The Swift Programming Language

Part 4 – Control Flows

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What We’re Going to Learn?

Conditional Statements

Switch Statements

Control Transfer

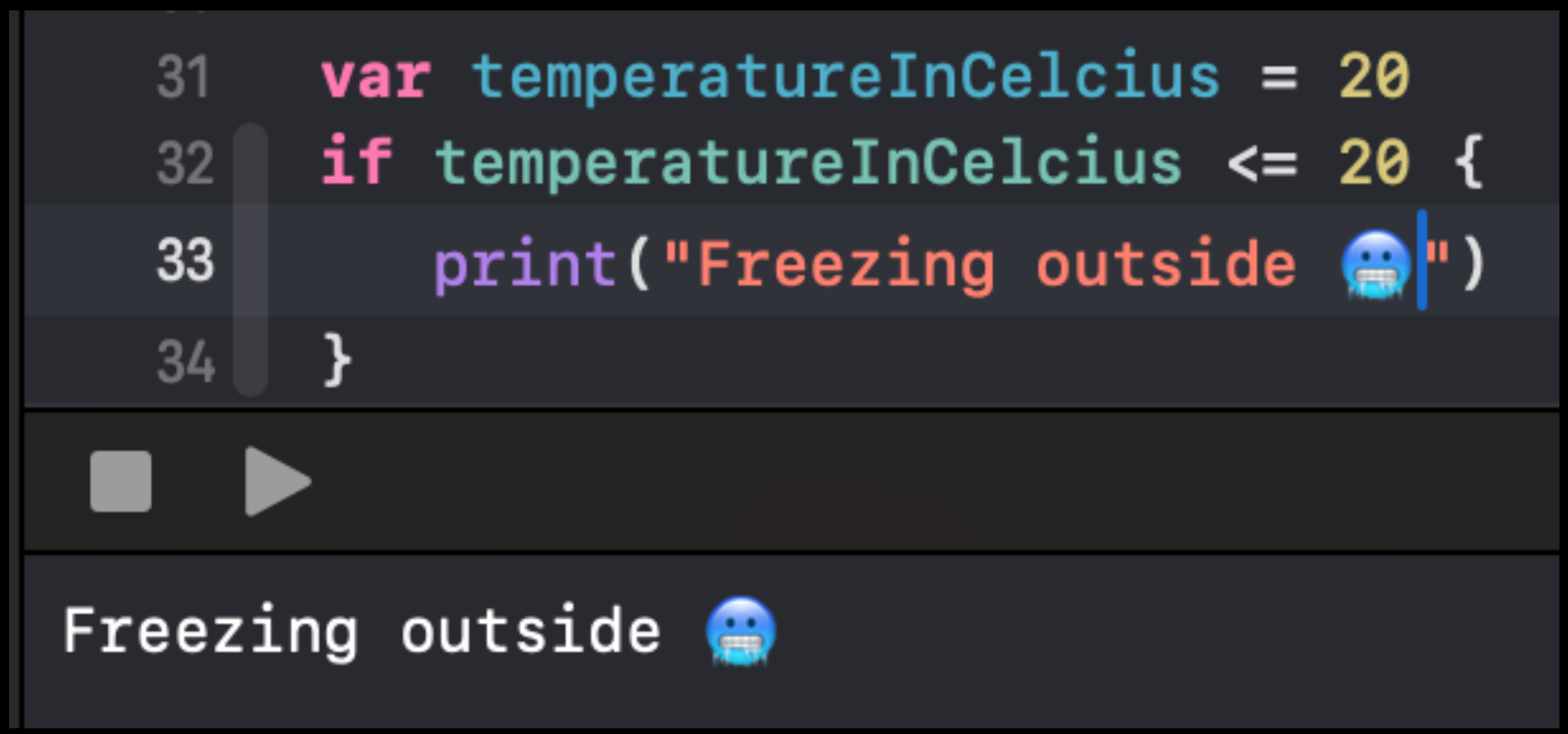
For Loop

While Loop

Conditional Statements

If statement

- If statement will execute a series of statements if the condition is only true
- Example:



```swift
var temperatureInCelcius = 20
if temperatureInCelcius <= 20 {
    print("Freezing outside 🥶")
}
```

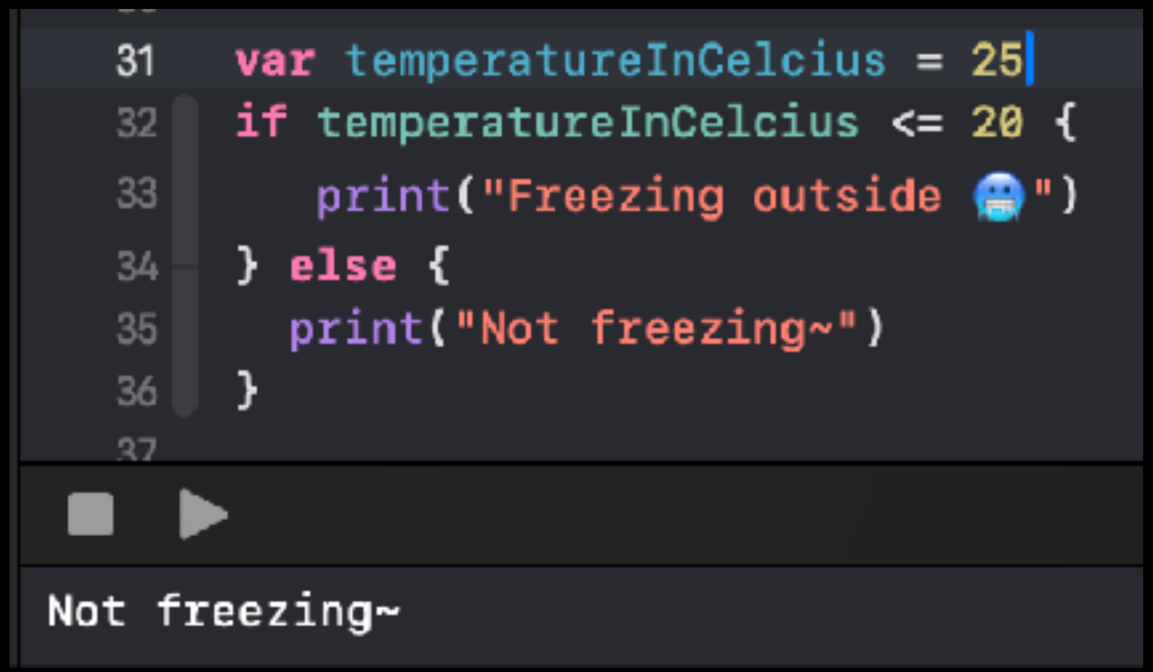
```
Freezing outside 🥶
```

Conditional Statements

If - else statement

- If else statement executes a series of statements if the true state will run to if, otherwise it will run to else

- Example:



```
var temperatureInCelcius = 25
if temperatureInCelcius <= 20 {
   print("Freezing outside 🥶")
} else {
  print("Not freezing~")
}
```

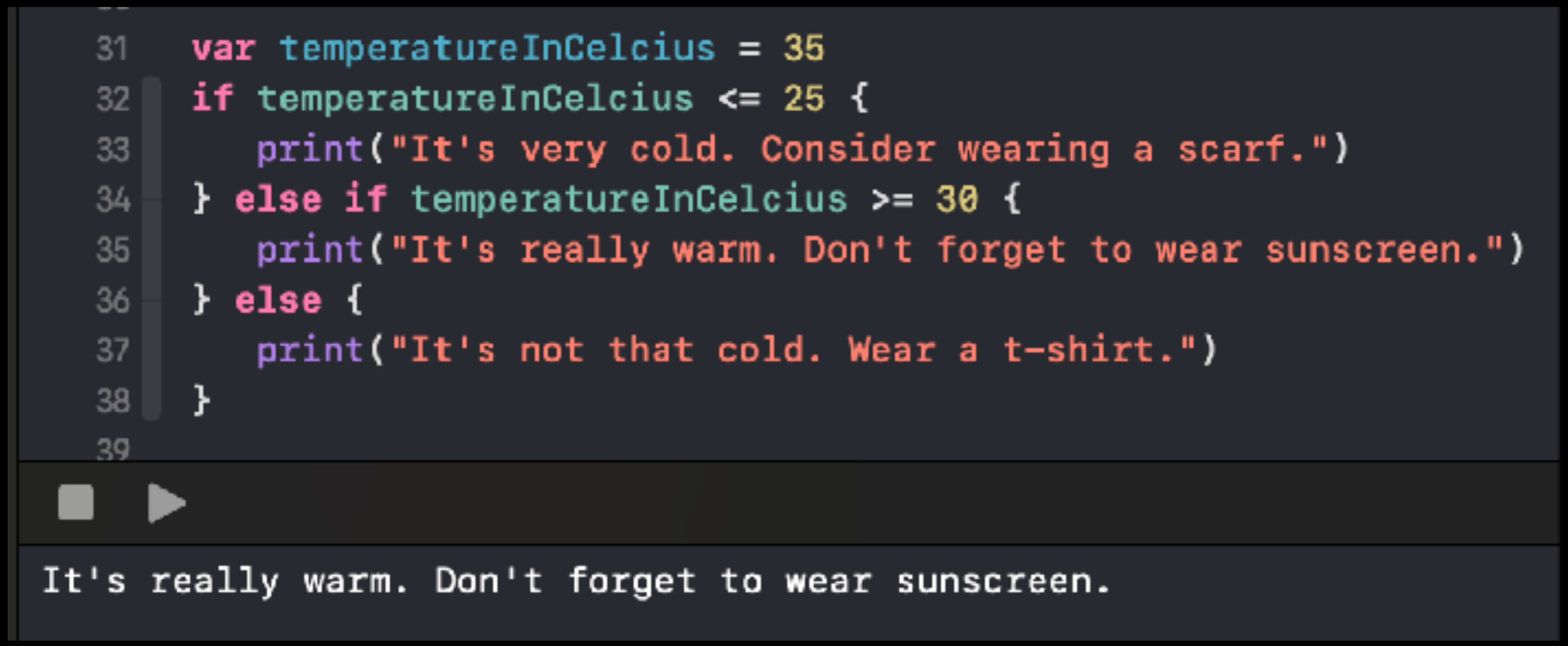
```
Not freezing~
```

Conditional Statements

If - else if - else statement

- If - else if and else statements will execute a series of statements. If the condition meets (true) in if then enter if, otherwise it will enter else if, and if nothing (false) matches in if and else if it will run to the else statement else

- Example:



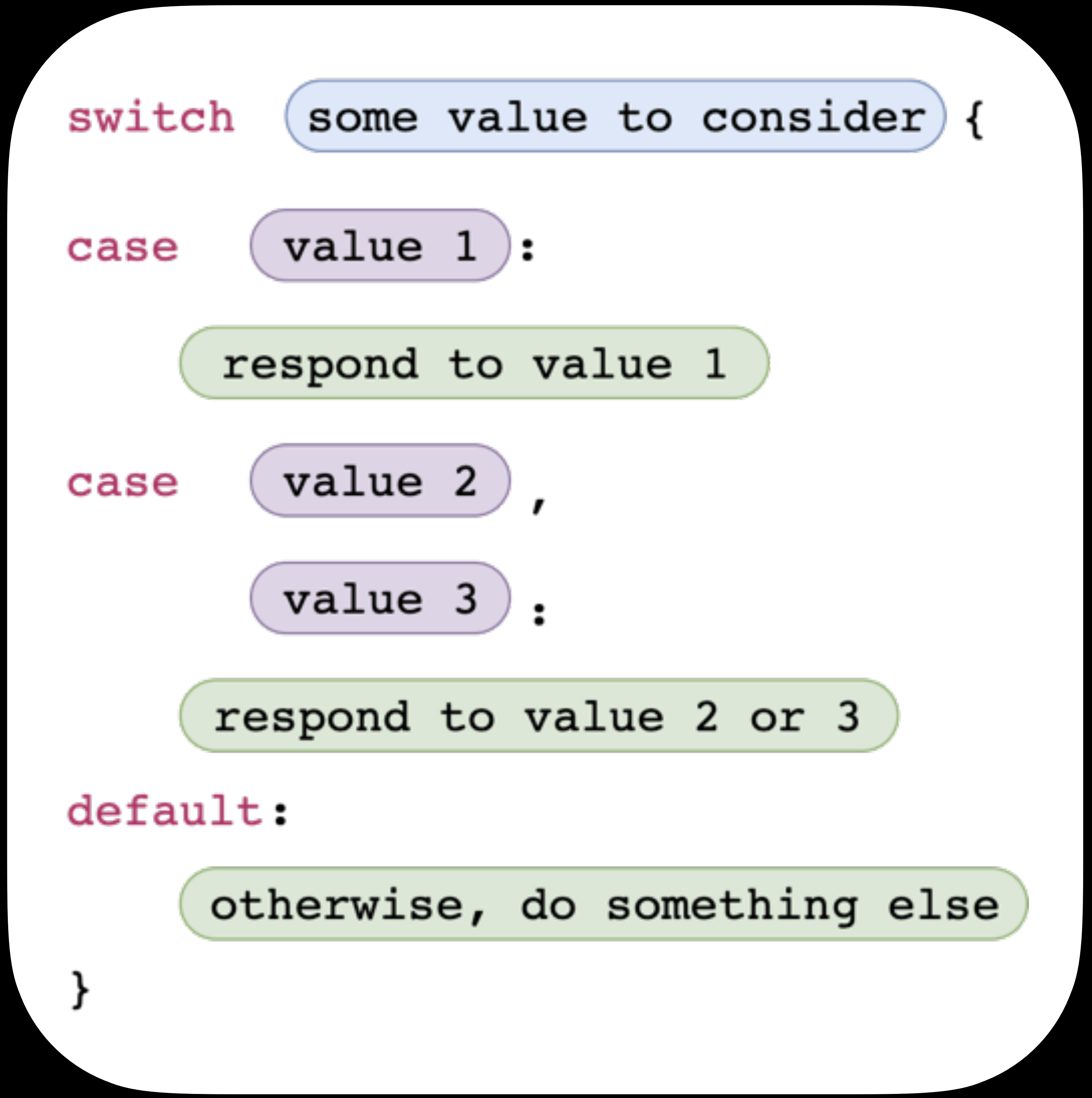
```
var temperatureInCelcius = 35
if temperatureInCelcius <= 25 {
   print("It's very cold. Consider wearing a scarf.")
} else if temperatureInCelcius >= 30 {
   print("It's really warm. Don't forget to wear sunscreen.")
} else {
   print("It's not that cold. Wear a t-shirt.")
}
```

```
It's really warm. Don't forget to wear sunscreen.
```

Switch Statements

The switch and case introduction

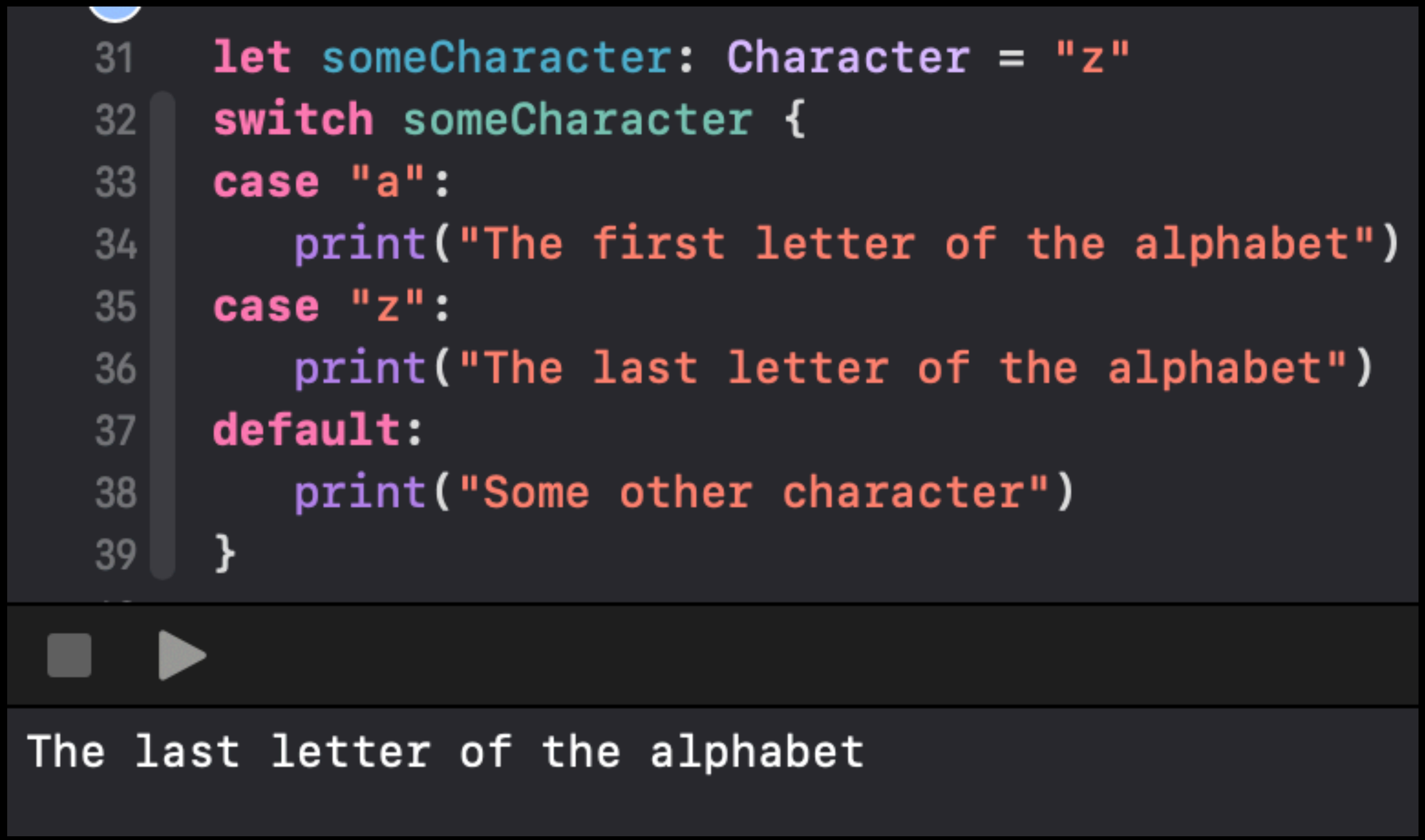
- The switch serves to consider the value and compare it with several possible matching patterns. If you have found a matching pattern, the switch statement will execute the corresponding code. The switch statement provides an alternative to a statement by responding to some potential conditions.



```
switch  some value to consider {
case  value 1 :
    respond to value 1
case  value 2 ,
      value 3 :
    respond to value 2 or 3
default:
    otherwise, do something else
}
```

Switch Statements

Example codes, Part 1 – Simple

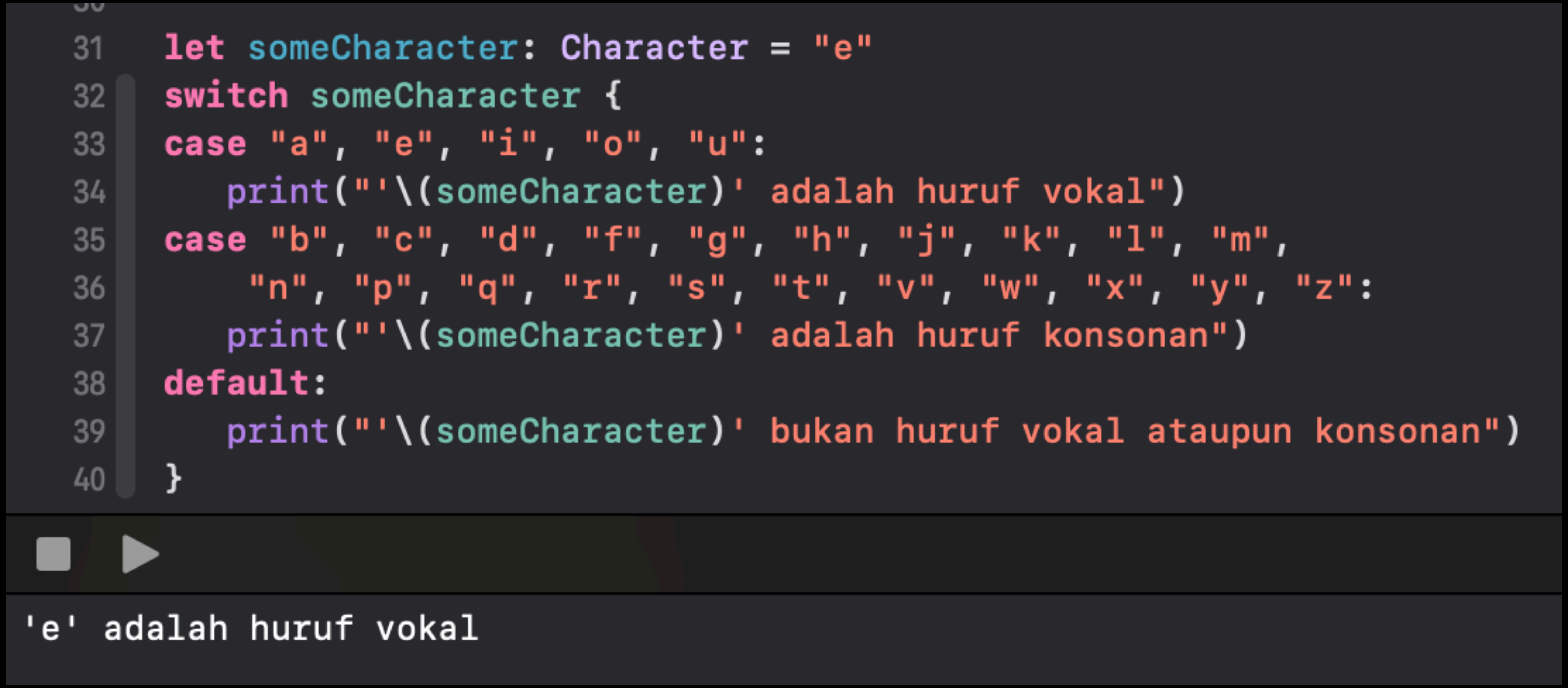


```swift
let someCharacter: Character = "z"
switch someCharacter {
case "a":
    print("The first letter of the alphabet")
case "z":
    print("The last letter of the alphabet")
default:
    print("Some other character")
}
```

```
The last letter of the alphabet
```

Switch Statements

Example codes, Part 2 – More than one cases

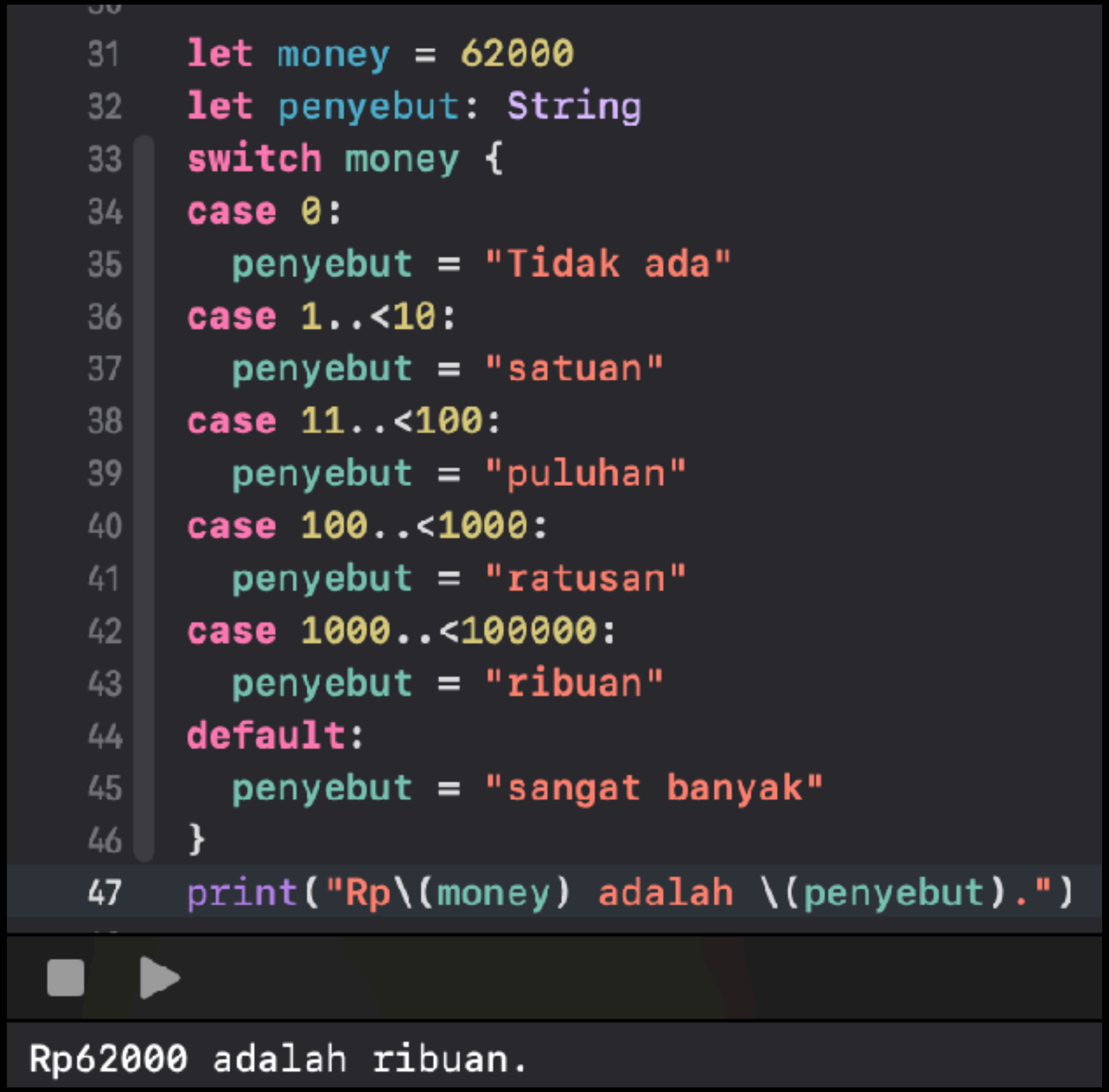


```swift
let someCharacter: Character = "e"
switch someCharacter {
case "a", "e", "i", "o", "u":
   print("'\(someCharacter)' adalah huruf vokal")
case "b", "c", "d", "f", "g", "h", "j", "k", "l", "m",
    "n", "p", "q", "r", "s", "t", "v", "w", "x", "y", "z":
   print("'\(someCharacter)' adalah huruf konsonan")
default:
   print("'\(someCharacter)' bukan huruf vokal ataupun konsonan")
}
```

```
'e' adalah huruf vokal
```

Switch Statements

Example codes, Part 3 – Interval matches



```
let money = 62000
let penyebut: String
switch money {
case 0:
  penyebut = "Tidak ada"
case 1..<10:
  penyebut = "satuan"
case 11..<100:
  penyebut = "puluhan"
case 100..<1000:
  penyebut = "ratusan"
case 1000..<100000:
  penyebut = "ribuan"
default:
  penyebut = "sangat banyak"
}
print("Rp\(money) adalah \(penyebut).")
```

```
Rp62000 adalah ribuan.
```

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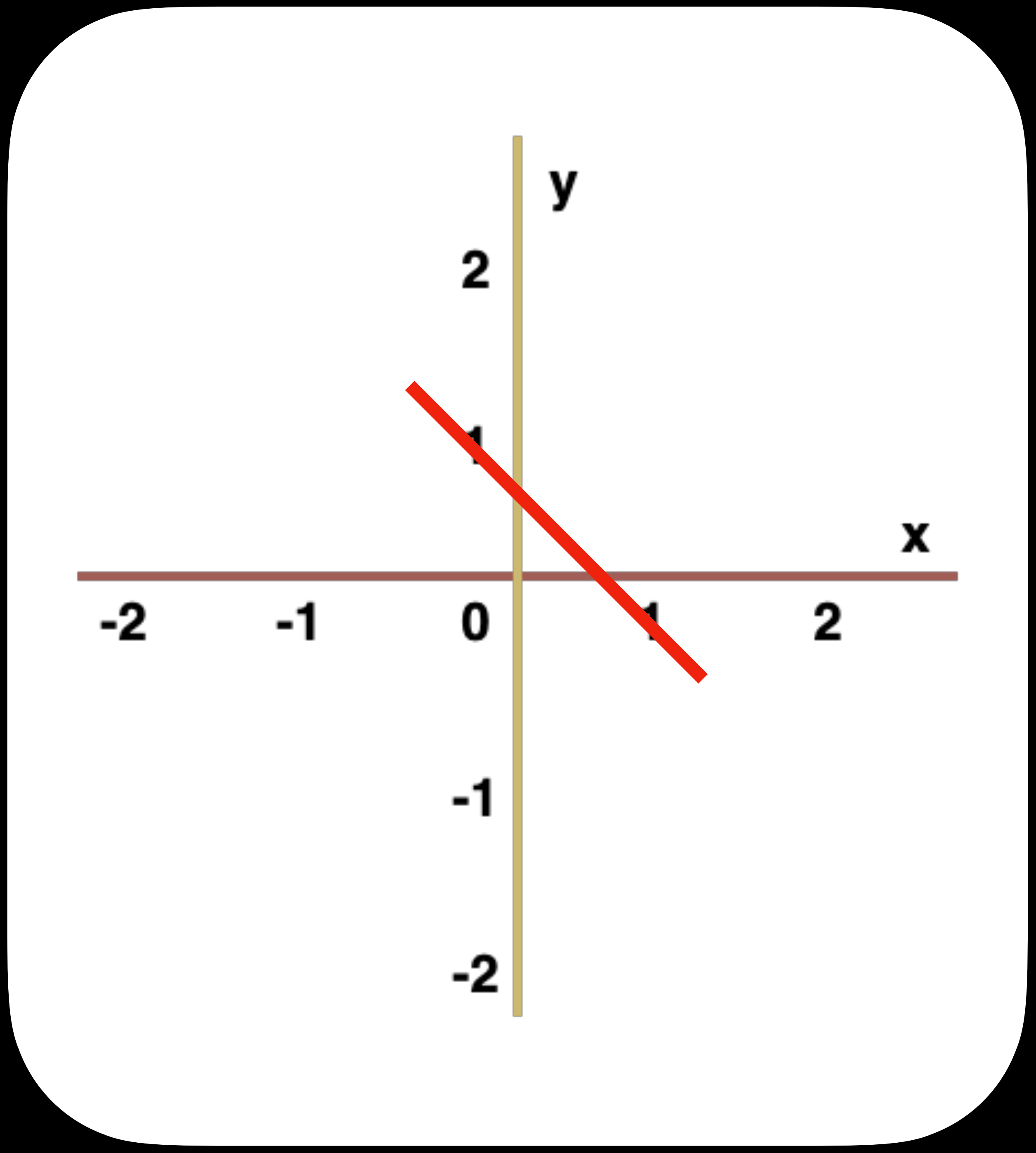
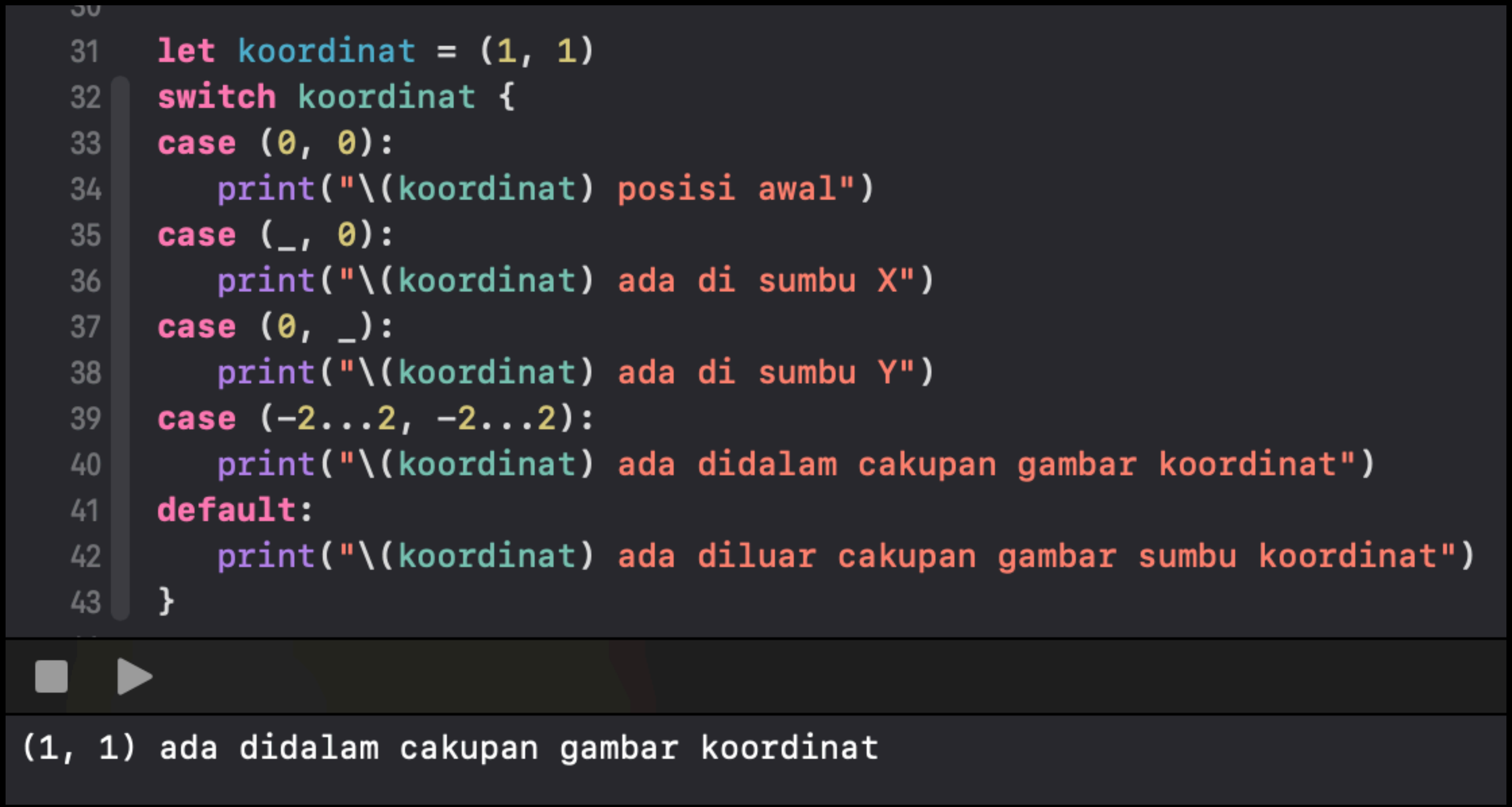
Switch Statements

Example codes, Part 4 – Switches feat. Tuples



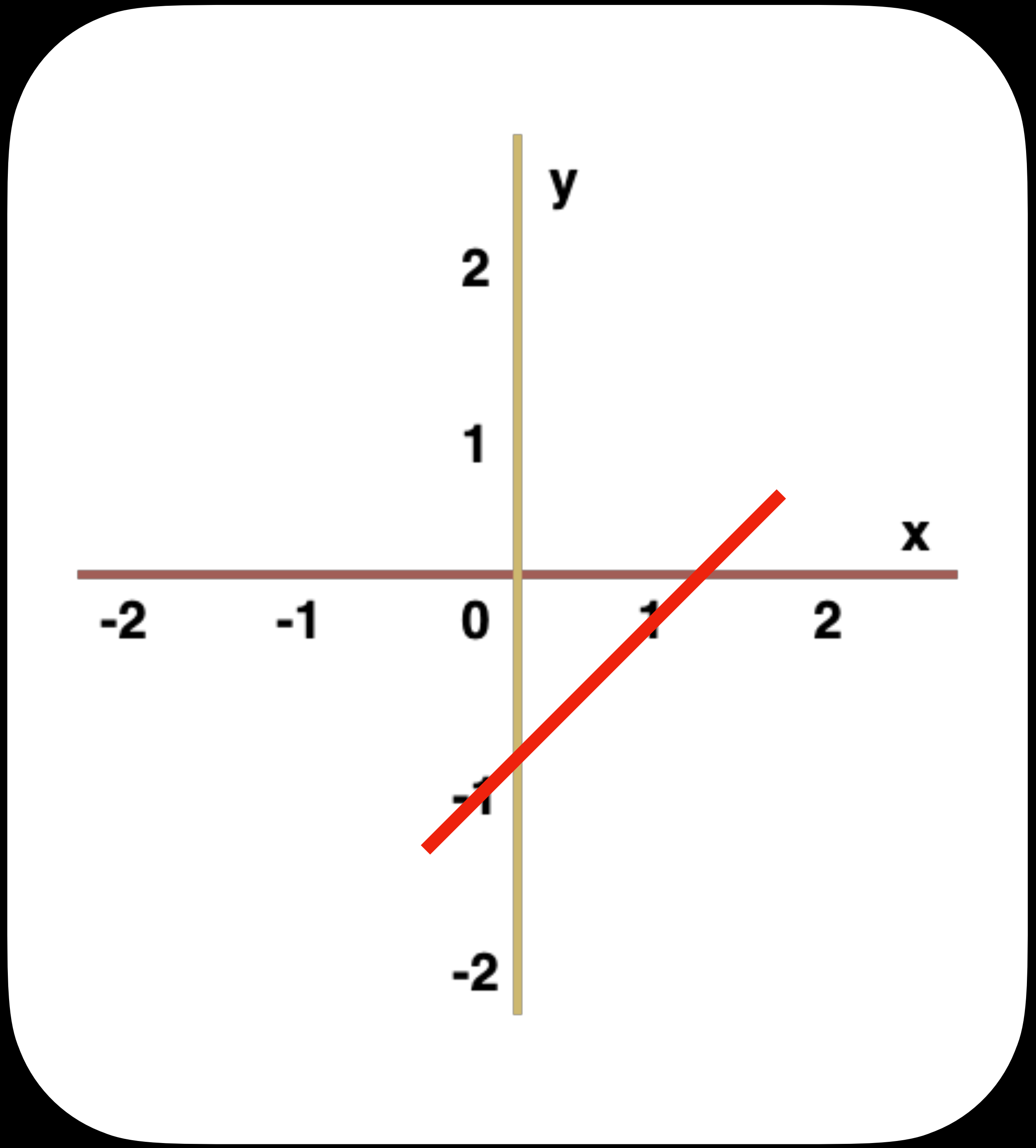


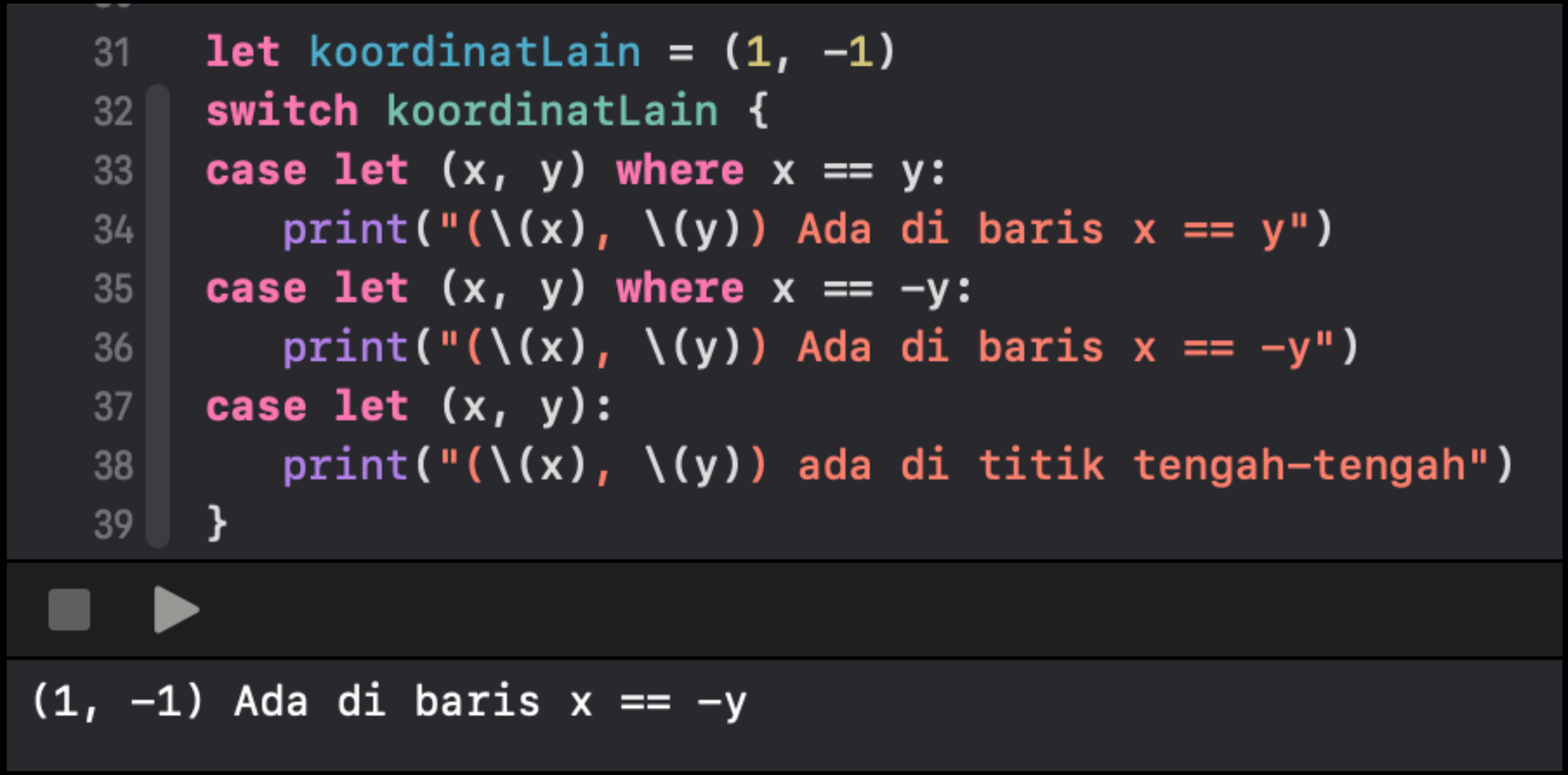
```swift
let koordinat = (1, 1)
switch koordinat {
case (0, 0):
    print("\(koordinat) posisi awal")
case (_, 0):
    print("\(koordinat) ada di sumbu X")
case (0, _):
    print("\(koordinat) ada di sumbu Y")
case (-2...2, -2...2):
    print("\(koordinat) ada didalam cakupan gambar koordinat")
default:
    print("\(koordinat) ada diluar cakupan gambar sumbu koordinat")
}
```

```
(1, 1) ada didalam cakupan gambar koordinat
```

Switch Statements

Example codes, Part 5 – Switches feat. Tuples with Where Clause





```
let koordinatLain = (1, -1)
switch koordinatLain {
case let (x, y) where x == y:
    print("(\(x), \(y)) Ada di baris x == y")
case let (x, y) where x == -y:
    print("(\(x), \(y)) Ada di baris x == -y")
case let (x, y):
    print("(\(x), \(y)) ada di titik tengah-tengah")
}
```

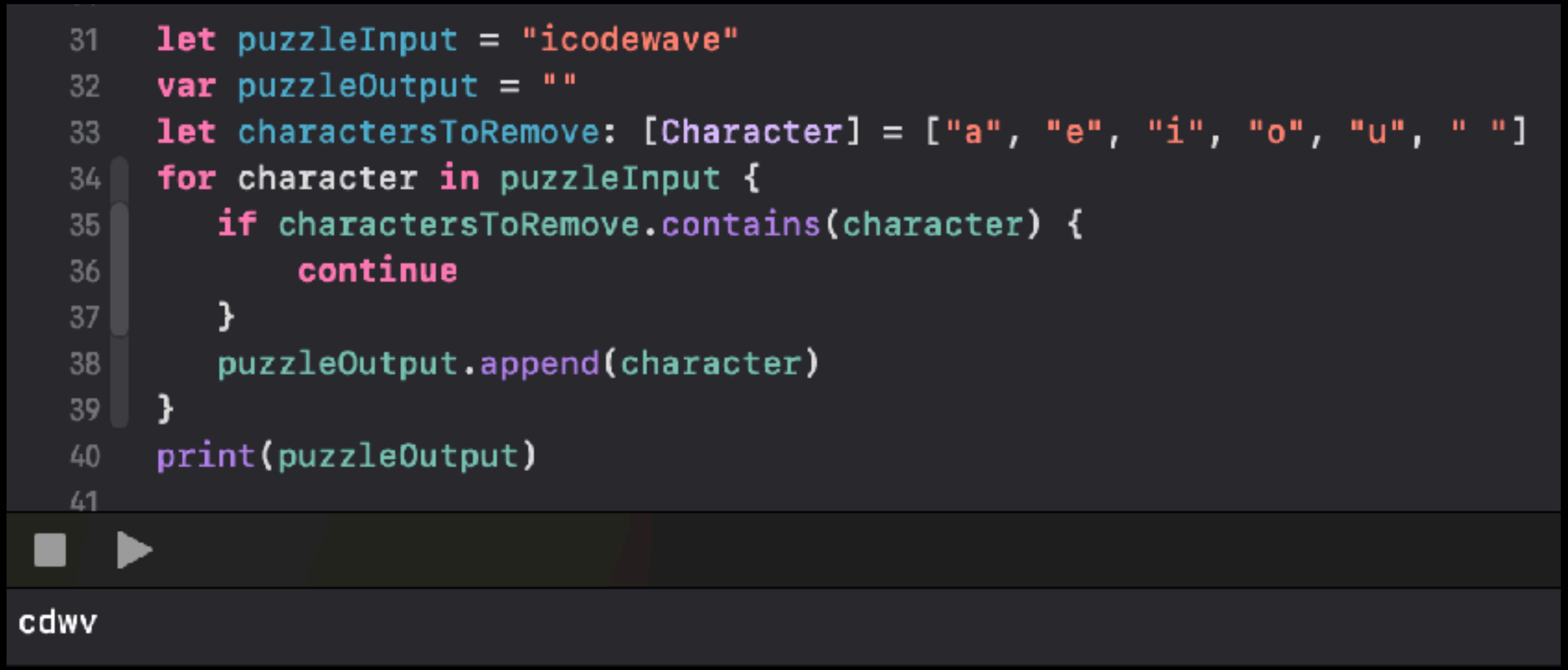
```
(1, -1) Ada di baris x == -y
```

Control Transfer

Continue statement

- Continue statement will tell a loop to stop what it is doing and restart it in the next iteration via loop

- Example:



```
let puzzleInput = "icodewave"
var puzzleOutput = ""
let charactersToRemove: [Character] = ["a", "e", "i", "o", "u", " "]
for character in puzzleInput {
    if charactersToRemove.contains(character) {
        continue
    }
    puzzleOutput.append(character)
}
print(puzzleOutput)
```

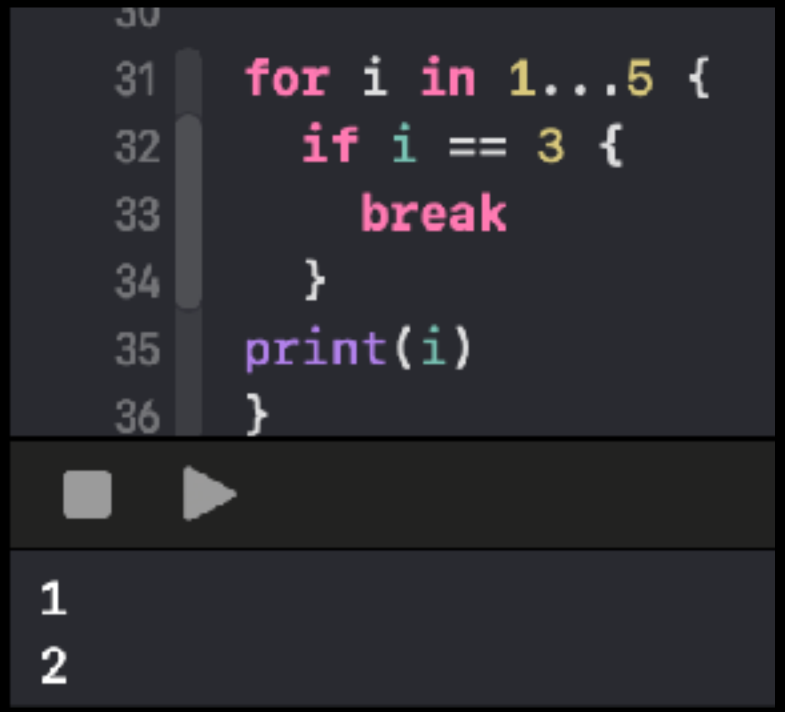
```
cdwv
```

Control Transfer

Break statement

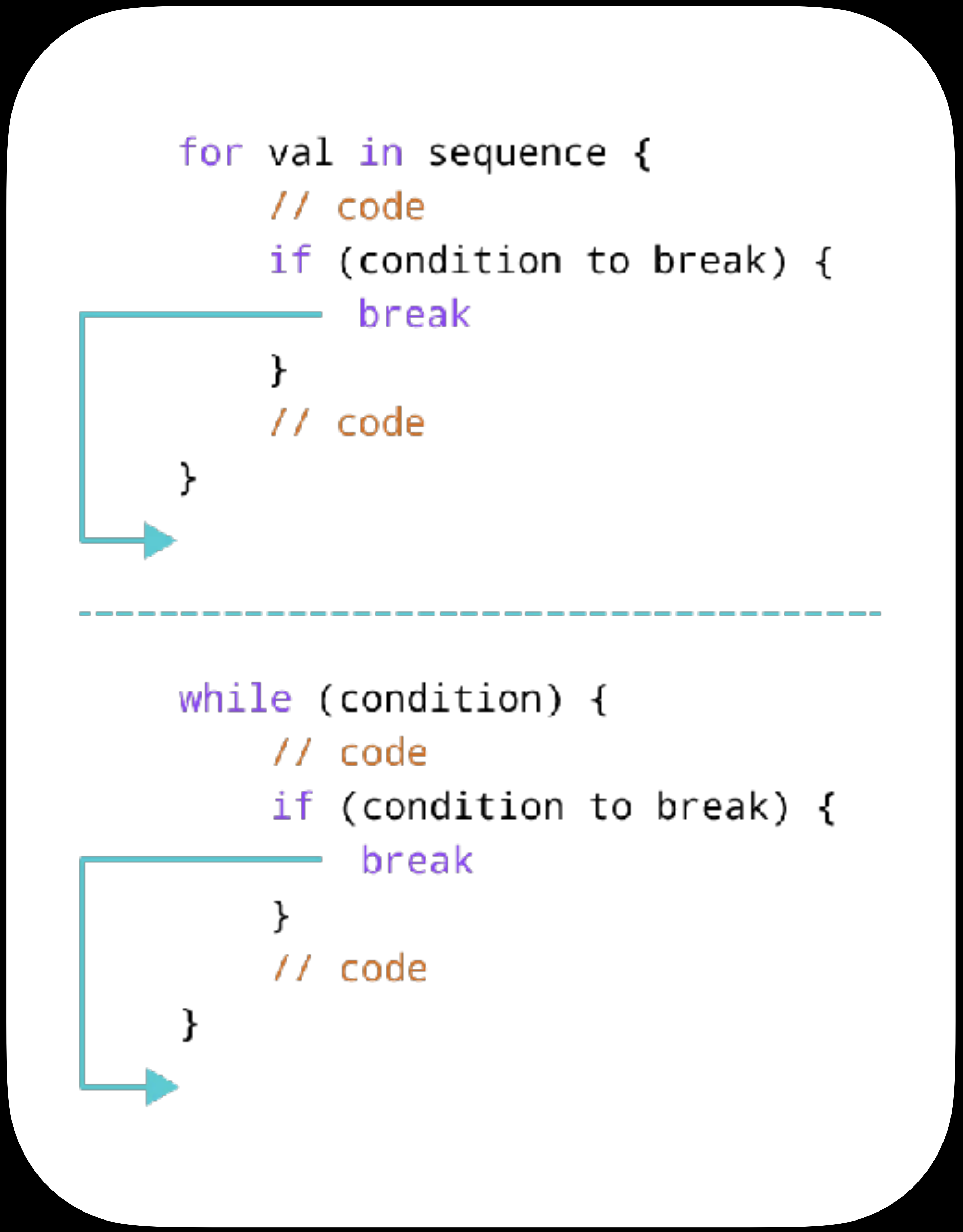
- Stop the sudden loop while iterating in process

- Example:



```
for i in 1...5 {
  if i == 3 {
    break
  }
  print(i)
}
```

```
1
2
```



```
for val in sequence {
    // code
    if (condition to break) {
        break
    }
    // code
}
```

```
while (condition) {
    // code
    if (condition to break) {
        break
    }
    // code
}
```

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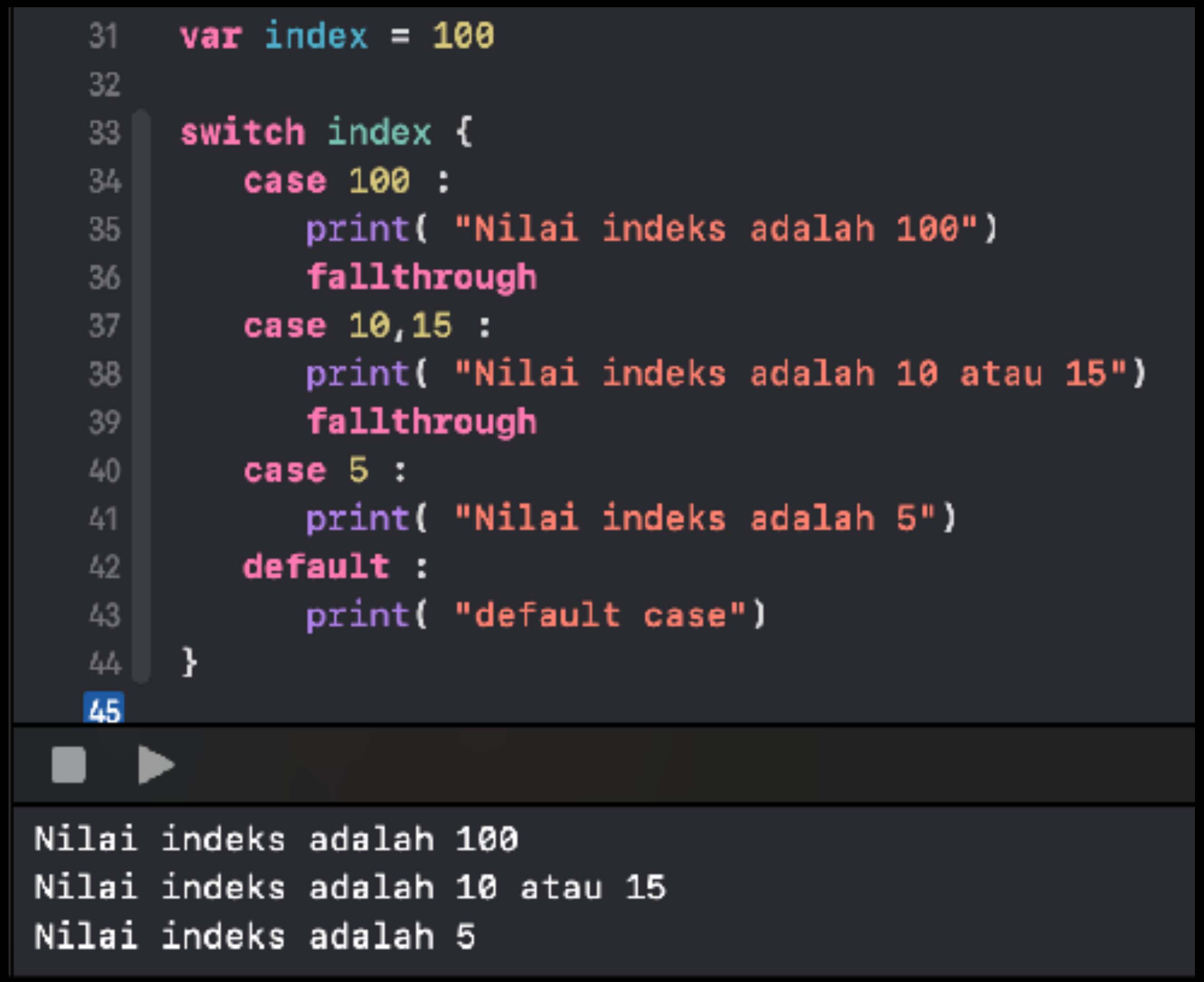
Control Transfer

Fallthrough statement

- Forcing to execute the switch case below it, even the condition if it has been met still imposes
- Example:



```
var index = 100

switch index {
   case 100 :
      print( "Nilai indeks adalah 100")
      fallthrough
   case 10,15 :
      print( "Nilai indeks adalah 10 atau 15")
      fallthrough
   case 5 :
      print( "Nilai indeks adalah 5")
   default :
      print( "default case")
}
```

```
Nilai indeks adalah 100
Nilai indeks adalah 10 atau 15
Nilai indeks adalah 5
```

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For Loop

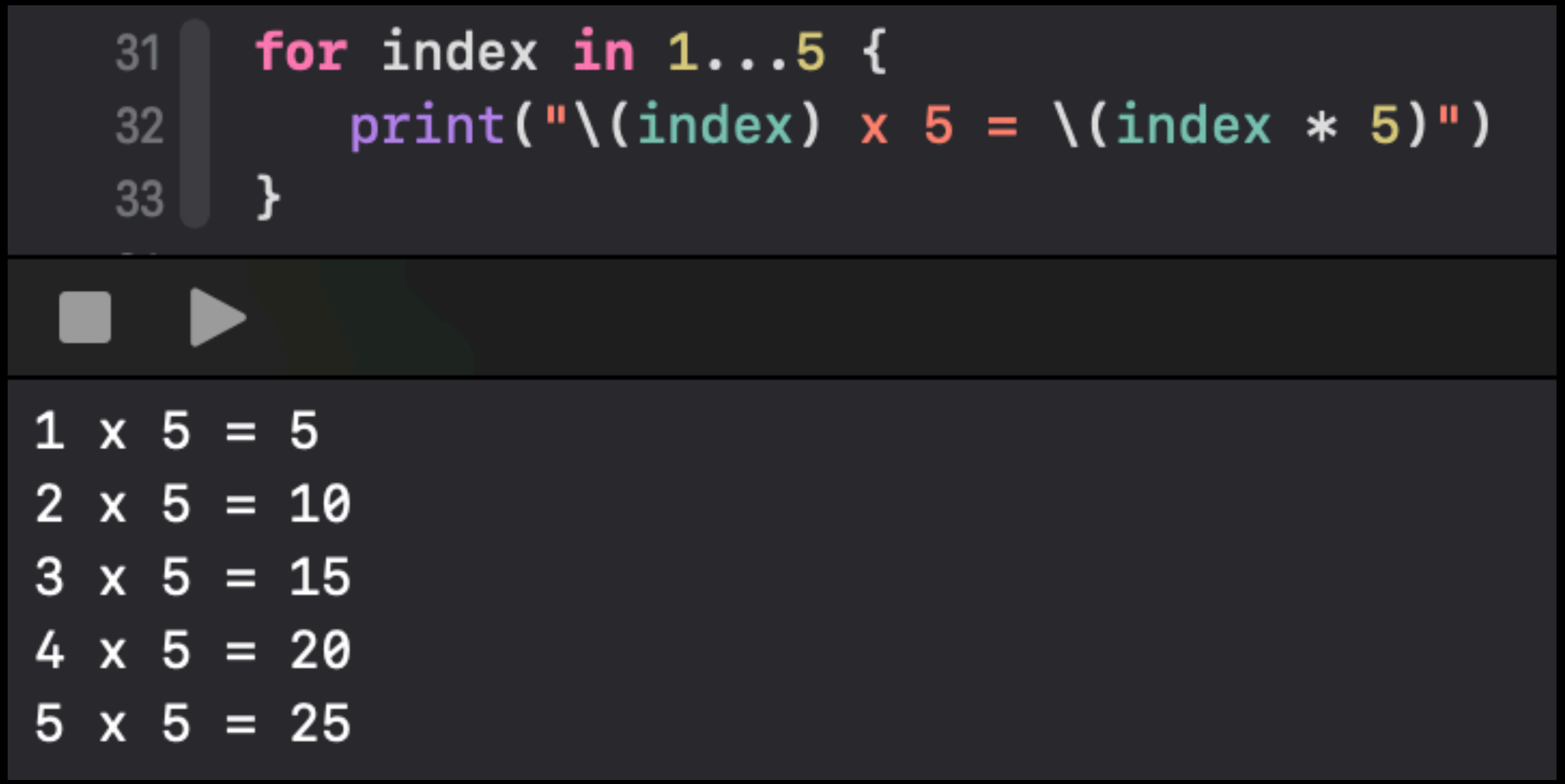
Tips & trick when to use

- Usually, for loop is used for loops that are known loop ranges

For Loop

Iterate through range

- Example:



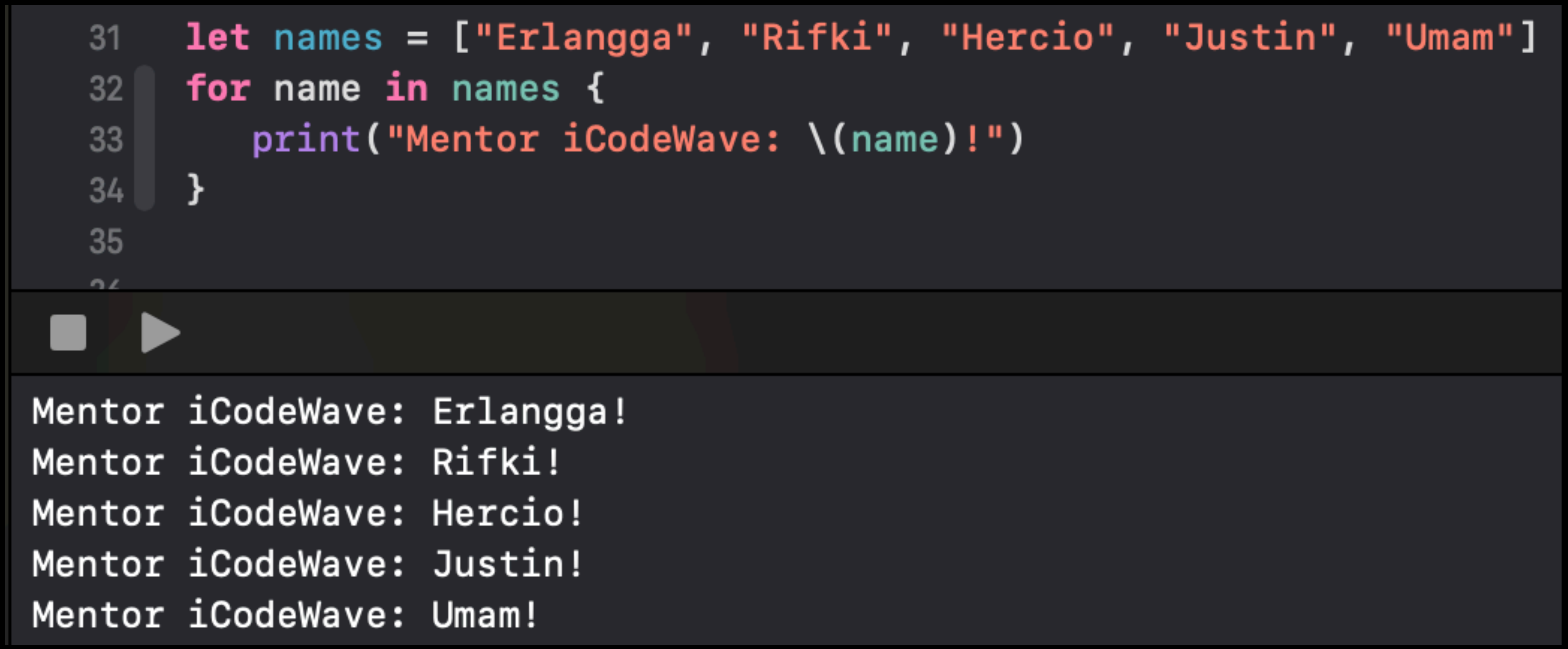
```
for index in 1...5 {
    print("\(index) x 5 = \(index * 5)")
}
```

```
1 x 5 = 5
2 x 5 = 10
3 x 5 = 15
4 x 5 = 20
5 x 5 = 25
```

For Loop

Iterate through Array or Set

- Example:



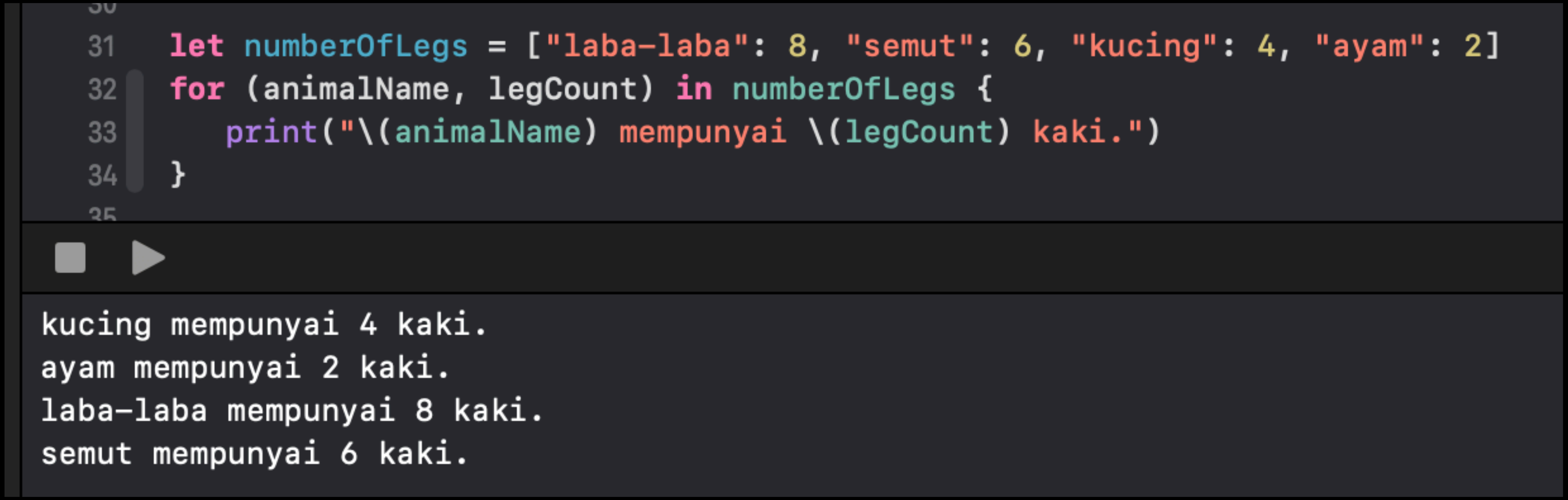
```swift
let names = ["Erlangga", "Rifki", "Hercio", "Justin", "Umam"]
for name in names {
    print("Mentor iCodeWave: \(name)!")
}
```

```
Mentor iCodeWave: Erlangga!
Mentor iCodeWave: Rifki!
Mentor iCodeWave: Hercio!
Mentor iCodeWave: Justin!
Mentor iCodeWave: Umam!
```

For Loop

Iterate through Dictionary

- Example:



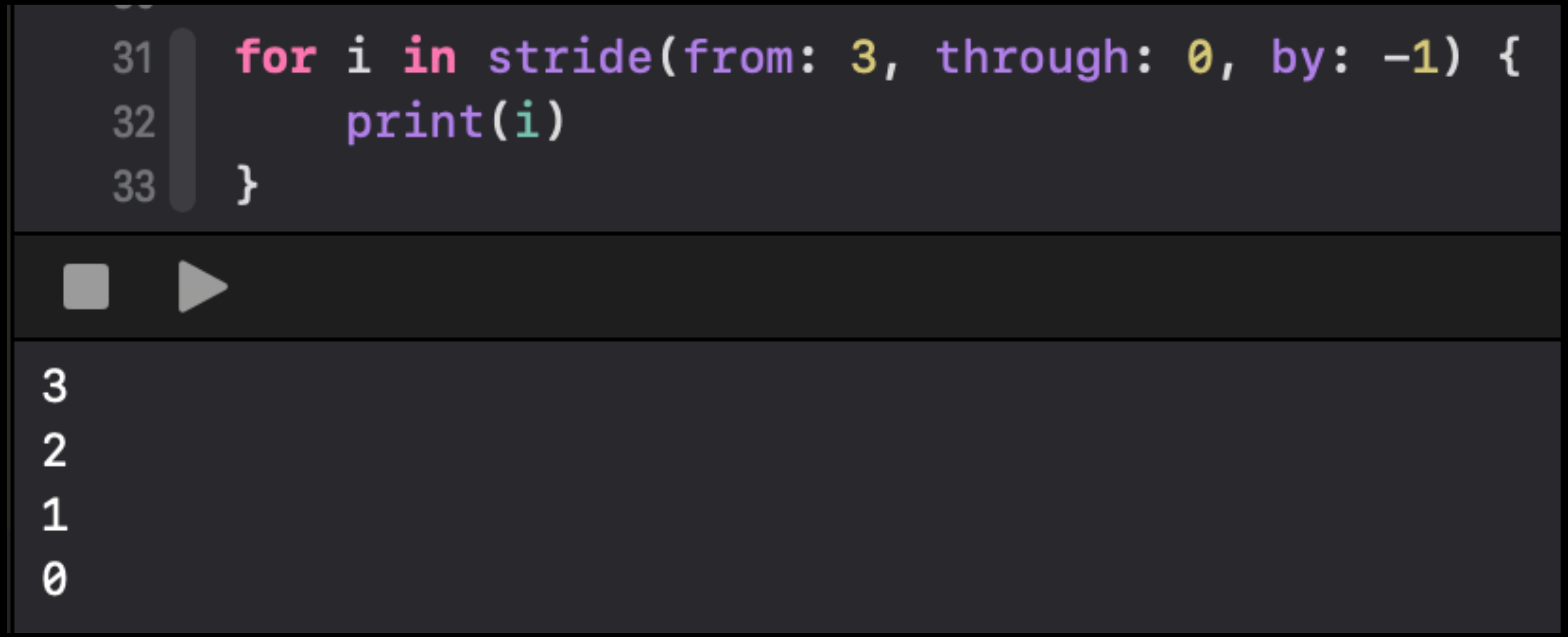
```swift
let numberOfLegs = ["laba-laba": 8, "semut": 6, "kucing": 4, "ayam": 2]
for (animalName, legCount) in numberOfLegs {
    print("\(animalName) mempunyai \(legCount) kaki.")
}
```

```
kucing mempunyai 4 kaki.
ayam mempunyai 2 kaki.
laba-laba mempunyai 8 kaki.
semut mempunyai 6 kaki.
```

For Loop

Iterate through sequential range using Stride function

- Example:



```swift
for i in stride(from: 3, through: 0, by: -1) {
    print(i)
}
```

```
3
2
1
0
```

While Loop

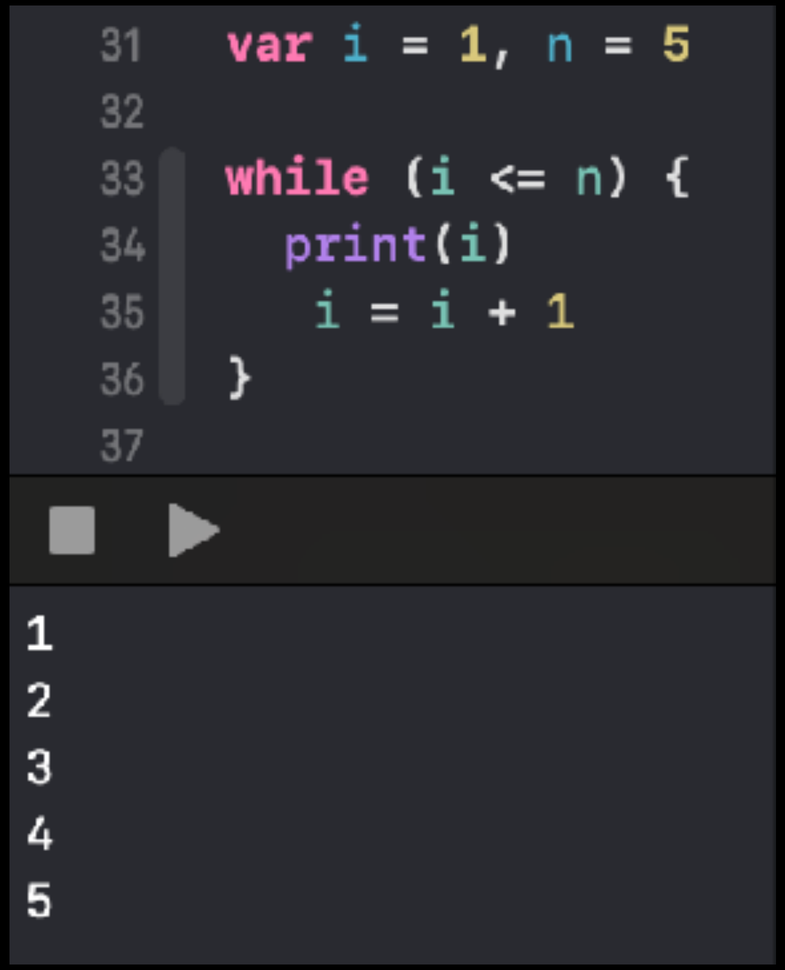
For your little information

- The while loop while will make a series of statements until a condition goes wrong

While Loop

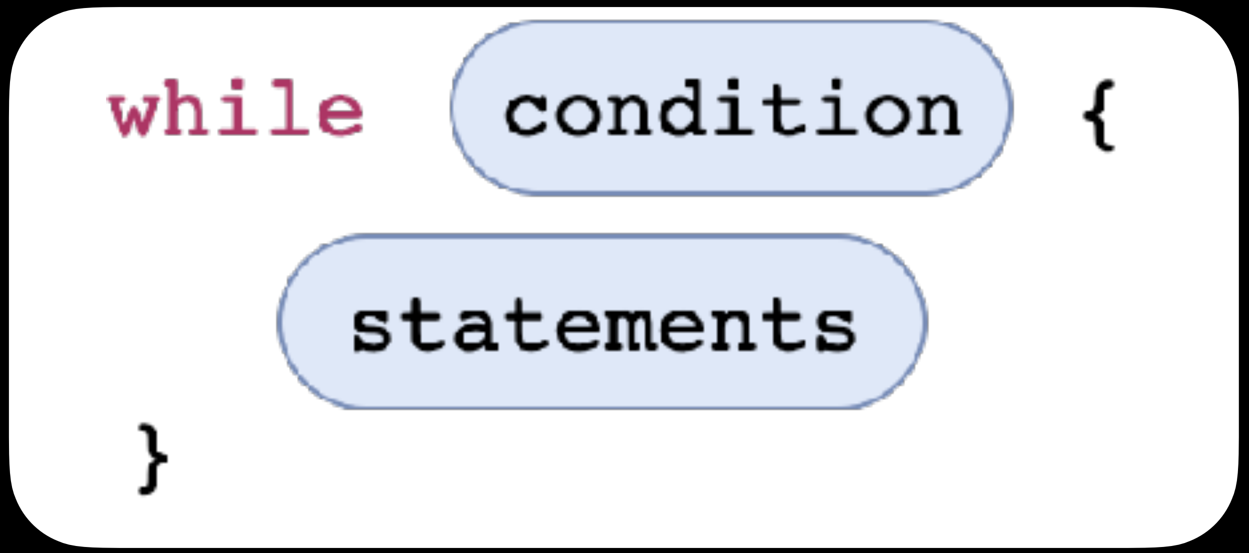
Standard while loop

- The while loop begins by evaluating a single condition
- Example:



```
var i = 1, n = 5

while (i <= n) {
  print(i)
    i = i + 1
}

```

```
1
2
3
4
5
```

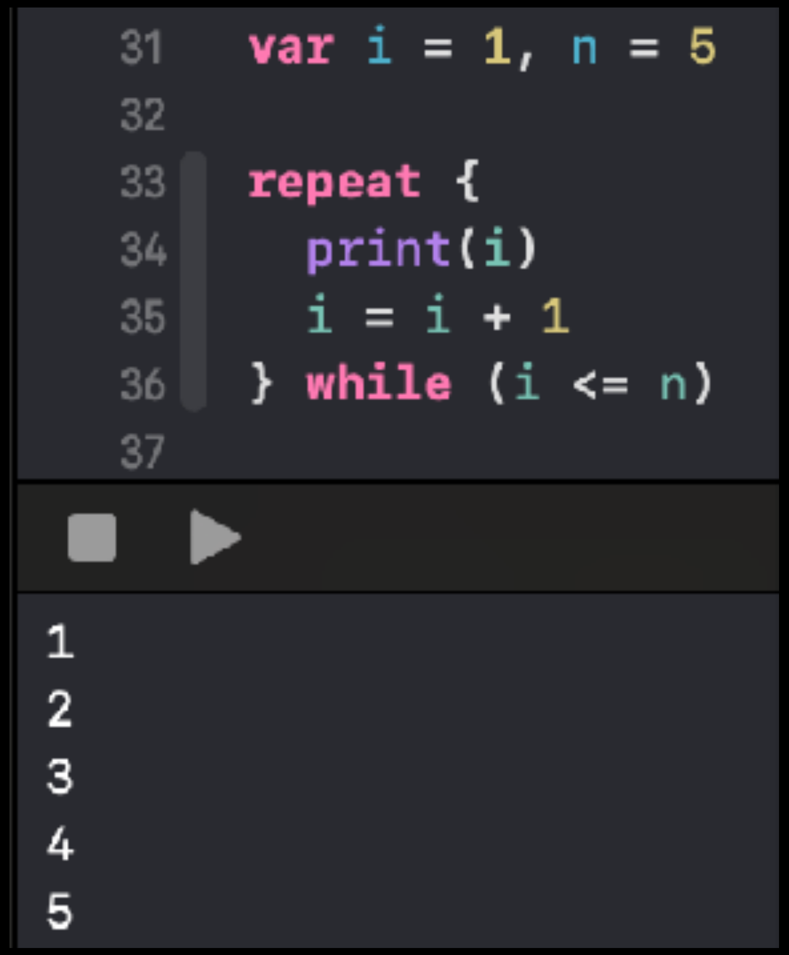


While Loop

Repeat - while loop

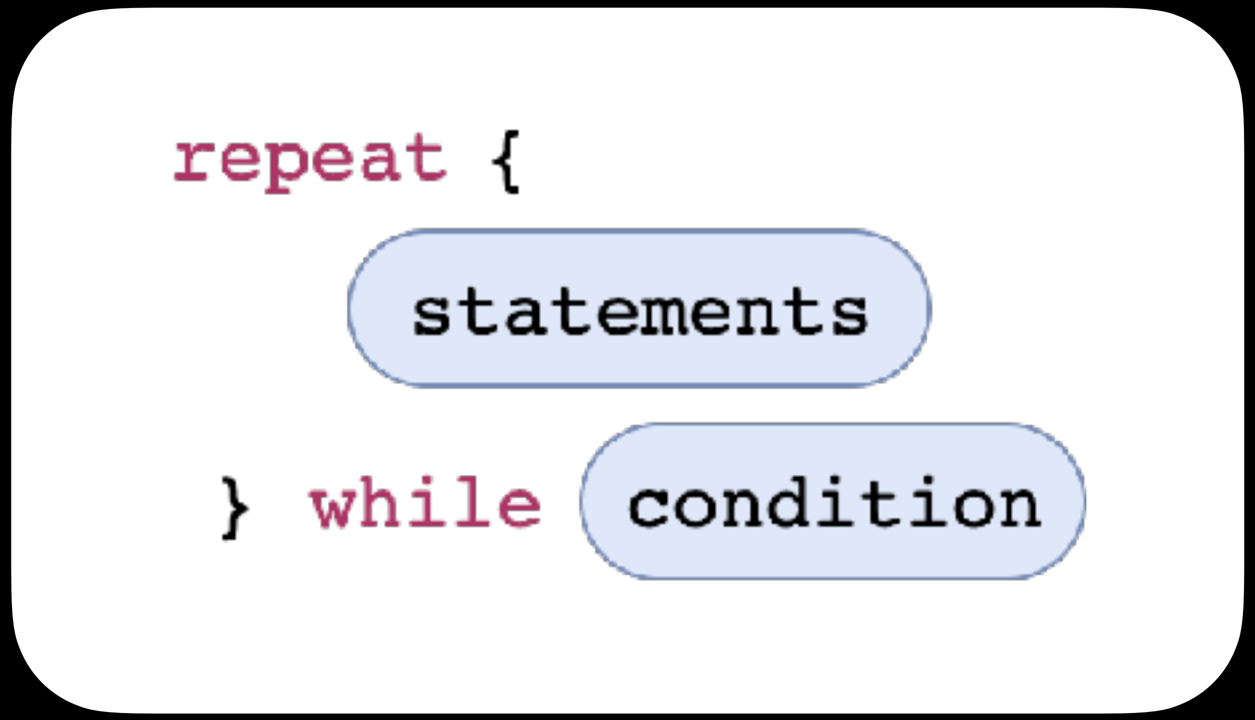
- The repeat-while loop performs a single execution through the first loop block before it considers the condition of a loop and will repeat continuously until the condition is incorrect

- Example:



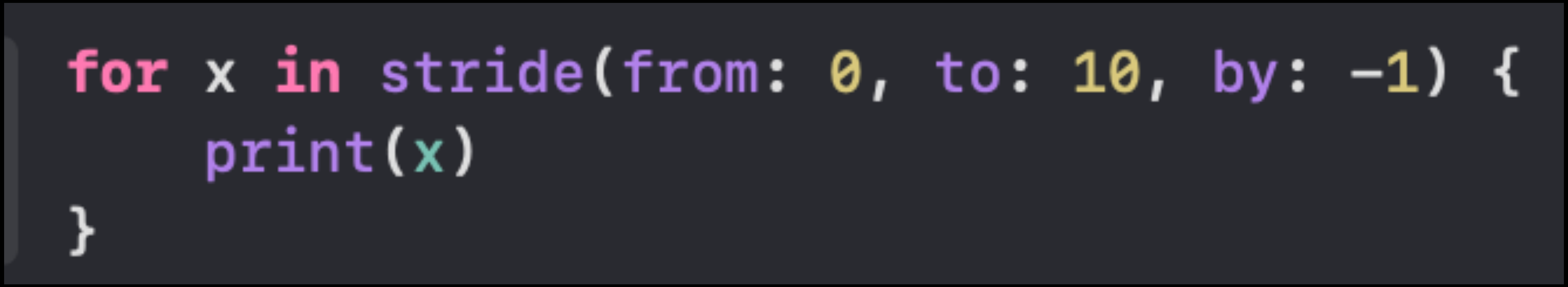
```
var i = 1, n = 5

repeat {
  print(i)
  i = i + 1
} while (i <= n)

```

```
1
2
3
4
5
```



```
repeat {
      statements
 } while condition
```

What does this code print out? Try it on your Playground!



```
for x in stride(from: 0, to: 10, by: -1) {
    print(x)
}
```

Thanks For Your Attendance Today!

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