Swift — Lesson 1:
Constants, Variables, and Data Types

Constants and variables

Associate a name with a value

Defining a constant or variable

- Allocates storage for the value in memory
- Associate the constant name with the assigned value

Constants

Defined using the `let` keyword

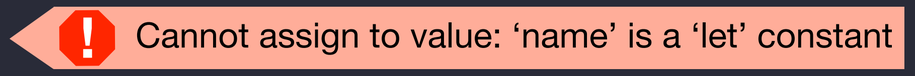
```
let name = "John"
```

Defined using the let keyword

```
let pi = 3.14159
```

Can’t assign a constant a new value

```
let name = "John"
name = "James"
```



Variables

Defined using the `var` keyword

```
var age = 29
```

Can assign a new value to a variable

```
var age = 29

age = 30
```

```
let defaultScore = 100
var playerOneScore = defaultScore
var playerTwoScore = defaultScore

print(playerOneScore)
print(playerTwoScore)

playerOneScore = 200
print(playerOneScore)
```

```
100
100
200
```

Constant or variable?

Footnote here. If there is no footnote, delete this text box.

Naming constants and variables

Rules

No mathematical symbols

No spaces

Can’t begin with a number

```
let π = 3.14159
let 一百 = 100
let 🎲 = 6
let mañana = "Tomorrow"
let anzahlDerBücher = 15 //numberOfBooks
```

Naming constants and variables

Best practices

1. Be clear and descriptive

   ✗ `n` ✓ `firstName`

2. Use camel case when multiple words in a name

   ✗ `firstname` ✓ `firstName`

Comments

```
// Setting pi to a rough estimate
let π = 3.14
```

```
/* The digits of pi are infinite,
so instead I chose a close approximation.*/
let π = 3.14
```

Most common types

	Symbol	Purpose	Example
Integer	`Int`	Represents whole numbers	`4`
Double	`Double`	Represents numbers requiring decimal points	`13.45`
Boolean	`Bool`	Represents true or false values	`true`
String	`String`	Represents text	`"Once upon a time…"`

Type safety

```
let playerName = "Julian"
var playerScore = 1000
var gameOver = false
playerScore = playerName
```

Cannot assign value of type ‘String’ to type ‘Int’

```
var wholeNumber = 30
var numberWithDecimals = 17.5
wholeNumber = numberWithDecimals
```

Cannot assign value of type ‘Double’ to type ‘Int’

Type inference

```
let cityName = "San Francisco"
let pi = 3.1415927
```

Type annotation

```
let cityName: String = "San Francisco"
let pi: Double = 3.1415927
```

```
let number: Double = 3
print(number)
```

```
3.0
```

Required values

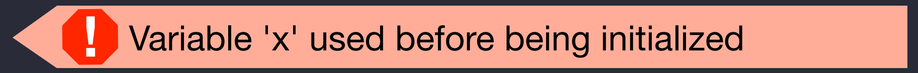
```
var x
```

Required values

```
var x: Int
```

Required values

```
var x: Int
print(x)
```



Required values

```
var x: Int
x = 10
print(x)
```

```
10
```

Numeric literal formatting

```
var largeUglyNumber = 1000000000
var largePrettyNumber = 1_000_000_000
```

Unit 1 — Lesson 2

Lab: Constants and Variables.playground

Open and complete the exercises in `Lab - Constants and Variables.playground`