if / else

m3-01-if

```
// If

var score =  100

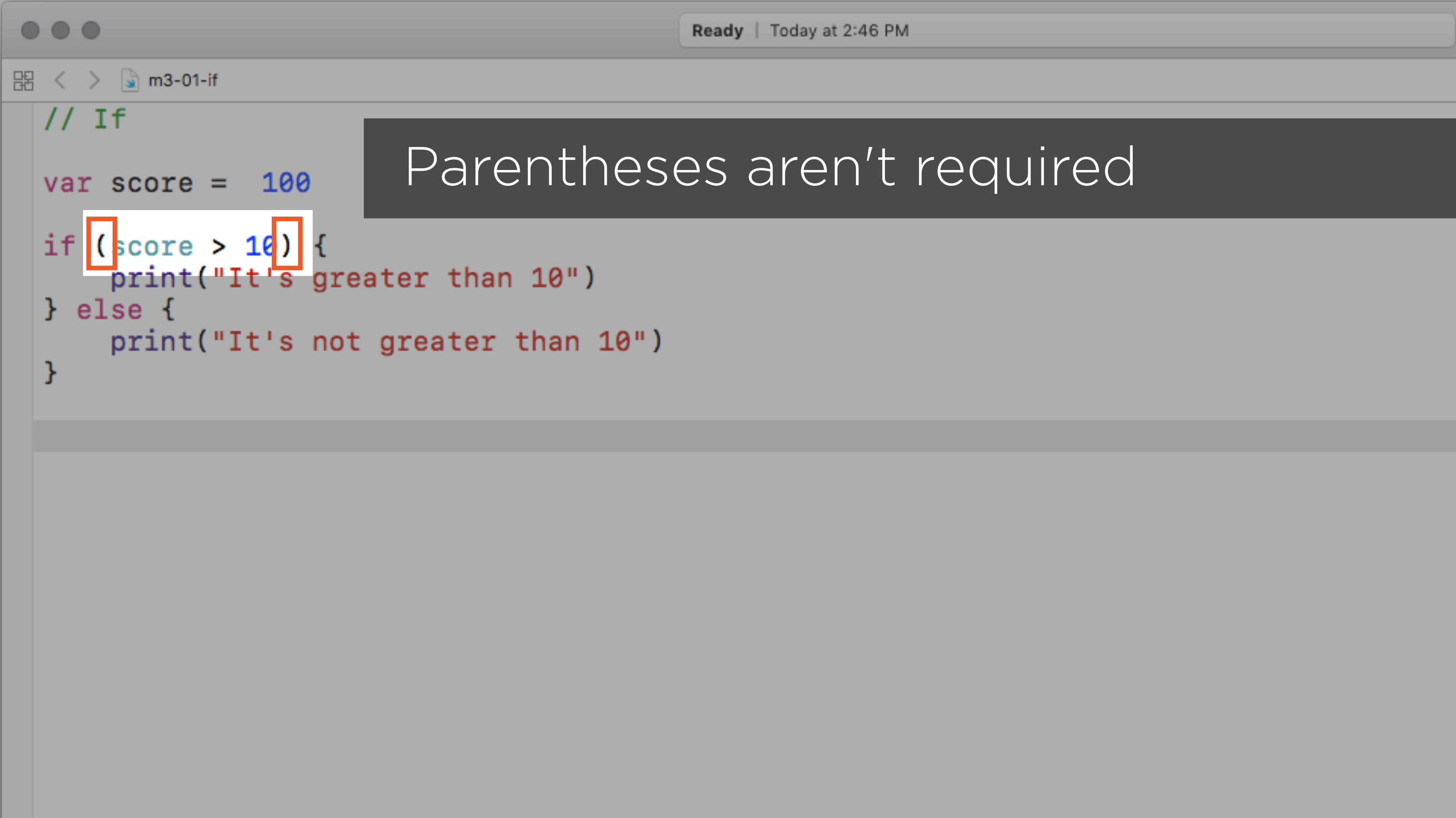
if (score > 10) {
    print("It's greater than 10")
} else {
    print("It's not greater than 10")
}
```

m3-01-if

```
// If

var score =  100

if (score > 10) {
    print("It's greater than 10")
} else {
    print("It's not greater than 10")
}
```


Ready | Today at 2:46 PM
m3-01-if
// If
var score = 100
if (score > 10) {
print("It's greater than 10")
} else {
print("It's not greater than 10")
}
Parentheses aren't required

Ready | Today at 2:46 PM

m3-01-if

```
// If

var score =  100

if  score > 10  {
    print("It's greater than 10")
} else {
    print("It's not greater than 10")
}
```

Parentheses aren't required

Ready | Today at 2:46 PM

m3-01-if

```
// If

var score =  100

if  score > 10  {
    print("It's greater than 10")
} else {
    print("It's not greater than 10")
}
```

Parentheses aren't required

m3-01-if

```
// If

var score =  100

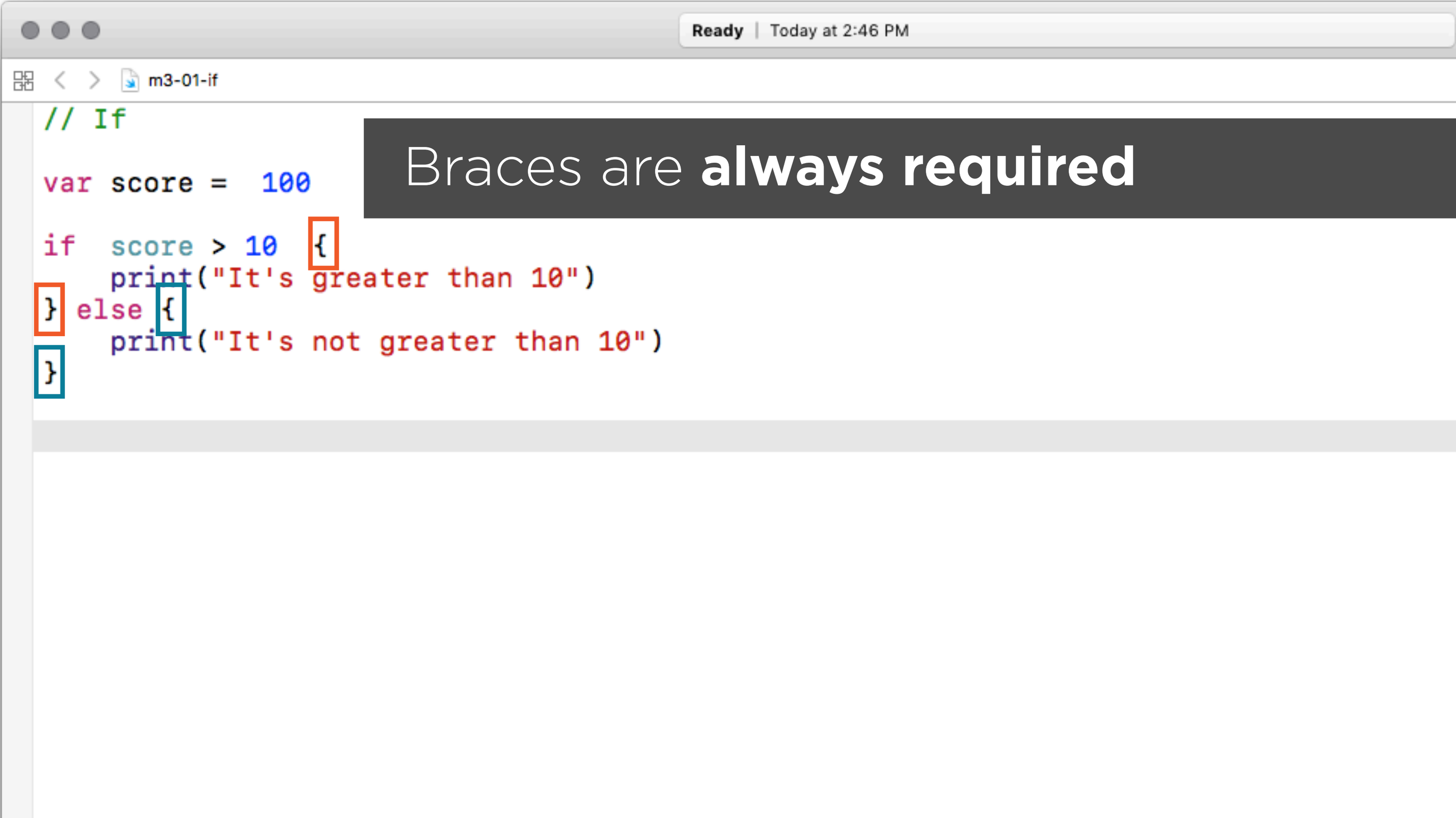
if  score > 10  {
    print("It's greater than 10")
} else {
    print("It's not greater than 10")
}
```

m3-01-if

```
// If

var score =  100

if  score > 10  {
    print("It's greater than 10")
} else {
    print("It's not greater than 10")
}
```


Ready | Today at 2:46 PM
m3-01-if
// If
var score = 100
if score > 10 {
print("It's greater than 10")
} else {
print("It's not greater than 10")
}
Braces are always required

C-Style Single-line "if" Statements

C-Style Single-line "if" Statements

```
if (score > 10)
    printf("It's greater than 10");
```

C-Style Single-line "if" Statements

```
// This is not allowed in Swift
if (score > 10)
    printf("It's greater than 10");
```

```
if somecondition {
    print("It's true")
} else {
    print("It's false")
}
```

```
if somecondition {
    print("It's true")
} else {
    print("It's false")
}
```

Conditions must be **true** or **false**

```
if somecondition {
    print("It's true")
} else {
    print("It's false")
}
```

Conditions must be **true** or **false**

```
if highScore > 10000 {
    print("It's true")
} else {
    print("It's false")
}
```

Conditions must be **true** or **false**

```
if highScore > 10000 {
    print("It's true")
} else {
    print("It's false")
}

if  carModel == "Tesla"  { ...
```

Conditions must be **true** or **false**

```
if highScore > 10000 {
    print("It's true")
} else {
    print("It's false")
}
```

Conditions must be **true** or **false**

```
if  carModel == "Tesla"  { ...

if  myOptionalInt != nil  { ...
```

```
if highScore > 10000 {
    print("It's true")
} else {
    print("It's false")
}
```

Conditions must be **true** or **false**

```
if  carModel == "Tesla"  { ...

if  myOptionalInt != nil  { ...

if  userLoggedIn  { ...
```

```
if highScore > 10000 {
    print("It's true")
} else {
    print("It's false")
}
```

Conditions must be **true** or **false**

```
if  carModel == "Tesla"  { ...

if  myOptionalInt != nil  { ...

if  userLoggedIn  { ...

if  bonusEnabled  { ...
```

Conditions must be **true** or **false**

```
if highScore > 10000 {
    print("It's true")
} else {
    print("It's false")
}
```

```
if carModel == "Tesla" { ...

if myOptionalInt != nil { ...

if userLoggedIn { ...

if bonusEnabled { ...
```

```
if a == b { ...
if a != b { ...
if a > b { ...
if a < b { ...
if a >= b { ...
if a <= b { ...
```

Conditions With Multiple Elements

Conditions With Multiple Elements

```
// logical AND
if  a == b  &&  c != d   { ...
```

Conditions With Multiple Elements

```
// logical AND
if  a == b  &&  c != d   { ...

// logical OR
if  a < b  ||  a > c   { ...
```

Conditions With Multiple Elements

```
// logical AND
if  a == b  &&  c != d   { ...

// logical OR
if  a < b  ||  a > c   { ...

// use parens with complex situations
if  score >= highScore && bonus == 0  ||
  score * bonus  - penalty  >= highScore { ...
```

Conditions With Multiple Elements

```
// logical AND
if  a == b  &&  c != d   { ...

// logical OR
if  a < b  ||  a > c   { ...

// use parens with complex situations
if (score >= highScore && bonus == 0) ||
((score * bonus) - penalty) >= highScore { ...
```

Basic Switch Statement in Swift

Basic Switch Statement in Swift

```
var abbrev = "MB" // ... or "Kb" or "GB" or "TB", etc.
```

Basic Switch Statement in Swift

```
var abbrev = "MB" // ... or "Kb" or "GB" or "TB", etc.

// later ...
switch abbrev {
case "kB":
    print("kilobyte")
case "MB":
    print("megabyte")
case "GB":
    print("gigabyte")
case "TB":
    print("terabyte")
case "PB":
    print("petabyte")
case "EB":
    print("exabyte")
default:
    print("Not a recognized abbreviation.")
}
```

In Swift, a **`switch`** must be **exhaustive**.

In Swift, each **case** must contain **executable code**.

```
// In many C-style languages
switch (levelNumber) {
    case 1:
    case 2:
    case 3:
        printf("Beginner level");
        break;
    case 4:
    case 5:
    case 6:
        printf("Intermediate level");
        break;
    case 7:
    case 8:
        printf("Advanced level");
        break;
    default:
        printf("Incorrect level!!");
```

```
// In many C-style languages
switch (levelNumber) {
    case 1:
    case 2:
    case 3:
        printf("Beginner level");
        break;
    case 4:
    case 5:
    case 6:
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    case 7:
    case 8:
        printf("Advanced level");
        break;
    default:
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```

fallthrough

```
// In many C-style languages
switch (levelNumber) {
    case 1:
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    case 3:
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    case 8:
        printf("Advanced level");
        break;
    default:
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```

fallthrough

fallthrough

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    case 1:
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        break;
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        printf("Advanced level");
        break;
    default:
        printf("Incorrect level!");
```

fallthrough

fallthrough

fallthrough

```
switch abbrev {
case "kB":
case "KB":
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    print("gigabyte")
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    print("terabyte")
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    print("exabyte")
default:
    print("Not a recognized abbreviation.")
}
```

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switch abbrev {
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default:
    print("Not a recognized abbreviation.")
}
```

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    print("terabyte")
case "PB":
    print("petabyte")
case "EB":
    print("exabyte")
default:
    print("Not a recognized abbreviation.")
}
```

'case' label in a 'switch' should have at least one executable statement

In Swift, there is

no automatic fallthrough.

```swift
volcanoExplosivityIndex = 3

switch volcanoExplosivityIndex {
case 0:
    print("Effusive")
case 1:
    print("Gentle")
    print("Note: expect a plume of < 1 km")
case 2:
    print("Explosive")
case 3:
    print("Catastrophic")
case 4:
    print("Cataclysmic")
    print("For example: the 2010 eruption of Eyjafjallajökull")
case 5:
    print("Paroxysmic")
case 6:
    print("Colossal")
case 7:
    print("Super-colossal")
case 8:
    print("Mega-colossal")
    print("NOTE: 😱😱😱")
default:
    print("Not a recognized index.")
}
```

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volcanoExplosivityIndex = 3

switch volcanoExplosivityIndex {
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    print("Super-colossal")
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    print("Mega-colossal")
    print("NOTE: 😱😱😱")
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}
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    print("Mega-colossal")
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default:
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}
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    print("Mega-colossal")
    print("NOTE: 😱😱😱")
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}
```

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print("Mega-colossal")
print("NOTE:
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}


volcanoExplosivityIndex = 3
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print("Mega-colossal")
print("NOTE:
default:
print("Not a recognized index.")
}

```
// In many C-style languages
switch (levelNumber) {
    case 1:
    case 2:
    case 3:
        printf("Beginner level");
        break;
    case 4:
    case 5:
    case 6:
        printf("Intermediate level");
        break;
    case 7:
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        break;
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        printf("Intermediate level");
        break;
    case 7:
    case 8:
        printf("Advanced level");
        break;
    default:
        printf("Incorrect level!");
```

In Swift, you do **not** need to **`break`** at the end of each case

```
// In many C-style languages
switch (levelNumber) {
    case 1:
    case 2:
    case 3:
        printf("Beginner level");
        break;
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        break;
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        printf("Advanced level");
        break;
    default:
        printf("Incorrect level!!");
```

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    case 3:
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        break;
    case 4:
    case 5:
    case 6:
        printf("Intermediate level");
        break;
    case 7:
    case 8:
        printf("Advanced level");
        break;
    default:
        printf("Incorrect level!");
```

fallthrough

```swift
// In Swift
switch levelNumber {
case 1,2,3:
     print("Beginner level")
case 4,5,6:
     print("Intermediate level")
case 7,8:
     print("Advanced level")
default:
     print("Incorrect level!")
}
```

```
switch abbrev {
case "kB", "KB":
    print("kilobyte")
case "mB", "MB":
    print("megabyte")

// etc...

default:
    print("Not a recognized abbreviation.")
}
```

Swift Ranges

Swift Ranges

```
switch someNumber {
case 1,2,3,4,5,6,7,8,9,10:
     print("One through ten")
case 11,12,13,14,15,16,17,18,19,20:
     print("Eleven through twenty")
case 21:
     print("Twenty-one")
default:
     print("Anything else!")
}
```

Swift Ranges

```
switch someNumber {
case 1,2,3,4,5,6,7,8,9,10:
     print("One through ten")
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     print("Eleven through twenty")
case 21:
     print("Twenty-one")
default:
     print("Anything else!")
}
```

Swift Ranges

```
switch someNumber {
case 1...10:
     print("One through ten")
case 11,12,13,14,15,16,17,18,19,20:
     print("Eleven through twenty")
case 21:
     print("Twenty-one")
default:
     print("Anything else!")
}
```

Swift Ranges

Swift Ranges

range operator

Swift Ranges

start . . . *end*

range operator

Swift Ranges

```
1...10
```

range operator

Swift Ranges

```
100...500
```

range operator

Swift Ranges

range operator

Swift Ranges

Swift Ranges

```
switch someNumber {
case 1...10:
     print("One through ten")
case 11...20:
     print("Eleven through twenty")
case 21:
     print("Twenty-one")
default:
     print("Anything else!")
}
```

Swift Ranges

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switch someNumber {
case 1...10:
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```

```swift
volcanoExplosivityIndex = 3

switch volcanoExplosivityIndex {
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case 5:
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case 6:
    print("Colossal")
case 7:
    print("Super-colossal")
case 8:
    print("Mega-colossal")
    print("NOTE: 😱😱😱")
default:
    print("Not a recognized index.")
}
```

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volcanoExplosivityIndex = 3

switch volcanoExplosivityIndex {
case 0:
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    print("Mega-colossal")
    print("NOTE: 😱😱😱")
default:
    print("Not a recognized index.")
}
```

must be **exhaustive**

```swift
volcanoExplosivityIndex = 3

switch volcanoExplosivityIndex {
case 0:
    print("Effusive")
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default:
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}
```

must be **exhaustive**

executable code in each case

```swift
volcanoExplosivityIndex = 3

switch volcanoExplosivityIndex {
case 0:
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case 8:
    print("Mega-colossal")
    print("NOTE: 😱😱😱")
default:
    print("Not a recognized index.")
}
```

must be **exhaustive**

executable code in each case

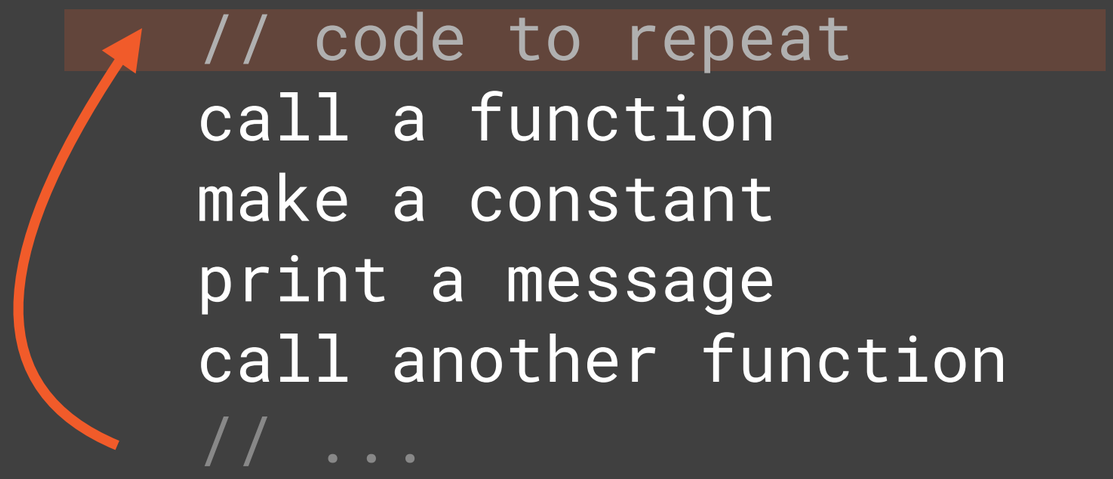
no **automatic fallthrough**

Creating Loops

Creating Loops

```
// code to repeat
call a function
make a constant
print a message
call another function
// ...
```

Creating Loops



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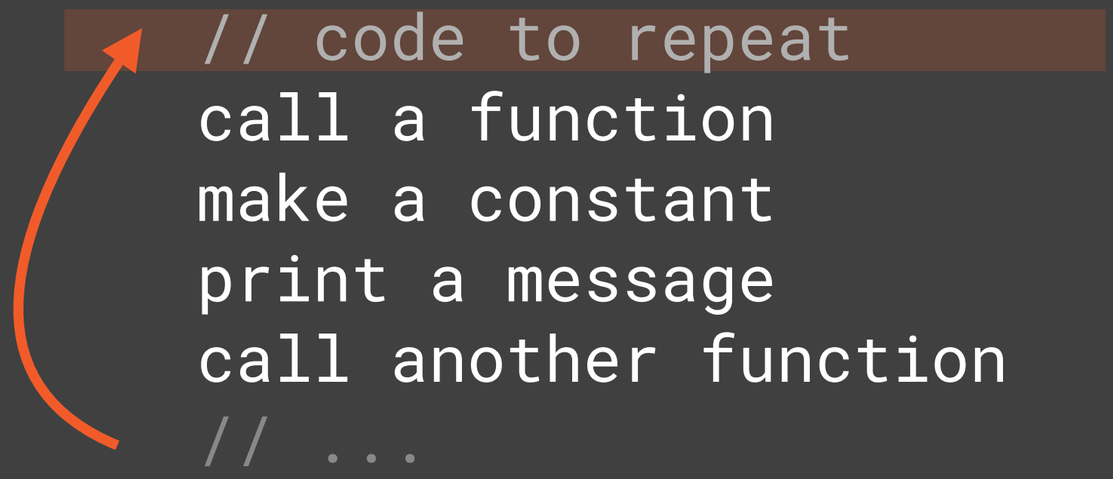
Creating Loops



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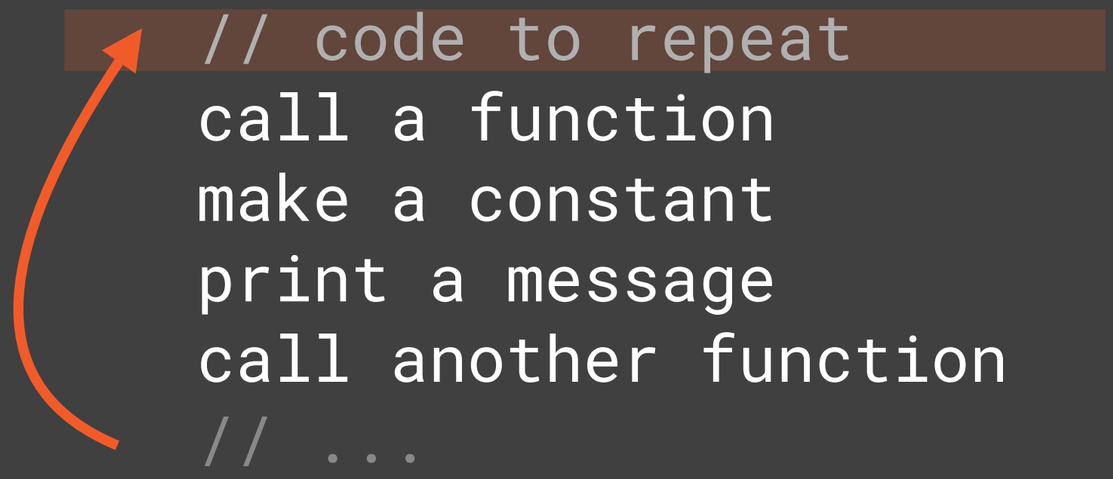


Creating Loops

```
// code to repeat
call a function
make a constant
print a message
call another function
// ...
```

Creating Loops

```
// code to repeat
call a function
make a constant
print a message
call another function
// ...
```

Creating Loops

```
// C-style "while"
while (some_condition_is_true) {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
}
```

Creating Loops

```
// C-style "while"
while (itemsToProcess > 0) {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
}
```

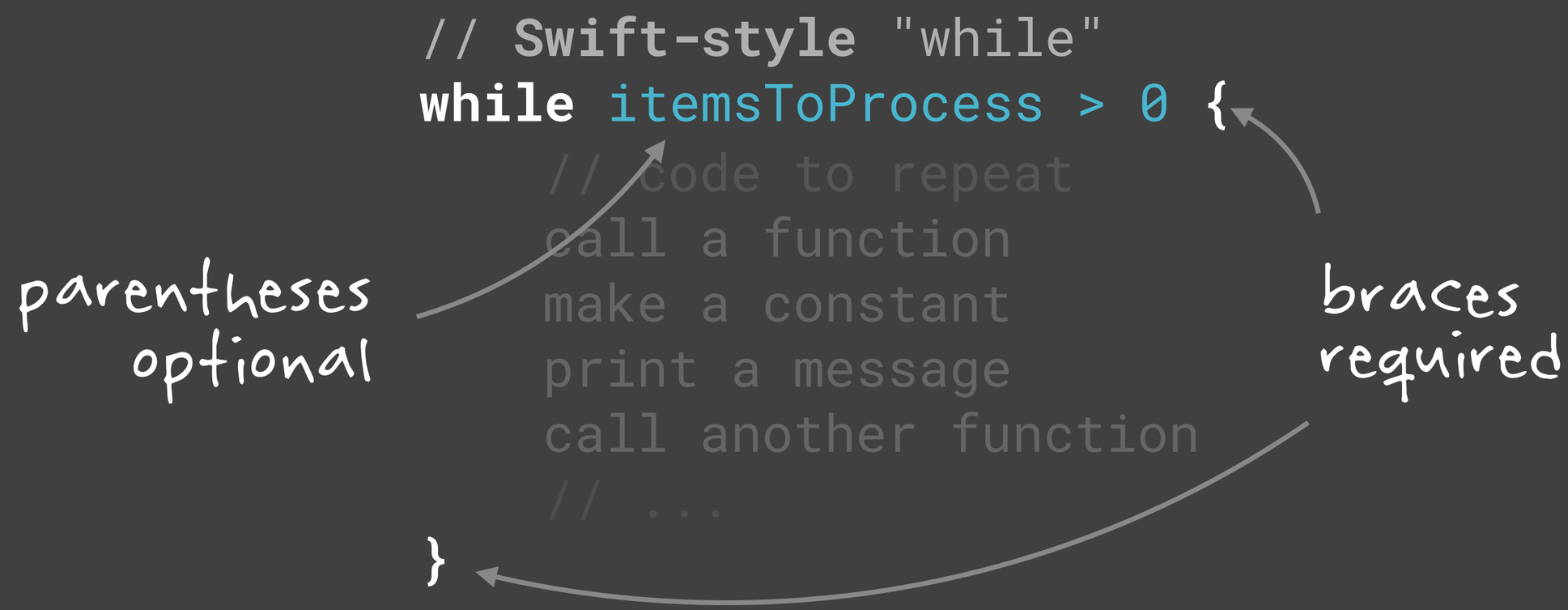
Creating Loops

```
// Swift-style "while"
while itemsToProcess > 0 {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
}
```

Creating Loops

```
// Swift-style "while"
while itemsToProcess > 0 {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
}
```

Creating Loops



Creating Loops

```
// code to repeat
call a function
make a constant
print a message
call another function
// ...
```

Creating Loops

```
// C-style "do-while"
do {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
} while (itemsToProcess > 0)
```

Creating Loops

```
// code to repeat
call a function
make a constant
print a message
call another function
// ...
```

Creating Loops

```
// Swift-style "repeat-while"
repeat {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
} while itemsToProcess > 0
```

Creating Loops

```
// code to repeat
call a function
make a constant
print a message
call another function
// ...
```

Creating Loops

```
// Classic C-style "for" loop
for ( int i = 0; i < 50; i++ ) {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
}
```

Creating Loops

```
// Classic C-style "for" loop
for ( int i = 0; i < 50; i++ ) {
    // code to repeat
    call a function
    make a constant
    print a message
    call another function
    // ...
}
```

initialization

condition

afterthought

Creating Loops

```
// Classic C-style "for" loop
for ( int i = 0; i < 50; i++ ) {
    // code to repeat
    call a
    make a
    print
    call another function
    // ...
}
```

initialization

afterthought

Swift Range Operators

Swift Range Operators

Swift Range Operators

...

..<

Swift Range Operators

```
1...10
```

```
..<
```

Swift Range Operators

`1...10` `1,2,3,4,5,6,7,8,9,10`

`..<`

Swift Range Operators

```
1...10
```

1,2,3,4,5,6,7,8,9,10

```
1..<10
```

Swift Range Operators

```
1...10
```

1,2,3,4,5,6,7,8,9,10

```
1..<10
```

1,2,3,4,5,6,7,8,9

Swift Range Operators

```
1...10
```

1,2,3,4,5,6,7,8,9,10

closed range operator

inclusive of both values

```
1..<10
```

1,2,3,4,5,6,7,8,9

Swift Range Operators

```
1...10        1,2,3,4,5,6,7,8,9,10
```

closed range operator

inclusive of both values

```
1..<10        1,2,3,4,5,6,7,8,9
```

half-open range operator

range will **not include** the value on the right

Review: Loops in Swift

```
// code to repeat
// ...
// ...
// ...
```

Review: Loops in Swift

```
while some_condition_is_true {
    // code to repeat
    // ...
    // ...
    // ...
}
```

Review: Loops in Swift

```
repeat {
    // code to repeat
    // ...
    // ...
    // ...
} while some_condition_is_true
```

Review: Loops in Swift

```
for item in items {
    // code to repeat
    // ...
    // ...
    // ...
}
```

String Concatenation **in Java**

```
String fName = "Payton";
String lName  = "Emery";

// concatenate two strings with a space in the middle
String fullName  = fName + " " + lName;
```

String Concatenation **in Java**

```
String fName = "Payton";
String lName  = "Emery";

// concatenate two strings with a space in the middle
String fullName  = fName + " " + lName;
```

String Concatenation

```
let message = fName + " " + lName + " is currently the " +
    status + " player with a score of: " + String(score)
```

String Concatenation

```
let message = fName + "_" + lName + "_is currently the_" +
    status + "_player with a score of:_" + String(score)
```

String Concatenation

```
let message = fName + "_" + lName + "_is currently the_" +
    status + "_player with a score of:_" + String(score)
```

\ ( )

String Interpolation

```
"Now Playing TRACK-NAME by ARTIST-NAME which is DURATION long"
```