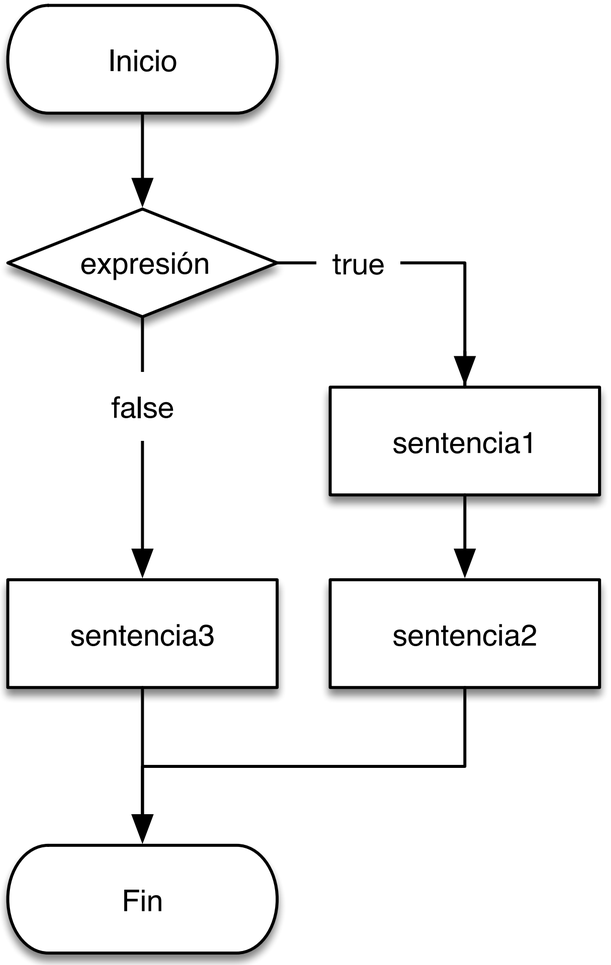
Swift 6

Estructuras de control

Alternativa simple: if

Alternativa simple: if

```
if expresión {
    sentencia1
    sentencia2
}
else {
    sentencia3
}
```



Alternativa simple: if

```
var temperatureInFahrenheit = 30

if temperatureInFahrenheit <= 32 {
    print("It's very cold. Consider wearing a scarf.")
}
```

Alternativa simple: if

```
temperatureInFahrenheit = 90

if temperatureInFahrenheit <= 32 {
    print("It's very cold. Consider wearing a scarf.")
} else if temperatureInFahrenheit >= 86 {
    print("It's really warm. Don't forget to wear sunscreen.")
} else {
    print("It's not that cold. Wear a t-shirt.")
}
```

Guard

Se usa para verificar condiciones que deben cumplirse antes de continuar.

Si la condición es falsa, se ejecuta un bloque *else* que generalmente termina la función o bucle.

```
func procesarNombre(_ nombre: String?) {
    guard let nombre = nombre, !nombre.isEmpty else {
        print("Error: Nombre inválido.")
        return
    }
    print("Hola, \(nombre)!")
}
```

Escribe un programa que reciba un número y determine si es **positivo**, **negativo** o **cero** usando condicionales.

Crea una función que valide un email y lo imprima solo si no está vacío y contiene el carácter `@`.

Operadores: relacionales y lógicos

Operadores relacionales

Operador	Operación
==	Igual
!=	Distinto
>	Mayor que
<	Menor que
>=	Mayor o igual que
<=	Menor o igual que
===	Idéntico
!==	No idéntico
`c ? a:b`	Si c, entonces a. Si no c, entonces b.

Operadores relacionales

```
1 == 1   // true because 1 is equal to 1
2 != 1   // true because 2 is not equal to 1
2 > 1    // true because 2 is greater than 1
1 < 2    // true because 1 is less than 2
1 >= 1   // true because 1 is greater than or equal to 1
2 <= 1   // false because 2 is not less than or equal to 1
```

Operadores relacionales

```
let name = "world"
if name == "world" {
    print("hello, world")
} else {
    print("I'm sorry \(name), but I don't recognize you")
}
// Prints "hello, world", because name is indeed equal to "world".
```

Comparar tuplas

```
(1, "zebra") < (2, "apple")   // true because 1 is less than 2; "zebra" and "apple" are not compared
(3, "apple") < (3, "bird")    // true because 3 is equal to 3, and "apple" is less than "bird"
(4, "dog") == (4, "dog")      // true because 4 is equal to 4, and "dog" is equal to "dog"

("blue", -1) < ("purple", 1)        // OK, evaluates to true
("blue", false) < ("purple", true)  // Error because < can't compare Boolean values
```

Operador ternario

```
let contentHeight = 40
let hasHeader = true
let rowHeight = contentHeight + (hasHeader ? 50 : 20)
// rowHeight is equal to 90
```

Operadores lógicos

Operador	Operación
!	Negación lógica, NOT
&&	Conjunción lógica, AND
II	Disyunción lógica, OR

Operador NOT (!)

```
let allowedEntry = false
if !allowedEntry {
    print("ACCESS DENIED")
}
// Prints "ACCESS DENIED"
```

Operador AND (&&)

```
let enteredDoorCode = true
let passedRetinaScan = false
if enteredDoorCode && passedRetinaScan {
    print("Welcome!")
} else {
    print("ACCESS DENIED")
}
// Prints "ACCESS DENIED"
```

Operador OR (||)

```
let hasDoorKey = false
let knowsOverridePassword = true
if hasDoorKey || knowsOverridePassword {
    print("Welcome!")
} else {
    print("ACCESS DENIED")
}
// Prints "Welcome!"
```

Combinar operadores lógicos

```
let enteredDoorCode = true
let passedRetinaScan = false
let hasDoorKey = false
let knowsOverridePassword = true

if enteredDoorCode && passedRetinaScan || hasDoorKey || knowsOverridePassword {
    print("Welcome!")
} else {
    print("ACCESS DENIED")
}
// Prints "Welcome!"
```

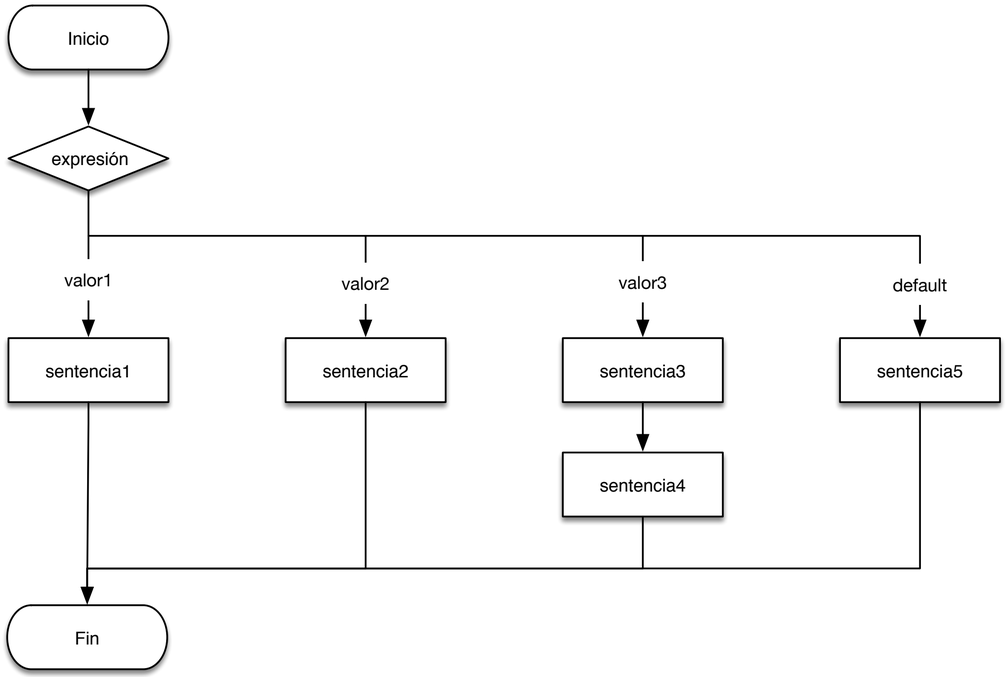
Paréntesis explícitos

```
let enteredDoorCode = true
let passedRetinaScan = false
let hasDoorKey = false
let knowsOverridePassword = true

if (enteredDoorCode && passedRetinaScan) || hasDoorKey || knowsOverridePassword {
    print("Welcome!")
} else {
    print("ACCESS DENIED")
}
// Prints "Welcome!"
```

Alternativa múltiple: switch

Alternativa múltiple: switch

```
switch variable {
case valor:
    sentencia
    sentencia
    ...
case valor:
    sentencia
    ...
default:
    sentencia
}
```



Alternativa múltiple: switch

```
let someCharacter: Character = "z"

switch someCharacter {
case "a":
    print("The first letter of the alphabet")
case "z":
    print("The last letter of the alphabet")
default:
    print("Some other character")
}
```

Alternativa múltiple: switch

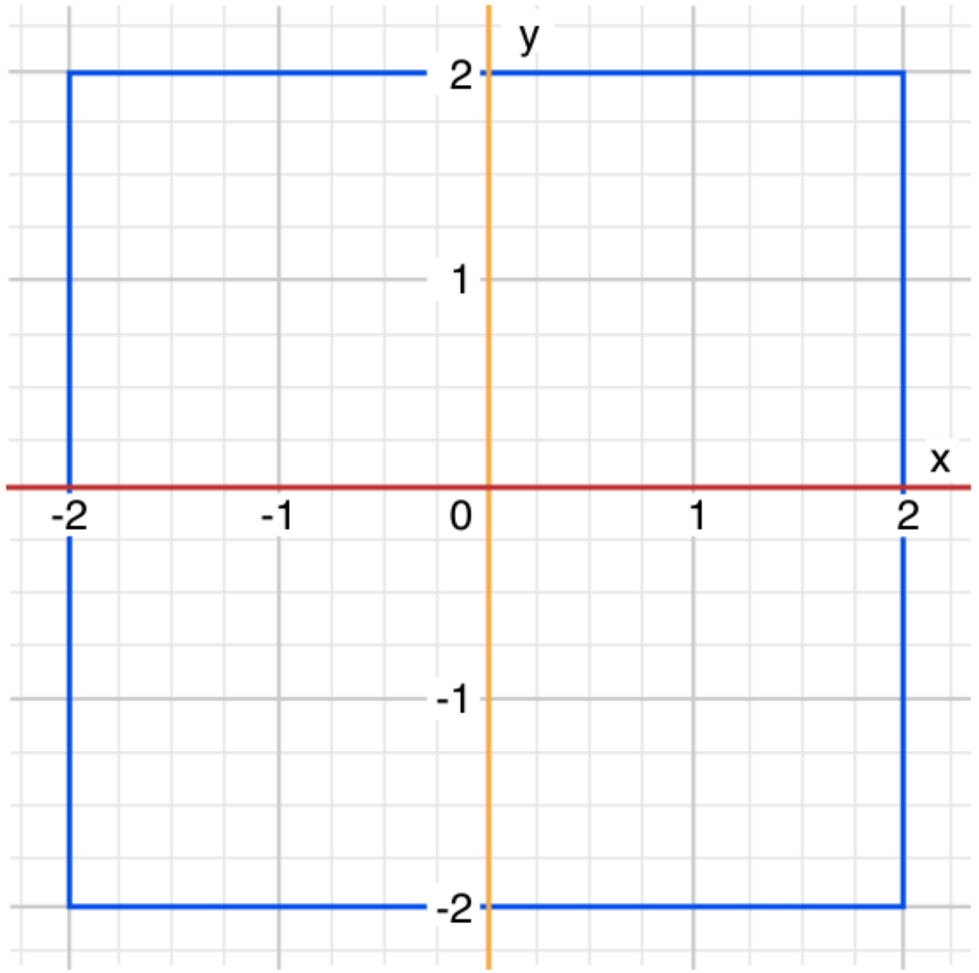
- A diferencia de en C o Java, no hace falta **break** en cada caso
- No hay *fallthrough* automático
- No puede haber casos vacíos
- Debe evaluar todos los casos posibles o tener **default**
- Se puede afinar más la condición usando **where**
- Admite intervalos y tuplas

Switch con intervalos

```
let approximateCount = 62
let countedThings = "moons orbiting Saturn"
var naturalCount: String

switch approximateCount {
case 0:
    naturalCount = "no"
case 1..<5:
    naturalCount = "a few"
case 5..<12:
    naturalCount = "several"
case 12..<100:
    naturalCount = "dozens of"
case 100..<1000:
    naturalCount = "hundreds of"
default:
    naturalCount = "many"
}

print("There are \(naturalCount) \(countedThings).")
```

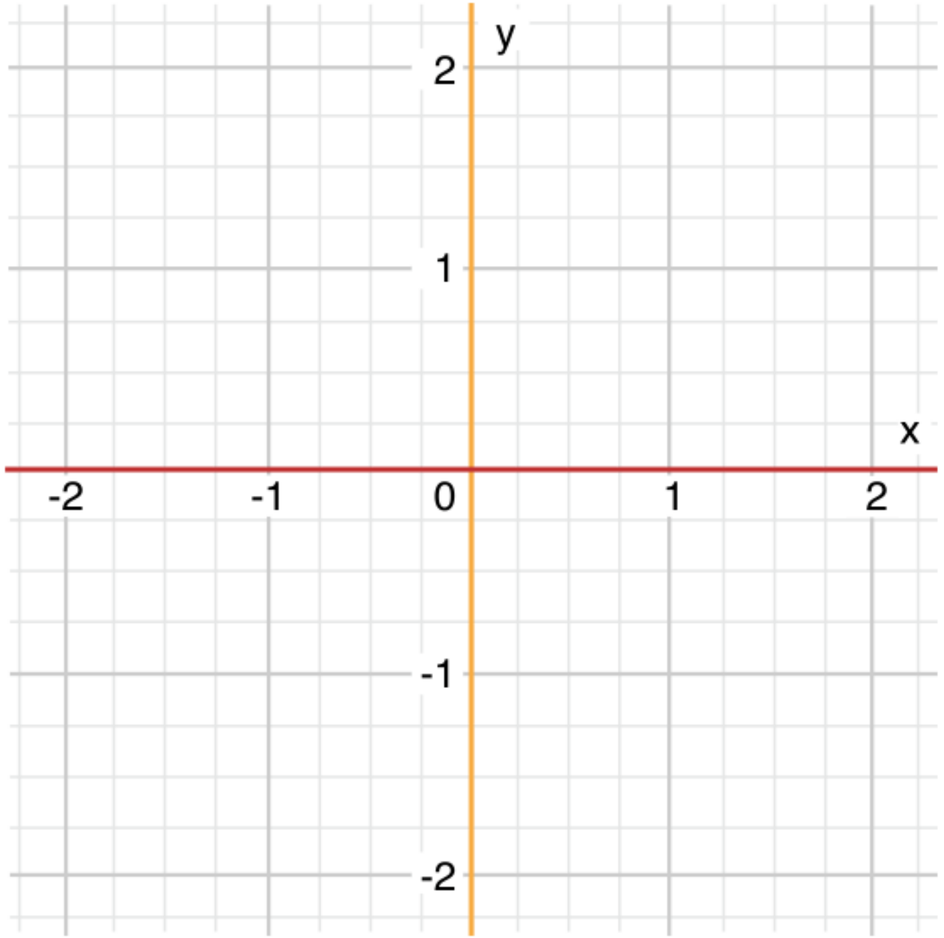
Switch con tuplas

```
let somePoint = (1, 1)

switch somePoint {
case (0, 0):
    print("(0, 0) is at the origin")
case (_, 0):
    print("(\(somePoint.0), 0) is on the x-axis")
case (0, _):
    print("(0, \(somePoint.1)) is on the y-axis")
case (-2...2, -2...2):
    print("(\(somePoint.0), \(somePoint.1)) is inside the box")
default:
    print("(\(somePoint.0), \(somePoint.1)) is outside of the box")
}
```



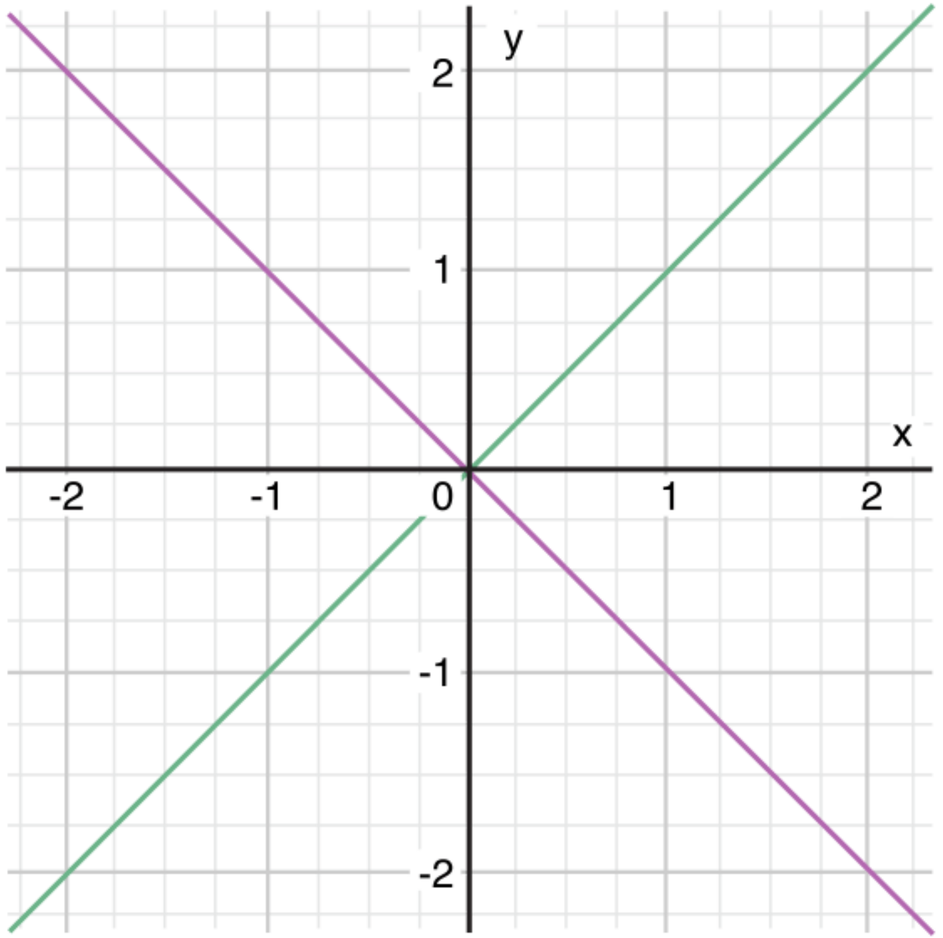
Value bindings

```
let anotherPoint = (2, 0)

switch anotherPoint {
case (let x, 0):
    print("on the x-axis with an x value of \(x)")
case (0, let y):
    print("on the y-axis with a y value of \(y)")
case let (x, y):
    print("somewhere else at (\(x), \(y))")
}
```



Switch con where

```
let yetAnotherPoint = (1, -1)

switch yetAnotherPoint {
case let (x, y) where x == y:
    print("(\(x), \(y)) is on the line x == y")
case let (x, y) where x == -y:
    print("(\(x), \(y)) is on the line x == -y")
case let (x, y):
    print("(\(x), \(y)) is just some arbitrary point")
}
```



Switch con where

```
let valor = 5
switch valor {
case 1:
    print("Es 1")
case 2, 3:
    print("Es 2 o 3")
case let x where x > 3:
    print("Es mayor que 3: \(x)")
default:
    print("Ningún caso coincidió")
}
```

Casos compuestos

```
let someCharacter: Character = "e"

switch someCharacter {
case "a", "e", "i", "o", "u":
    print("\(someCharacter) is a vowel")
case "b", "c", "d", "f", "g", "h", "j", "k", "l", "m",
     "n", "p", "q", "r", "s", "t", "v", "w", "x", "y", "z":
    print("\(someCharacter) is a consonant")
default:
    print("\(someCharacter) is not a vowel or a consonant")
}
```

Transferencia de control

- Se puede poner **break** en un caso para cortar la ejecución y forzar a que el switch termine
- El uso de **break** permite escribir casos vacíos en el switch (un comentario no basta, daría error)

Fallthrough

```
let integerToDescribe = 5

var description = "The number \(integerToDescribe) is"

switch integerToDescribe {
case 2, 3, 5, 7, 11, 13, 17, 19:
    description += " a prime number, and also"
    fallthrough
default:
    description += " an integer."
}

print(description)
```

Crea un programa que reciba un número del 1 al 7 y muestre el día de la semana correspondiente.

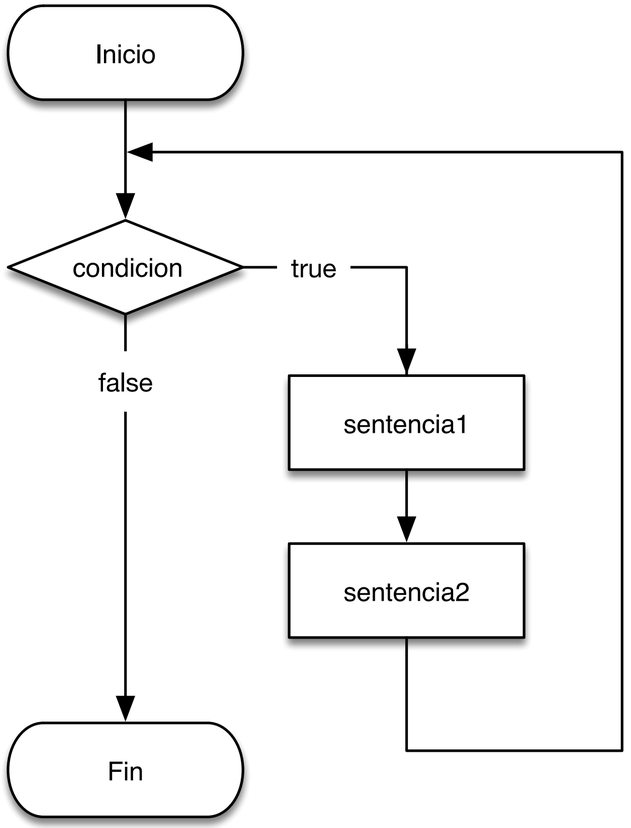
Repetitivas

Repetitivas

0 → n	1 → n	n
while	repeat-while	for-in
Puede que nunca se ejecute	Se ejecuta por lo menos una vez	Recorre los elementos de un intervalo o colección

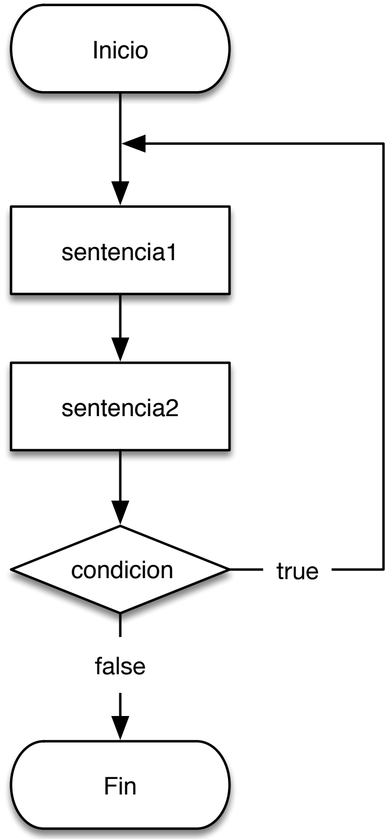
while

```
var i = 0

while i < 3 {
    print("W: El valor de i es: \(i)")
    i += 1
}
```



repeat-while

```
var j = 0

repeat {
    print("RW: El valor de j es: \(j)")
    j += 1
} while j < 3
```



for-in

```
for index in 1...5 {
    print("\(index) times 5 is \(index * 5)")
}
```

for-in

```
let base = 3
let power = 10

var answer = 1

for _ in 1...power {
    answer *= base
}

print("\(base) to the power of \(power) is \(answer)")
```

for-in

```
let names = ["Anna", "Alex", "Brian", "Jack"]
for name in names {
    print("Hello, \(name)!")
}
```

```
let numberOfLegs = ["spider": 8, "ant": 6, "cat": 4]
for (animalName, legCount) in numberOfLegs {
    print("\(animalName)s have \(legCount) legs")
}
```

Transferencia de control

- Se puede poner **break** dentro de un bucle para cortar la repetición actual y forzar a que el bucle termine
- Se puede utilizar **continue** dentro de un bucle para terminar la repetición actual y pasar a la siguiente
- Se pueden utilizar etiquetas para definir a quien afecta un posible **break** o **continue**

Operadores: rangos

Operadores de rango

Operador	Operación	Ejemplo	Valores
n...m	Rango cerrado	1...5	1, 2, 3, 4, 5
n..<m	Rango semicerrado	1..<5	1, 2, 3, 4
n... ...n	Rango cerrado por un lado	2... ...2	2, 3, 4, ... final comienzo ... 1, 2
..<n	Rango semicerrado por un lado	..<2	0, 1

Rango cerrado

```
for index in 1...5 {
    print("\(index) times 5 is \(index * 5)")
}
```

Rango semicerrado

```
let names = ["Anna", "Alex", "Brian", "Jack"]
let count = names.count

for i in 0..<count {
    print("Person \(i + 1) is called \(names[i])")
}
```

Rangos de un solo lado

```
for name in names[2...] {
    print(name)
}

for name in names[...2] {
    print(name)
}

for name in names[..<2] {
    print(name)
}
```

Simulador de Control de Acceso: aplicar if, switch, bucles como for y while, y la declaración guard.

1. Crea un programa que simule un sistema básico de control de acceso a un evento.
2. Para ello, define un arreglo de nombres permitidos (["Ana", "Carlos", "María", "Luis"]).
3. Solicita al usuario su nombre e identifica si puede entrar o no usando:
   - Un if para comparar si el nombre está en la lista.
   - Un switch para asignar diferentes mensajes dependiendo del nombre (por ejemplo, si es "Ana" o "Carlos", darles un saludo especial por ser VIP).
4. Usa un bucle while para seguir pidiendo nombres hasta que el usuario ingrese "Salir".
5. Añade una validación con guard para asegurarte de que el nombre ingresado no esté vacío.

Gestión de errores

Excepciones

```
func canThrowAnError() throws {
    // this function may or may not throw an error
}

do {
    try canThrowAnError()
    // no error was thrown
} catch {
    // an error was thrown
}
```

Salida temprana

```
func greet(person: [String: String]) {
    guard let name = person["name"] else {
        return
    }

    print("Hello \(name)!")

    guard let location = person["location"] else {
        print("I hope the weather is nice near you.")
        return
    }

    print("I hope the weather is nice in \(location).")
}

greet(person: ["name": "John"])

greet(person: ["name": "Jane", "location": "Cupertino"])
```

Comprobar versión de API

Comprobar versión de API

```
if #available(iOS 10, macOS 10.12, *) {
    // Use iOS 10 APIs on iOS, and use macOS 10.12 APIs on macOS
} else {
    // Fall back to earlier iOS and macOS APIs
}
```