



ESTRUCTURAS DE CONTROL DE REPETICIÓN

FOR, WHILE Y DO-WHILE

FOR

WHILE & DO-WHILE

```
for (inicio; condición; incremento){  
    instrucciones;  
}
```

```
while (condición){  
    instrucciones;  
}
```

```
do{  
    instrucciones;  
}while(condición);
```

FOR

WHILE

DO-WHILE

Ciclo que se repita 5 veces:

```
for (int x= 0; x < 5; x++){  
    instrucciones;  
}
```

```
int x=0;  
while (x < 5){  
    instrucciones;  
    x++;  
}
```

```
int x=0;  
do{  
    instrucciones;  
    x++;  
}while(x < 5);
```

Valor de x en el ciclo 0, 1, 2, 3, 4 = 5 veces. Cuando el valor de x sea 5 se termina

PROBLEMA

Programa que imprime la tabla de multiplicar de X número

LAS TABLAS DE MULTIPLICAR Etapas Infantiles

| | | | | |
|--|--|--|--|---|
| 1 1×1=1 1×2=2 1×3=3 1×4=4 1×5=5 1×6=6 1×7=7 1×8=8 1×9=9 1×10=10 | 2 2×1=2 2×2=4 2×3=6 2×4=8 2×5=10 2×6=12 2×7=14 2×8=16 2×9=18 2×10=20 | 3 3×1=3 3×2=6 3×3=9 3×4=12 3×5=15 3×6=18 3×7=21 3×8=24 3×9=27 3×10=30 | 4 4×1=4 4×2=8 4×3=12 4×4=16 4×5=20 4×6=24 4×7=28 4×8=32 4×9=36 4×10=40 | 5 5×1=5 5×2=10 5×3=15 5×4=20 5×5=25 5×6=30 5×7=35 5×8=40 5×9=45 5×10=50 |
| 6 6×1=6 6×2=12 6×3=18 6×4=24 6×5=30 6×6=36 6×7=42 6×8=48 6×9=54 6×10=60 | 7 7×1=7 7×2=14 7×3=21 7×4=28 7×5=35 7×6=42 7×7=49 7×8=56 7×9=63 7×10=70 | 8 8×1=8 8×2=16 8×3=24 8×4=32 8×5=40 8×6=48 8×7=56 8×8=64 8×9=72 8×10=80 | 9 9×1=9 9×2=18 9×3=27 9×4=36 9×5=45 9×6=54 9×7=63 9×8=72 9×9=81 9×10=90 | 10 10×1=10 10×2=20 10×3=30 10×4=40 10×5=50 10×6=60 10×7=70 10×8=80 10×9=90 10×10=100 |

SOLUCIÓN

```
for (int x = 1; x <= 10; x++){  
    cout << num << " * " << x << " = " << num*x << endl;  
}
```

```
int x=1;  
while (x <= 10){  
    cout << num << " * " << x << " = " << num*x << endl;  
    x++  
}
```

```
int x=1;  
do{  
    cout << num << " * " << x << " = " << num*x << endl;  
    x++  
} while (x <= 10);
```

PROBLEMA

Realizar el factorial de un número mayor de 1

Factorials

$$n! = n(n-1)(n-2)\dots 1$$

$$0! \equiv 1 \text{ (by definition)}$$

$$1! = 1$$

$$2! = 2 \times 1 = 2$$

$$3! = 3 \times 2 \times 1 = 6$$

FOR

```
cout <<"Introduce número: "<<endl;
```

```
cin >> num;
```

```
for (aux=num-1; aux!=1; aux--){
```

```
    num=num*aux;
```

```
    cout<<" * "<<aux;
```

```
}
```

```
Introduce numero:
```

```
5
```

```
* 4 * 3 * 2
```

```
El factorial es: 120
```

```
-----
```

```
Process exited after 1.348 seconds with return value 0
```

```
Press any key to continue . . .
```

WHILE & DO WHILE

```
cout <<"Introduce número:"<<endl;  
cin >> num;
```

```
aux=num;
```

```
while (aux!=1){  
    aux--;  
    num=num*aux;  
    cout<<" * "<<aux;  
}
```

```
cout <<"Introduce número:"<<endl;  
cin >> num;
```

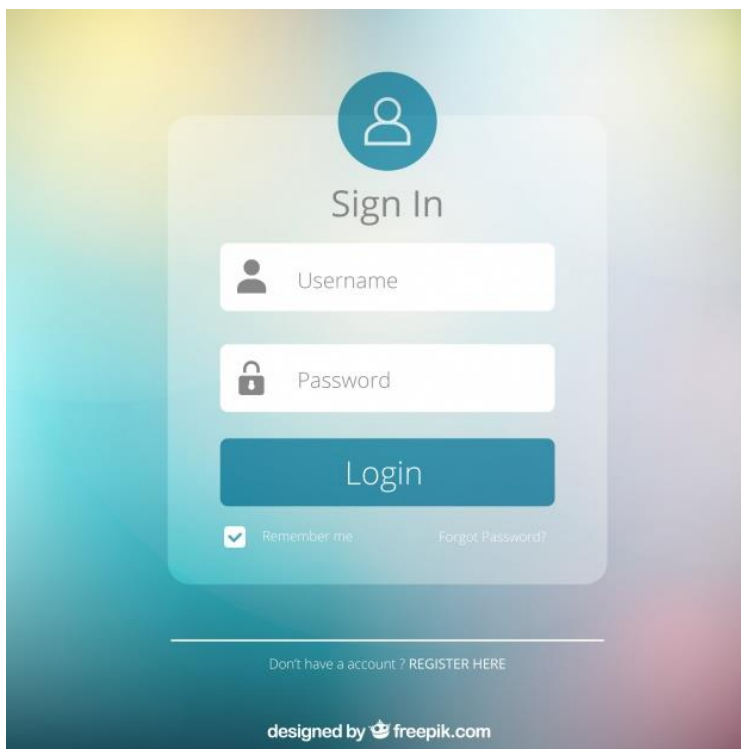
Si num = 1 nos dará valor de 0

```
aux=num;
```

```
do{  
    aux--;  
    num=num*aux;  
    cout<<" * "<<aux;  
} while (aux!=1);
```


PROBLEMA

Simula el ingreso a un sitio con usuario y contraseña



A mockup of a 'Sign In' form. The form is centered on a blurred background with a teal-to-yellow gradient. At the top is a teal circle with a white user icon. Below it is the text 'Sign In'. The form contains two input fields: 'Username' with a user icon and 'Password' with a lock icon. Below these is a teal 'Login' button. At the bottom left is a checked checkbox labeled 'Remember me', and at the bottom right is a link 'Forgot Password?'. Below the form is a horizontal line and the text 'Don't have a account ? REGISTER HERE'. At the very bottom is the text 'designed by freepik.com'.

DO-WHILE

```
do{  
    cout << "Nombre de Usuario: " << endl;  
    cin >> usuario;  
    cout << "Contraseña: " << endl;  
    cin >> clave;  
  
} while (usuario != "contEM" && clave != "1234");
```

Se repite al menos una vez, sin importar que la condición sea falsa

TAREA. REALIZAR LOS EJERCICIOS EN DEV C++ CON FOR, WHILE & DO-WHILE

Mostrar el Fibonacci de cierta cantidad de números

ENTRADA

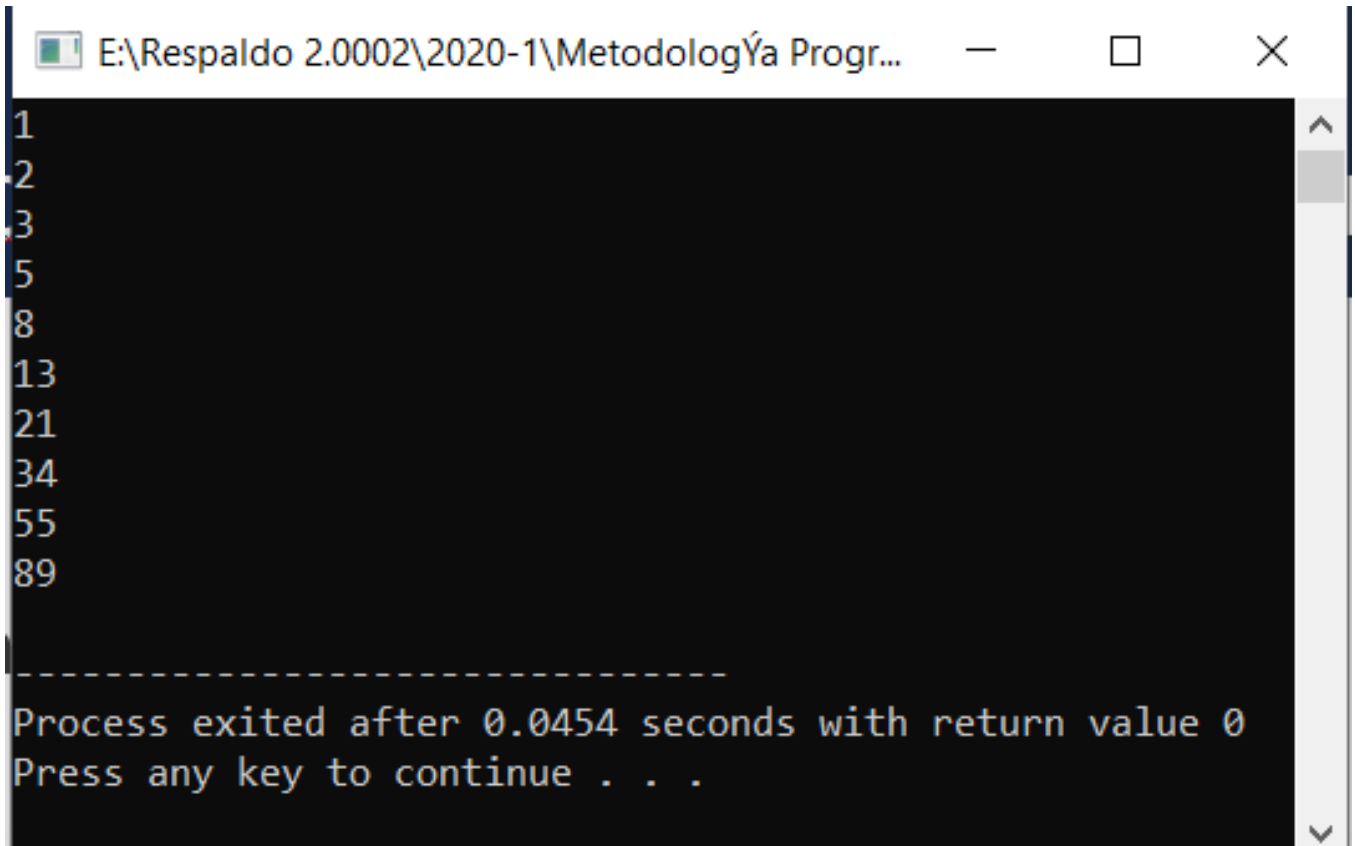
número

PROCESO

Calcular el incremento

SALIDA

Mostrar los números



The screenshot shows a Windows command prompt window with the title bar "E:\Respaldo 2.0002\2020-1\MetodologÍa Progr...". The window contains the following text:

```
1
2
3
5
8
13
21
34
55
89
-----
Process exited after 0.0454 seconds with return value 0
Press any key to continue . . .
```

TAREA. REALIZAR LOS EJERCICIOS EN DEV C++ CON FOR, WHILE & DO-WHILE

Mostrar los números impares del 1 al 45

ENTRADA

ninguna

PROCESO

Recorrer los números del 1 al 45

Preguntar si el número es impar

SALIDA

Mostrar los números

1
3
5
7
9
...
41
43
45



GRACIAS POR SU ATENCIÓN

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