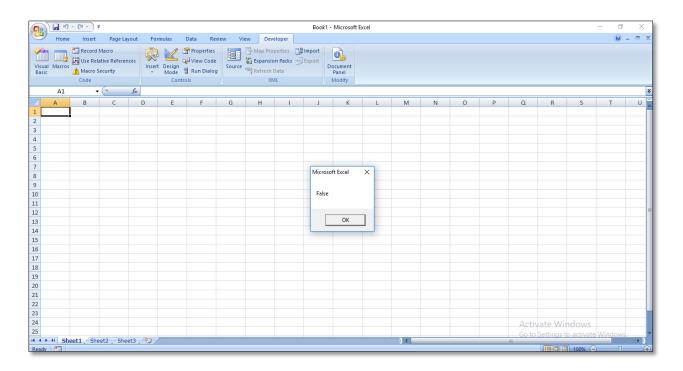
After running sub, the Message Box will display the following



In order to define a Boolean variable, following procedure should be done

(General) test	•	
	Sub test() Dim x As Boolean x = (4 = 3) MsgBox x	•	
	End Sub		
Ξ	国 	•	

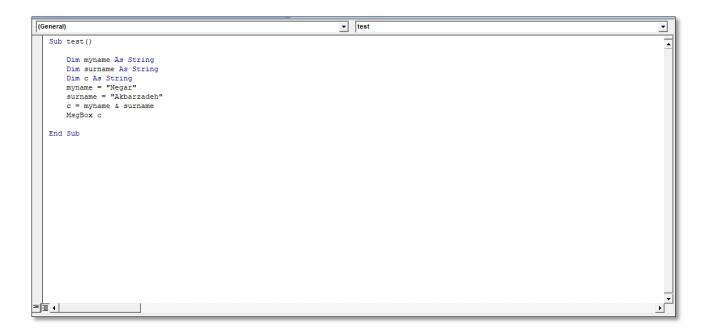
Click on run, and this message will come up.



Variant is used when you're not sure what value will be returned. It can hold numbers, text, and objects. However, using it too much can slow down your programs.

If you want your variables to hold strings of text then the variable type to use is As String.

Write a code which shows your name.



After running, this is shown:

	1 2	- (2 -) ;	;							Book1 -	Microsoft E	xcel								- 0	×
	1			ayout Fo	rmulas	Data Re	view Vi	ew Dev	eloper											@ .	_ = x
Visu Basi		Code		nces	t Design Mode Contr	Properties View Code Run Dialog	Source	Map Pro Expansion Refresh I XN	perties 📑 on Packs 🚽 Data IL	Import Export	ocument Panel Modify										
	A1 • (* * * * *																				
	А	В	С	D	E	F	G	Н	1	J	К	L	М	N	0	Р	Q	R	S	Т	U
1																					
2																					
4																					
5																					
6																					
7												_									
8										Microsof	t Excel	×									
9																					
10										Negar/	kbarzadeh										
11																					
12											ОК										
13 14											UK										
14 15																					
15																					
17																					
18																					
19																					
20																					
21																					
22																					
23																					
24																			ndows		
25		11 17	10 / 61	10 /0-													Go to	Settings	to activate	Windows	
	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	eet1 / She	eet2 / She	eet3 🗸 🞾] ∢			_	Ш		100% 🕞		+
Read												_							100% (-		(+

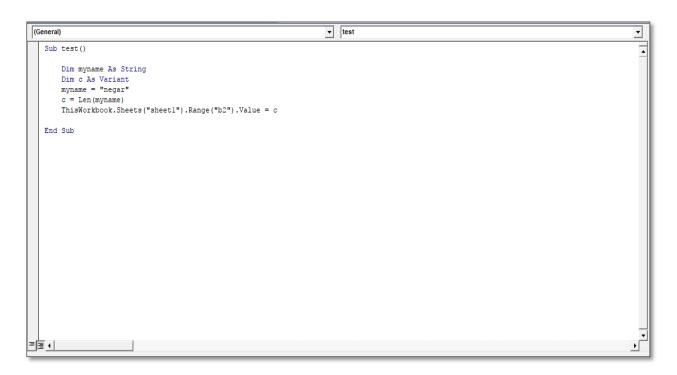
The Len function is used to get how many characters a string has.

(Seneral)	test 🗸
	Sub test() Dim myname As String myname = "negar"	•
	MsgBox (Len(myname)) End Sub	
Ξ		_ ۲ ف

Run the code and you'll find that the message box displays the number of your name.

	10 -	(≈ -) =								Book1 -	Microsoft E	xcel						- 0	X
Pita /			Page La	ayout	Formulas	Data	Review V	iew Dev	eloper										_ = x
Visual Ma Basic		Record N Use Rela Macro Se Code	Macro itive Referen ecurity	nces	Insert Desig Mode	Properti View Co Run Dial Ontrols	es de og	Map Pro	perties 📑 on Packs 🔄 Data AL	Import Export	ocument Panel Modify								
A1 • 6 fx													×						
A												U							
1																			
2																			
3																			
4																			
5																			
7																			
8										Microso	ft Excel	×							
9																			
10										5									
11																			
12																			
13											ОК								
14 15																			
15																			
17																			
18																			
19																			
20																			
21																			
22																			
23 24																			
24																	ndows		
	Sheet	t1 She	et2 / She	et3 /1	P			-					14		Go to	Settings	to activate	Windows	
Ready P		Ca y One	Star y She													ma	100% (-		÷

We want to write a code that changes the cell value as length of our string.



Run the code and this will be sheet1.

C) 🖬 🤊	- (~ -) -	;						
	Home	Insert	Page Lay	yout	For	mulas	Data	Revie	
	sual Macros	Record I Use Rela Macro S Code	Insert Design Mode 🕄 Run Dialog Controls						
	A1	-	f_{x}						
	А	В	С		D	E	F		
1									
2		5							
3									
4									
5									
6									
7									
8									
9									
10									
44									