



# Fundamentos de Programación

Diagrama de Flujo, DevC++ & Vb 6.0

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# Ingreso de 2 Numero

Standar Input Output

Console Input Output

The image displays a development environment with three main components:

- Flowchart (Left):** A flowchart for a program that starts at 'Inicio', initializes variables 'a', 'b', and 'c' to 0, prompts for input 'a', then 'b', calculates 'c = a + b', and displays the result 'a + b = c'.
- C++ Code (Middle):** A code editor showing the implementation of the flowchart in C++:

```
1 #include<stdio.h>
2 #include<conio.h>
3 main()
4 {
5     int a,b,c;
6     printf("Ingrese un No \n");
7     scanf("%i",&a);
8     printf("Ingrese otro \n");
9     scanf("%i",&b);
10    c=a+b;
11    printf("La suma da \n%i",c);
12 }
13
```
- Visual Basic GUI (Right):** A screenshot of a Visual Basic application window titled 'Proyecto1 - Microsoft Visual Basic [diseño]'. It features a form with three text boxes labeled 'Ingrese un No', 'Ingrese otro', and 'La suma da', each containing the characters 'A', 'B', and 'C' respectively. A 'Calcular' button is located below the text boxes. The Properties window on the right shows the 'Caption' property of the 'Command1' button set to 'Calcular'. The code-behind for the button click event is visible:

```
Private Sub Command1_Click()
    c=val(a)+val(b)
End Sub

Private Sub Label1_Click()
End Sub
```

# Ingresar un número y mostrar el doble y la quinta parte del número

The image displays a development environment with three main components:

- Flowchart (Left):** A flowchart illustrating the program's logic. It starts with 'Inicio', followed by an initialization box for variables 'a', 'd', and 'q' all set to 0. A decision diamond labeled 'a' leads to a process box where 'd' is assigned 'a\*2' and 'q' is assigned 'a/5'. This is followed by an output box 'el doble :d: |' and ends at 'Fin'.
- C++ Code (Middle):** A code editor window titled 'doqui.cpp' showing the following code:

```
1 #include<stdio.h>
2 #include<conio.h>
3 main()
4 {
5     float a,q,d;
6     printf("Ingrese un No \n");
7     scanf("%f",&a);
8     d=a*2;
9     q=a/5;
10    printf("El doble da %.2f ",d);
11    printf("La quinta es %.2f ",q);
12 }
13
```
- Visual Basic GUI (Right):** A Visual Basic form titled 'Form1' with a 'Calculador' button. The form contains three text boxes with labels: 'Ingrese un No', 'El doble da', and 'la Quinta es'. The 'Propiedades - Form1' window shows the following properties for 'Form1':

Propiedad	Valor
(Nombre)	Form1
Appearance	1 - 3D
AutoRedraw	False
BackColor	&H8000000F&
BorderStyle	2 - Sizable
Caption	Form1
ClipControls	True
ControlBox	True
DrawMode	13 - Copy Pen
DrawStyle	0 - Solid
DrawWidth	1

The 'Command1\_Click' event procedure is defined as:

```
Private Sub Command1_Click()
    d = CDb1(a) * 2
    q = CDb1(a) / 5
End Sub
```

# SE INGRESA UN NUMERO Y SE DESEA CONOCER EL DOBLE, EL TRIPLE, EL CUADRADO Y MENOS UNO

The image displays a development environment with four main components:

- Flowchart:** A vertical flowchart on the left side of the C++ editor window. It starts with a 'Inicio' node, followed by a process box for variable declarations, an input box for 'Ingresar un No', and then four output boxes labeled 'EL DOBLE', 'EL TRIPLE', 'EL CUADRADO', and 'LE RESTO 1'. The flowchart ends with a 'Fin' node.
- C++ Code Editor:** The central window shows the source code for 'opera.cpp'. The code is as follows:

```
1 #include<stdio.h>
2 #include<conio.h>
3 main()
4 {
5     int no=0,dob=0,tr=0,se=0,re=0;
6     printf("Ingresar un No \n");
7     scanf("%i",&no);
8     dob=no*2;
9     tr=no*3;
10    se=no*no;
11    re=no-1;
12    printf(" El Doble da %i \n",dob);
13    printf(" El Triple da %i \n",tr);
14    printf(" La Potencia 2 da %i \n",se);
15    printf(" Le resto 1 y da %i \n",re);
16 }
17
```
- Visual Basic Form:** The 'Form1' window shows a graphical user interface with five text boxes and a 'CALCULAR' button. The text boxes are labeled: 'Ingrese un No', 'EL DOBLE', 'EL TRIPLE', 'EL CUADRADO', and 'LE RESTO 1'.
- Visual Basic Code Editor:** The 'Proyecto1 - Form1 (Código)' window shows the following code for the 'Command1\_Click' event:

```
Private Sub Command1_Click()
dob = Val(no)
TR = Val(no) * 2
SE = Val(no) * Val(no)
RE = Val(no) - 1
End Sub
```

# SE INGRESA UN NUMERO Y SE DESEA SABER SI ES PAR O IMPAR

Si el residuo de la división(Mod) para 2 es 0 es par

The image displays a development environment with three main windows:

- Flowchart (Left):** A flowchart illustrating the logic for checking if a number is even or odd. It starts with an initialization box 'num ← 0', followed by an input box 'num'. A decision diamond 'num mod 2 = 0' branches into 'No' (leading to an output cone 'es impar') and 'Si' (leading to an output cone 'es par'). Both paths converge to a final box 'Fin'.
- C++ Code (Middle):** A code editor window titled 'parimpar.cpp - Dev-C++ 5.11' showing the following code:

```
1 #include<conio.h>
2 #include<stdio.h>
3 main()
4 {
5     int num;
6     printf("Ingrese un No \n");
7     scanf("%d",&num);
8     if (num % 2 == 0 )
9         printf("es par");
10    else
11        printf("es impar");
12 }
```
- Visual Basic Form (Right):** A Microsoft Visual Basic form titled 'Form1' with a grid background. It contains a text box labeled 'Ingrese un Numero', a button labeled 'Evalua', and another empty text box. Below the form, the code window shows the event handler for the 'Evalua' button:

```
Private Sub Evalua_Click()
If Val(no) Mod 2 = 0 Then
    res = "Es par"
Else
    res = "Es impar"
End If
End Sub
```

SE INGRESA UNA NOTA, SI ES MENOR QUE 70 REPROBADO. POR CONTRARIO SI ES MENOR DE 61 BUENO, SI ES MENOS DE 91 MUY BUENO POR CONTRARIO SOBRESALIENTE

The image displays a development environment with three main components:

- Flowchart (Left):** A Data Flow Diagram (DFD) for a grade evaluation system. It starts with an initial state where 'nota' is 0. A process box 'nota ← 0' is followed by an input symbol 'Ingrese la nota'. A data store 'nota' is connected to the input. A decision diamond 'nota < 70' branches to 'SI' (Yes) leading to an output symbol 'REPROBADO', and 'No' leading to another decision 'NOTA < 61'. The 'SI' branch of 'NOTA < 61' leads to an output symbol 'B'. The 'No' branch leads to a third decision 'NOTA < 91'. The 'SI' branch of 'NOTA < 91' leads to an output symbol 'MB', and the 'No' branch leads to an output symbol 'S'.
- C++ Code (Middle):** A code editor showing the implementation of the logic in 'nota.cpp'.

```
1 #include<stdio.h>
2 #include<conio.h>
3 main()
4 {
5     int nota;
6     printf("Ingrese la Nota ");
7     scanf("%i",&nota);
8     if (nota<70)
9         printf("Reprobado");
10
11     else{
12         if (nota<61)
13             printf("B");
14         else
15             {
16                 if (nota<91)
17                     printf("MB");
18                 else
19                     printf("S");
20             }
21     }
22 }
23
24
25
26
27
28
29 }
```
- Visual Basic Form (Right):** A screenshot of a Visual Basic form named 'Form1'. It contains two text boxes: 'Ingrese Nota' and 'Resultado', and a button labeled 'Evalua'. The code window below shows the event procedure for the button:

```
Private Sub Evalua_Click()
If Val(nota) < 70 Then
    resul = "REPROBADO"
Else
    If Val(nota) < 61 Then
        resul = "B"
    Else
        If Val(nota) < 91 Then
            resul = "MB"
        Else
            resul = "S"
        End If
    End If
End If
End Sub
```

# USO FOR PARA GENERAR UNA TABLA DE SUMAR INGRESANDO EL NUMERO DE LA TABLA

The image displays three windows illustrating the implementation of a program to generate a sum table:

- DFD (Data Flow Diagram):** Shows the logic flow. It starts with an initialization process box for variables `a`, `b`, and `r` (all set to 0). This is followed by an input/output box for "Ingrese la tabla". Then, a process box for `a` is shown. A loop box for `Para b ← 1, 10, 1` contains a process box for `r ← a+b` and an output box for `a, '+', b, '=', c`.
- C++ Code (tabla.cpp):** Shows the implementation of the logic. The code includes `<stdio.h>` and `<conio.h>`. The `main()` function initializes `int a=0, b=0, r=0;`, prompts the user with `printf("Ingrese la tabla de sumar");` and reads the input with `scanf("%i", &a);`. A `for` loop `for (b=1; b<=10; b++){` calculates `r=a+b;` and prints the result with `printf("%i", r);`.
- Visual Basic GUI (Form1):** Shows a graphical interface with a text box labeled "Ingrese la tabla", a "Genera" button, and a list box labeled "mostrar". The code behind the "Genera" button click event is:

```
Private Sub Genera_Click()  
Dim r As Integer  
For b = 1 To 10  
    r = Val(a) + b  
    mostrar.AddItem a + "+" + Str(b) + "=" + Str(r)  
Next  
End Sub
```

# ACUMULDORES Y CONTADORES USANDO FOR

The image displays a development environment with three main components:

- Data Flow Diagram (DFD):** Located on the left, it illustrates the logic of the program. It starts with an initialization process for variables: `valor ← 0`, `cont ← 0`, and `acum ← 0`. A process block sets `veces ← 0`. An input operation `Ingrese el n` is followed by an output operation `veces`. A loop is defined by `Para cont ← 1 , veces, 1`. Inside the loop, there is an input `Ingreso No`, an output `valor`, and a process `acum ← acum + valor`. The loop ends with an output `Cierre` and a final output `acum`.
- C++ Code:** The central window shows the source code for `tabla.cpp`. The code includes `<stdio.h>` and `<conio.h>`. The `main()` function initializes `valor=0, cont=0` and `veces=0, acum=0`. It prompts the user to enter the number of iterations (`veces`) and then uses a `for` loop to calculate the sum of numbers from 1 to `veces`. The final sum is printed as `"La suma Final da %i", acum`.
- Visual Basic GUI:** On the right, the Visual Basic IDE shows a form named `Form1`. It contains an input box labeled `Ingrese El No de Ve`, a `Procesa` button, and a text area labeled `mostrar`. The `Procesa` button's `Click` event is handled by the `Procesa_Click()` subroutine, which uses a `For` loop to calculate the sum and update the `mostrar` text area.