FOR INSTRUCTOR PURPOSES ONLY

MATERIALS

+ Lesson Starter Code
+ Lesson Solution Code
+ Lab
+ Lesson
+ Lab Solution Code

GENERAL ASSEMBLY

SWIFT LOOPS

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LESSON

LEARNING OBJECTIVES

+ **Identify** the purpose of a loop
+ **Explain** the different parts to a for and while loop
+ **Write** and use a for loop
+ **Write** and use a while loop

AGENDA

+ Opening Exercise
+ For Loops
+ Practice
+ While Loops
+ Practice

QUESTION

WHAT THE HECK IS A LOOP?   

ACTIVITY: DECK OF CARDS

5 mins

DIRECTIONS

Grab a deck of cards.

1. Shuffle the cards
2. Divide the cards amongst the class
3. I will call out a random card (i.e., Jack of Spades)
4. Have the students search through their deck
5. The person who finds it calls out another random card
6. Repeat

DELIVERABLE

Discuss your answers with the person next to you.

QUESTION

WHY IS A LOOP VALUABLE?

CONCLUSION

+ Allows you to repeat a section of code many times. Write the code once, and have it execute multiple times.
+ It’s a more intelligent way of coding.

INTRODUCTION

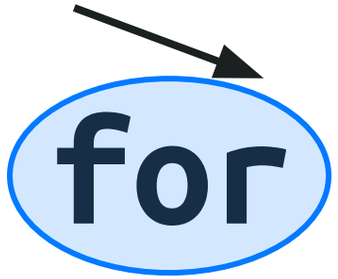
FOR LOOPS

DEFINITION

A LOOP IS A ***SEQUENCE OF INSTRUCTIONS*** THAT IS ***CONTINUALLY REPEATED*** UNTIL A CERTAIN CONDITION IS REACHED.

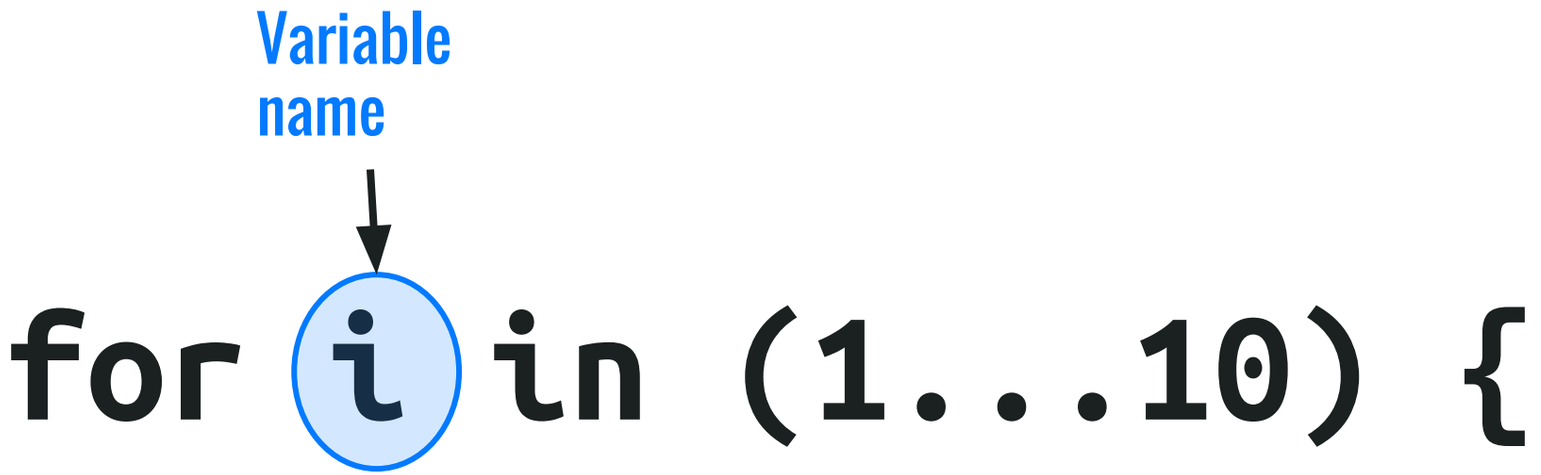
THE ANATOMY OF A FOR LOOP

Type of loop, keyword

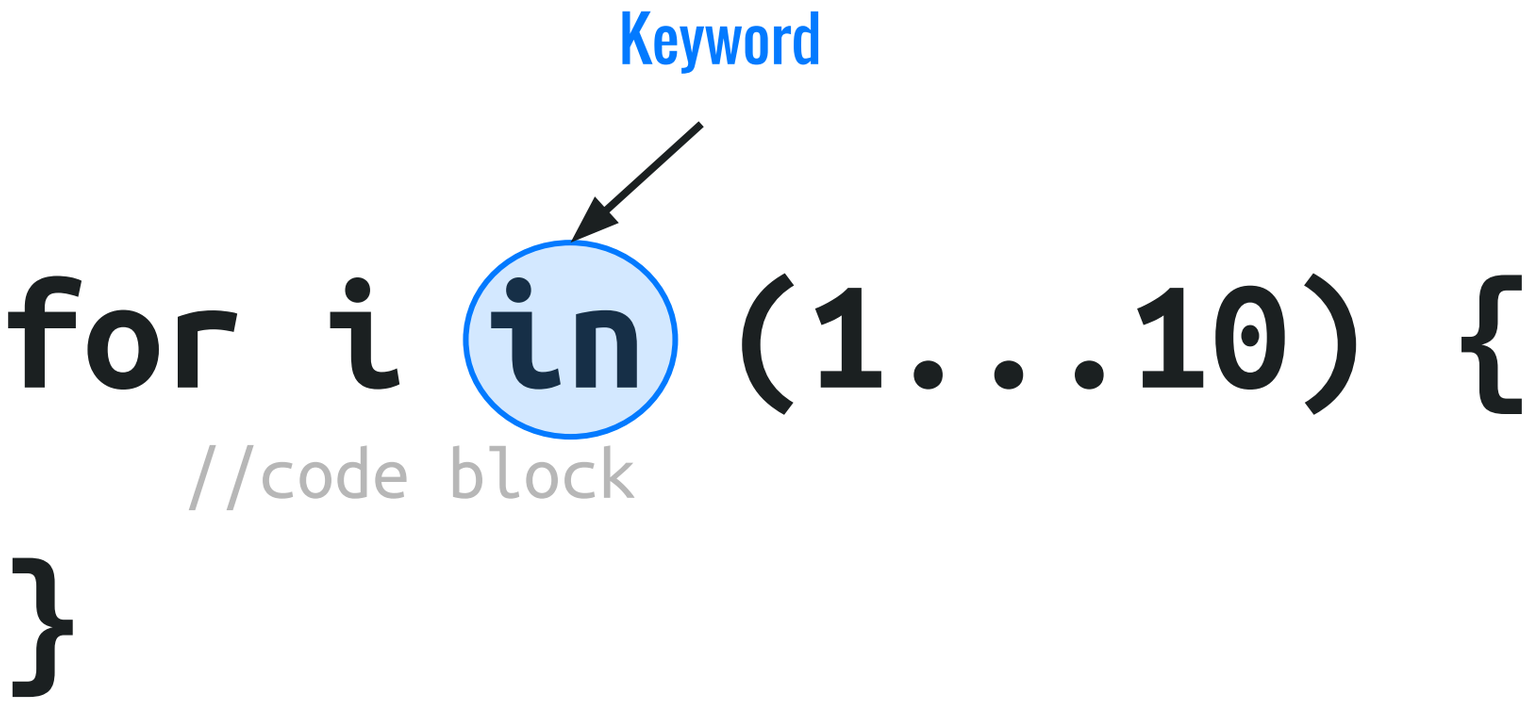


```
for i in (1...10) {
    //code block
}
```

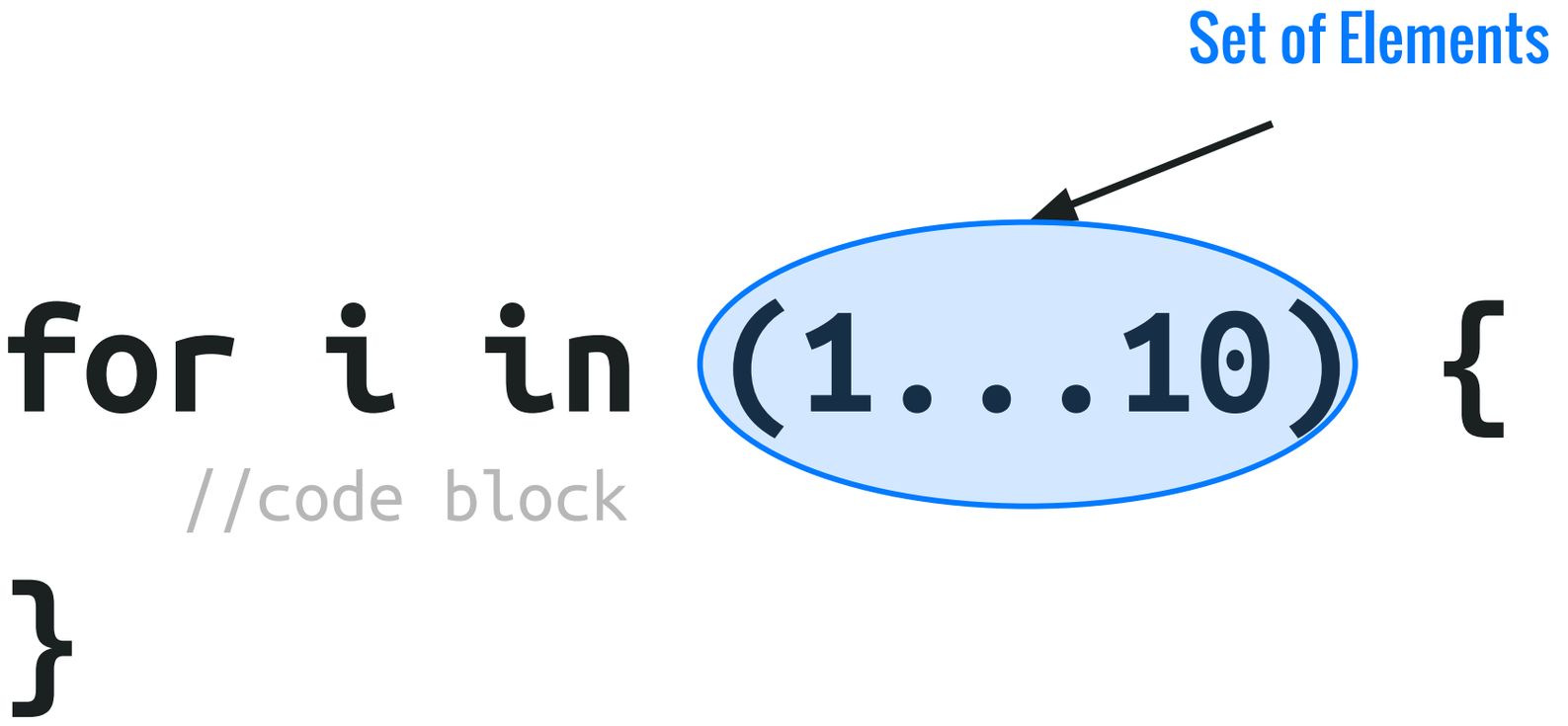
THE ANATOMY OF A FOR LOOP



THE ANATOMY OF A FOR LOOP



THE ANATOMY OF A FOR LOOP

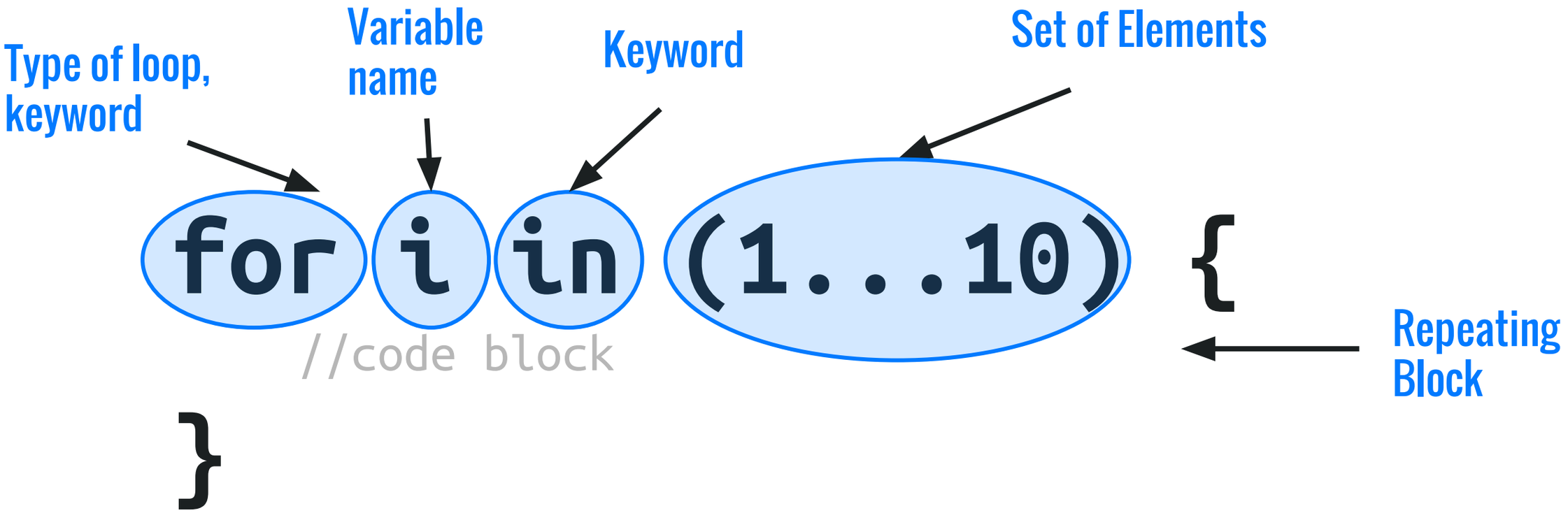


THE ANATOMY OF A FOR LOOP

```
for i in (1...10) {
    //code block
}
```

Repeating Block

THE ANATOMY OF A FOR LOOP



QUESTION

WHAT'S WRONG HERE?

WHAT'S WRONG?

```
for i in (1..10) {
    print(i)
}
```

WHAT'S WRONG?

```
for j in 1...10 {
    print(i)
}
```

WHAT'S WRONG?

```
for number in 1...100 {
    print(number)
    number -= 1
}
```

WHAT'S WRONG?

```
for _ in (1...10) {
    print("yo")
}
```

DEMO

GUIDE ME

+ Find the sum of all the numbers from 1 to 1,000

WHAT'S WRONG?

```
for number in 1...100 {
    print(number)
}
number += 1
```

WHAT'S WRONG?

```
for i in (1000...1) {
    print(i)
}
```

RIGHT!

```
for i in (1...1000).reversed() {
    print(i)
}
```

WHAT'S WRONG?

```
for i in -100...100 {
    print(i)
}
```

WHAT IS THE RESULT?

2 mins

```
for i in (1...100) {
  for j in (1...10) {
    print(“\(i)-\(j)”)
  }
}
```

DELIVERABLE

Stop-And-Jot

INDEPENDENT PRACTICE: PLAYGROUNDS

7 mins

DIRECTIONS

1. Find the sum of all the numbers between 5 and 9,000 (1 min)
2. Find the sum of all the numbers between -500 and 200 (1 min)
3. Find the sum of all of the even numbers between 1 and 1,000 (1 min)
4. Print all of the multiples of 5 between the numbers 5 and 5,000 (2 min)
5. Compare your results with a partner (2 min)

DELIVERABLES

A Playgrounds file with your answers

LESSON

Q & A - FOR LOOPS

INTRODUCTION

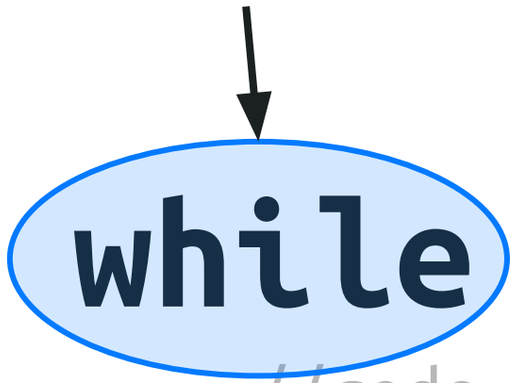
WHILE LOOP

THE ANATOMY OF A WHILE LOOP

```
while   workRemains {
    //code block
}
```

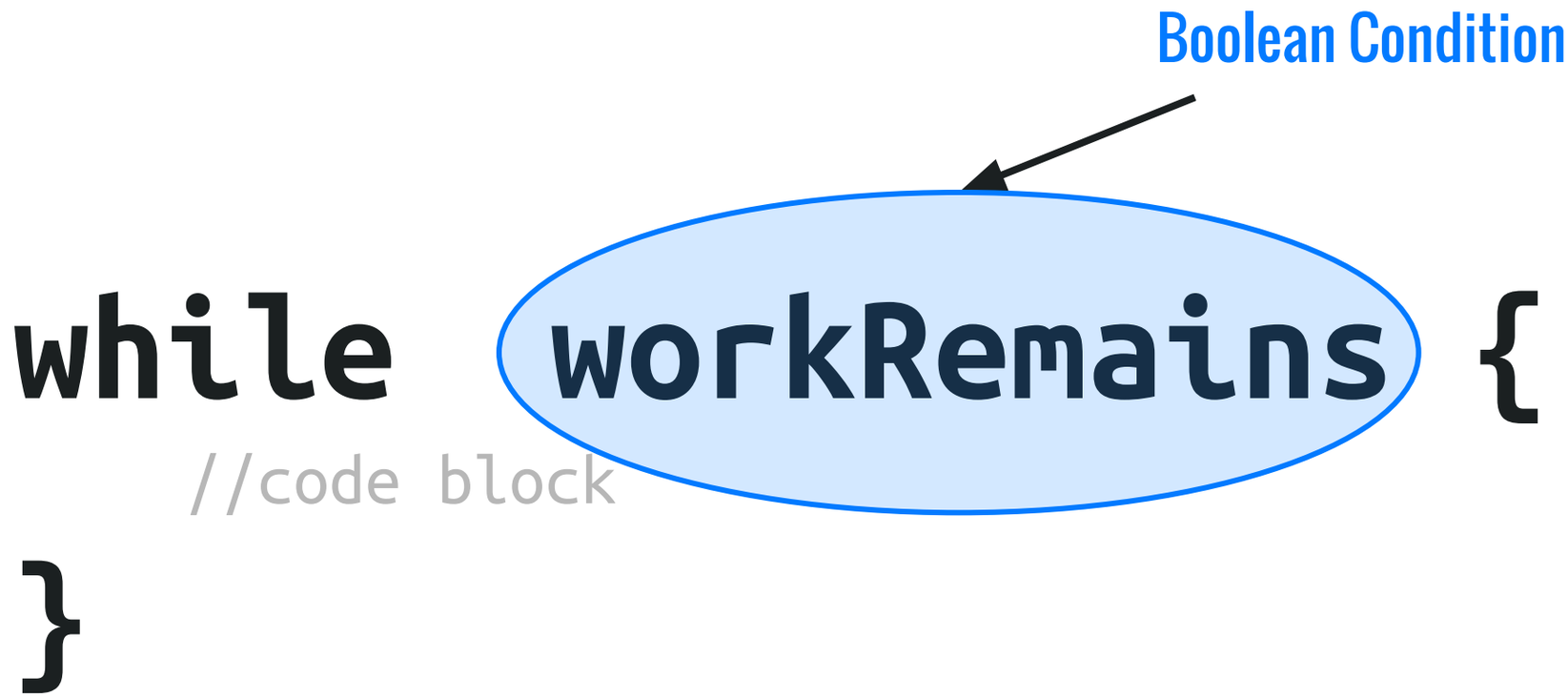
THE ANATOMY OF A WHILE LOOP

Type of loop



```
while workRemains {
    //code block
}
```

THE ANATOMY OF A WHILE LOOP

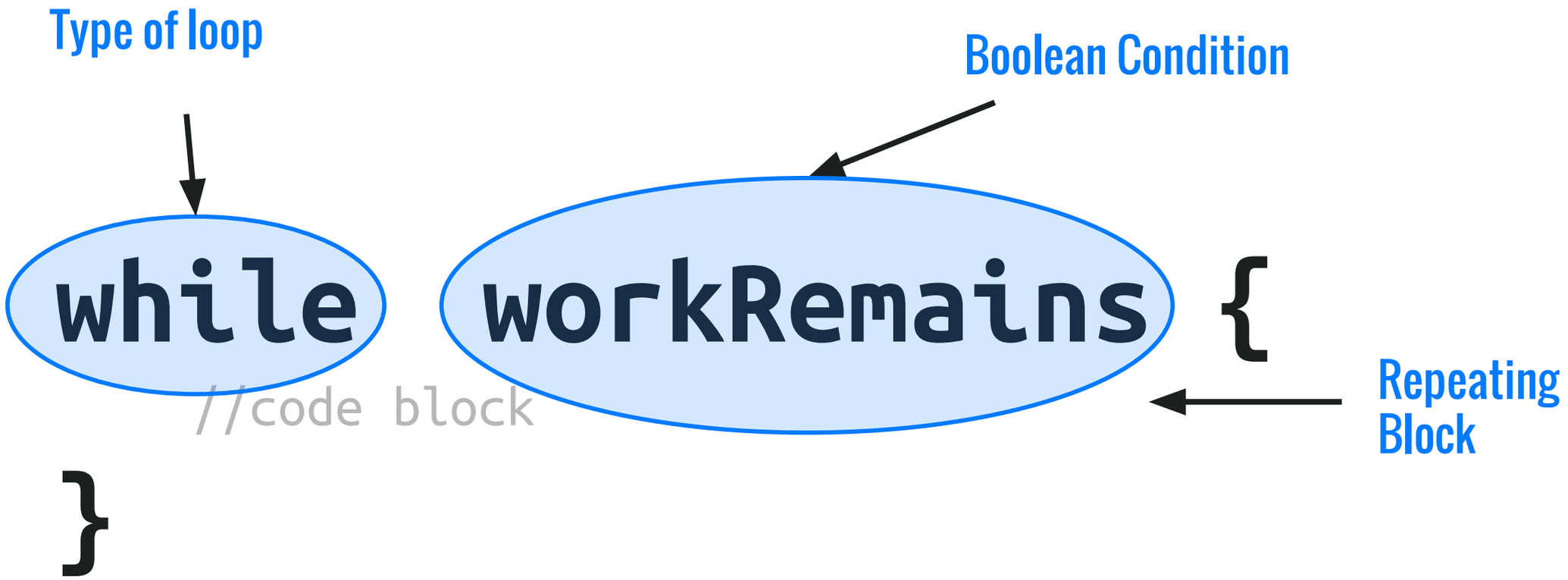


THE ANATOMY OF A WHILE LOOP

```
while   workRemains {
    //code block
}
```

Repeating Block

THE ANATOMY OF A WHILE LOOP



QUESTION

WHAT'S THE DIFFERENCE?

ACTIVITY: THINK-PAIR-SHARE

2 mins

DIRECTIONS

1. Write your thoughts down. (1 min)
2. Discuss with a partner (1 min)

DELIVERABLE

Insert Deliverable

WHAT'S WRONG?

```
var count = 0
var number = 1

while number < 1000 {
   count += number
}
```

WHAT'S WRONG?

```
var count = 0
var number = 1

while number > 0 {
   count += number
   number += 1
}
```

WHAT'S WRONG?

```
var count = 0
var number = 1

while number > 1000 {
   count += number
   number += 1
}
```

WHAT'S WRONG?

```
var count = 0
var number = 1

while number < 1000 {
   count += number
   number += 1
}
```

RIGHT!

```
var count = 0
var number = 1

while number <= 1000 {
   count += number
   number += 1
}
```

DEMO

GUIDE ME

+ Find the sum of all the numbers between 5 and 9,000
+ Find the sum of all the numbers between -500 and 200

INDEPENDENT PRACTICE: PLAYGROUNDS

7 mins

DIRECTIONS

1. I have some money, say $2,000. I want to buy apps until I have no more money left. Each app costs $7. Use a while loop to determine:
   a. How many apps I can buy before running out of funds (3 mins)
   b. How much money is left over after buying all the apps, if any (2 mins)
2. Compare your results with a partner (2 min)

DELIVERABLES

A Playgrounds file with your answers

LESSON

Q & A - WHILE LOOPS

CONCLUSION

+ Useful when you are searching through a list of something and looking for something
+ Useful for performing an action to each element of a collection
+ Useful for doing a task repeatedly

LESSON

BEFORE NEXT CLASS

+ Read up on the “break” keyword
+ Read up on the “continue” keyword

THANKS!

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