



Delphi

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Delphi Chapter 6:

FLAGS:

What exactly is a Flag?

A flag is a method I have learnt to describe an abstract concept of defining a variable the value of true or false. However flags are more than just a simple variable. I have gotten used to using them in almost all my programs that have a while loop. Even greater than this is the ability that a flag gives you to be able to search data for a certain value and return a 'found' or 'Not-found' result. And this is only the beginning of the actual power that flags will give you in programming.

Here is an image diagram which I like to use when understanding flags:

The word 'True' is in the sentence?

The word 'False' is not in the sentence!



TRUE



False

Though this principle may not seem very difficult to understand when thinking about it, but remember most programming concepts are always simple at a thinking level. But now how do you actually code the concept, in this case a Flag?

When to use a flag?

The first question that must be asked is when is it most appropriate to use a flag, if the question <statement> only has two possible outcomes it is then to a programmers advantage to use a flag. However if the question <statement> has many possible outcomes then using a variable declared as **Boolean (which only has possible values of 'True' or 'False')** would simply be impractical.

How to code with a Flag?

Now that the basic understanding of a Flag and what Boolean variable is, we can hopefully move onto how to use the concept in programming. Here is a very basic example using a question:

Question: *Did I get 80 for any of my marks?*

Vars

Flag: Boolean;

Mark, Loop ,Tot: Integer;

Algorithm:

Flag « false

Tot « 0

For loop « 1 to 7

 Input « Mark

 Tot « Tot + Mark

 If Mark >= 80

Then Flag « True

//No Else Flag « False

Output Average « tot / 7

If flag = true

Then Output “yes a mark of 80 was found! “

Else Output “No a mark of 80 was not found! “

Please continue to see a flag being used in Delphi code ☺

An example of a flag in Delphi code:

This is an extract from a program from an exam revision paper I was given and completed. The code is used to search for a name in an array. Please note that this code has been placed in its own function. Later we will deal with creating user made procedures and functions.

```

50 |
  | Function Addtofund(FInput: String ; FUpAmount: Real): String;
  | Var
  |   Loop: Integer;
  |   Flag: Boolean;
  | Begin
  |   Loop:= 1;
  |   Flag:= False;
  |   While (Flag = false) and (loop <= cnt+1) do
  |     Begin
  |       If (lowercase(Names[loop]) = (Lowercase(Finput))
  |         Then begin
  |           flag:= True;
  |         end
  |         Else inc(loop);
  |       End;
  |       If Flag= True
  |         Then Begin
  |           Result:= Names[loop]+' Found And Fund Of: R'+floattostr(Amount[loop])+'#13'+ 'Debited With: R'+floattostr
  |           Amount[loop]:= Amount[loop]+FUpAmount;
  |           Result:= Result+'New Fund Of: R'+floattostr(Amount[loop]);
  |         End
  |         Else Result:= 'No Fund matching'+FInput;
  |     End;
  | End;

```

Simpler example of a flag:

```

  | procedure TForm1.Button1Click(Sender: TObject);
  | Var
  |   Search: String;
  |   Loop: Integer;
  |   Flag: Boolean;
  | begin
  |   Loop:= 1;
  |   Flag:= False;
  |   Search:= Inputbox();
  |   While(flag = False) and (loop <= Cnt+1) do
  |     begin
  |       If lowercase(search) = lowercase(MyArray[loop])
  |         Then Flag:= true
  |         Else inc(loop)
  |       end;
  |       If Flag = true
  |         Then Showmessage (search+' found at: '+inttostr(loop));
  |     end;
  | end.

```

These are the only lines of code that are actually fundamental to this chapter.

The End!

Congratulations you have just completed the:
Project Development Basic Delphi Training Course 😊

Please continue into the **Project Development Intermediate Delphi Training Course**. In this course we will cover the following intermediate Delphi concepts: [Please click the link to continue.](#)

Intermediate Delphi: //As of the time of writing!

- Algorithms
- Trace Tables
- Basic Arrays
- Constant Arrays
- 2D Arrays

Sorting:

- Bubble Sort
- Selection Sort

Search:

- Standard Search
- Binary Search

- Insertion

Functions & Procedures:

- Intro
- Functions
- Procedures

Multiple Units & Forms:

- Multi-Units
- Multi-Forms

Using External Data:

- Load From Text Files
- Save To Text Files

Object Orientated Programming:

- Intro
- Example Program