



D e l p h i

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Delphi Chapter 2:

What is a Variable?

“A variable is an attribute of a physical or an abstract system which may change its value while it is under observation.” -en.wikipedia.org/wiki/Variable

This definition defines exactly what a variable is in any language, not just Delphi. Within Delphi we define variables usually to store certain types of data that will change over the period that the program is run.

Within Delphi a variable can be declared to store certain types of data. These types of data include Characters, Words, Numbers, and True or False statements.

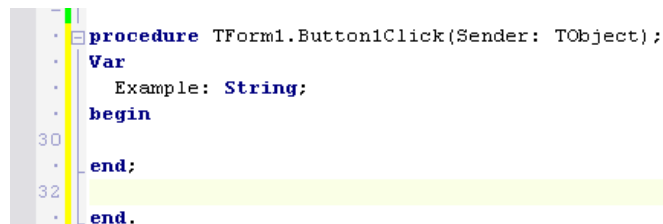
Within Delphi a variable is always declared as follows:

Procedure/Function

Var

Example: type

Within Delphi a variable is always declared as follows:



```
procedure TForm1.Button1Click(Sender: TObject);
var
  Example: String;
begin
end;
end.
```

Variable Scope:

The term scope of a variable refers to the accessibility of a variable declared (*Used*) in a part of a programs code.

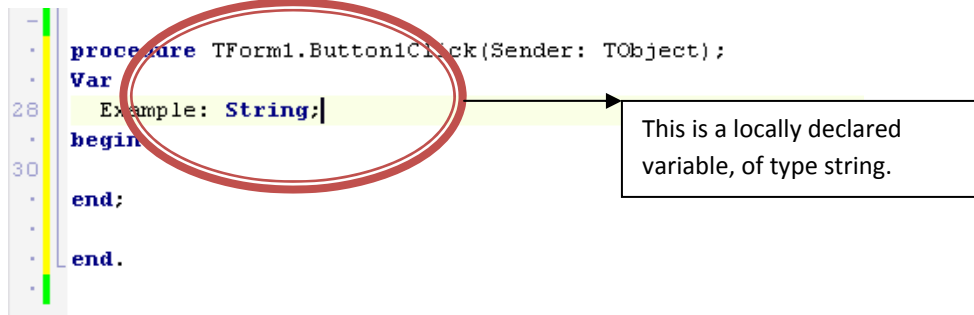
Local Variables:

A variable that is locally declared is only accessible within that procedure or function. Which simply put means that if another object need to access that variable it would not be able to. Local variables are the most commonly declared variables and should be used when only one procedure or function accesses that variable

Example of a locally declared variable within Delphi code:

```

28 procedure TForm1.Button1Click(Sender: TObject);
29   Var
30     Example: String;
31 begin
32 end;
33 end.
    
```



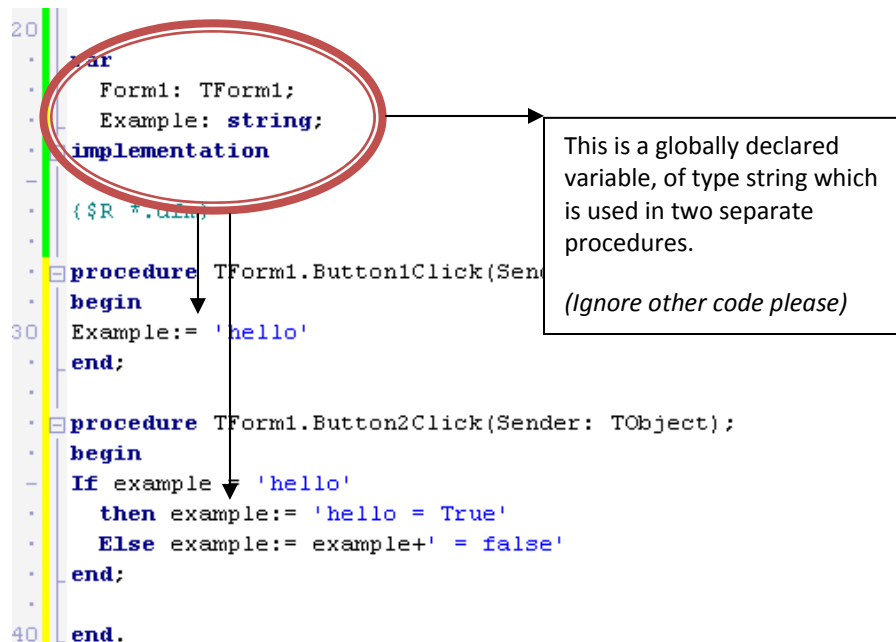
Global Variables:

A variable that is globally declared is accessible throughout the entire Delphi unit. This simply means that any Procedure or Function can access it without it being declared within that Procedure or Function. Though global variables are useful, avoid the use of them when a local variable would suffice. The reason for this is that Global variables will be constantly stored within RAM, thus complex program which require large amounts of RAM would be negatively affected by redundant variables.

Example of a globally declared variable within Delphi code and how it can be used:

```

20 Var
21   Form1: TForm1;
22   Example: string;
23 implementation
24   {$R *.dmp}
25   procedure TForm1.Button1Click(Sender: TObject);
26   begin
27     Example := 'hello'
28   end;
29   procedure TForm1.Button2Click(Sender: TObject);
30   begin
31     If example = 'hello'
32     then example := 'hello = True'
33     Else example := example + ' = false'
34   end;
35 end.
    
```



Variable Types:

Type:	Reason:	Result
String	Are used for text or non integer/real numbers. EG: '1. Hello Word'	"1. Hello Word"
Integer	Are used for non decimal numbers. EG: ...;-2;-1;0;1;2;...	...;-2;-1;0;1;2;...
Real	Are used for numbers including decimals	EG: 5.555
Char	Are used to store individual string characters	EG: A;B;C...
Boolean	Are used to store a True or False result	TRUE

There are other variable types but at this stage it is unnecessary to list them.

Here is an example of the above Variables being declared as their respective types:

```

var
  Form1: TForm1;
  ExampleA: String;
  ExampleB: Integer;
  ExampleC: Real;
  ExampleD: Char;
  ExampleE: Boolean;
implementation
  {$R *.dfm}
end.

```

Here is an example of the above Variables being declared as their respective types.

Please note these variables have been globally declared

What is a Constant?

A constant is the opposite of a variable. In this case a constant retains its value and can be assigned a value to keep. Constants are also grouped into local and global and thus share the same access properties of global and local variables.

The difference between declaring a constant rather than a variable is the instead of declaring it under Var you will rather need to declare it under Const. This will indicate that this is not a variable but rather a constant.

Example of a locally declared constant within Delphi code:

```

procedure TForm1.Button1Click(Sender: TObject);
const
  Example: string = 'hello';
begin
  Example = hello - System.string;
end.
  
```

This is a locally declared constant of type string, which has been assigned a value of "hello"

Example of a globally declared constant within Delphi code:

```

const
  Example: string = 'hello';
var
  Form1: TForm1;
implementation
  ($R *.dfm)
procedure TForm1.Button1Click(Sender: TObject);
begin
  Form1.Caption:= Example;
end;
end.
  
```

This is a globally declared constant, of type string, which has been assigned a value of "hello". And is used in a separate procedure.
(Ignore other code please)

Delphi Chapter 3:

Basic Functions:

On the next tutorial we will the basic predefined functions in Delphi and how they are declared. Please download the next tutorial at: [Click Here!](#)