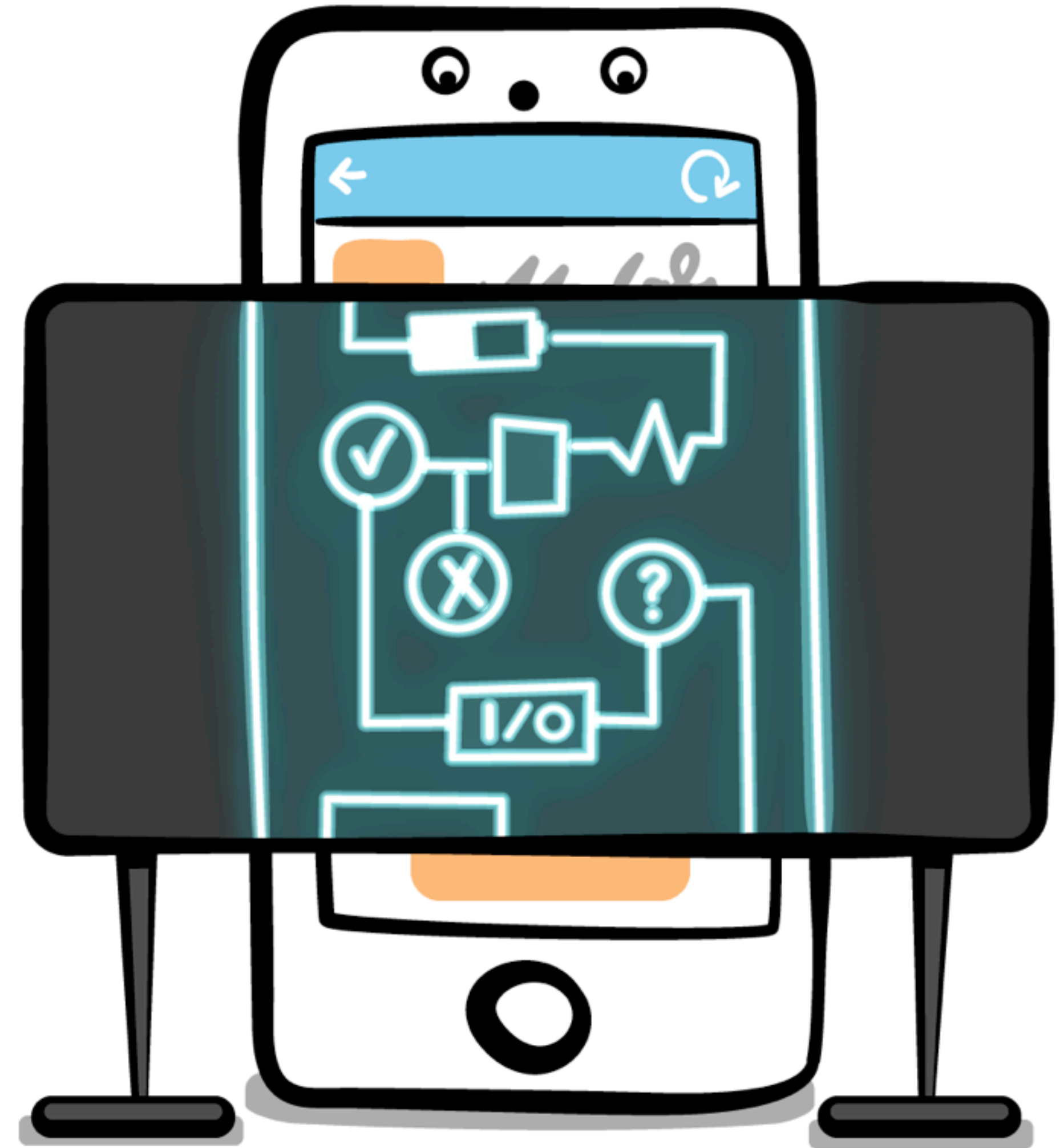
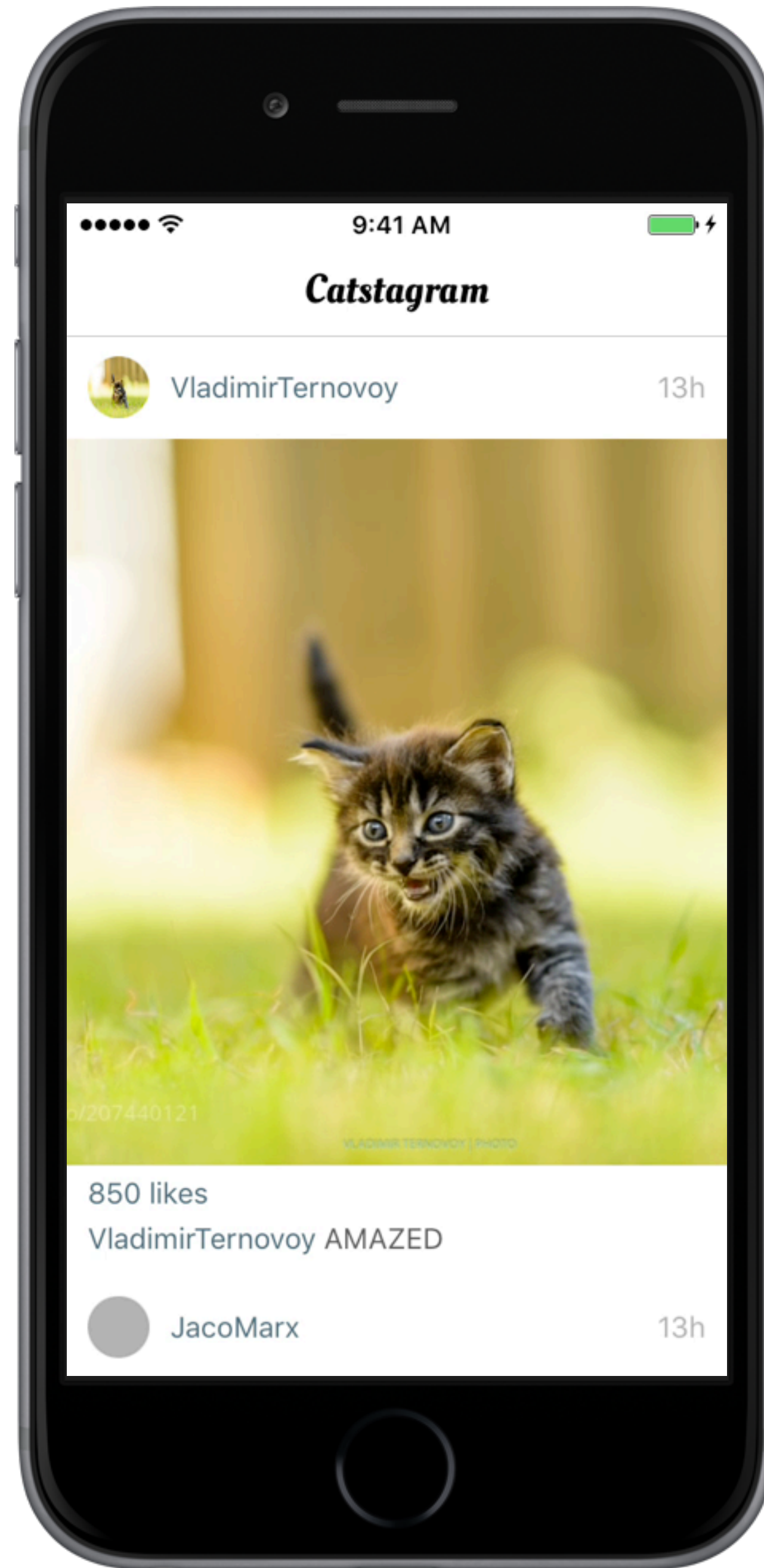
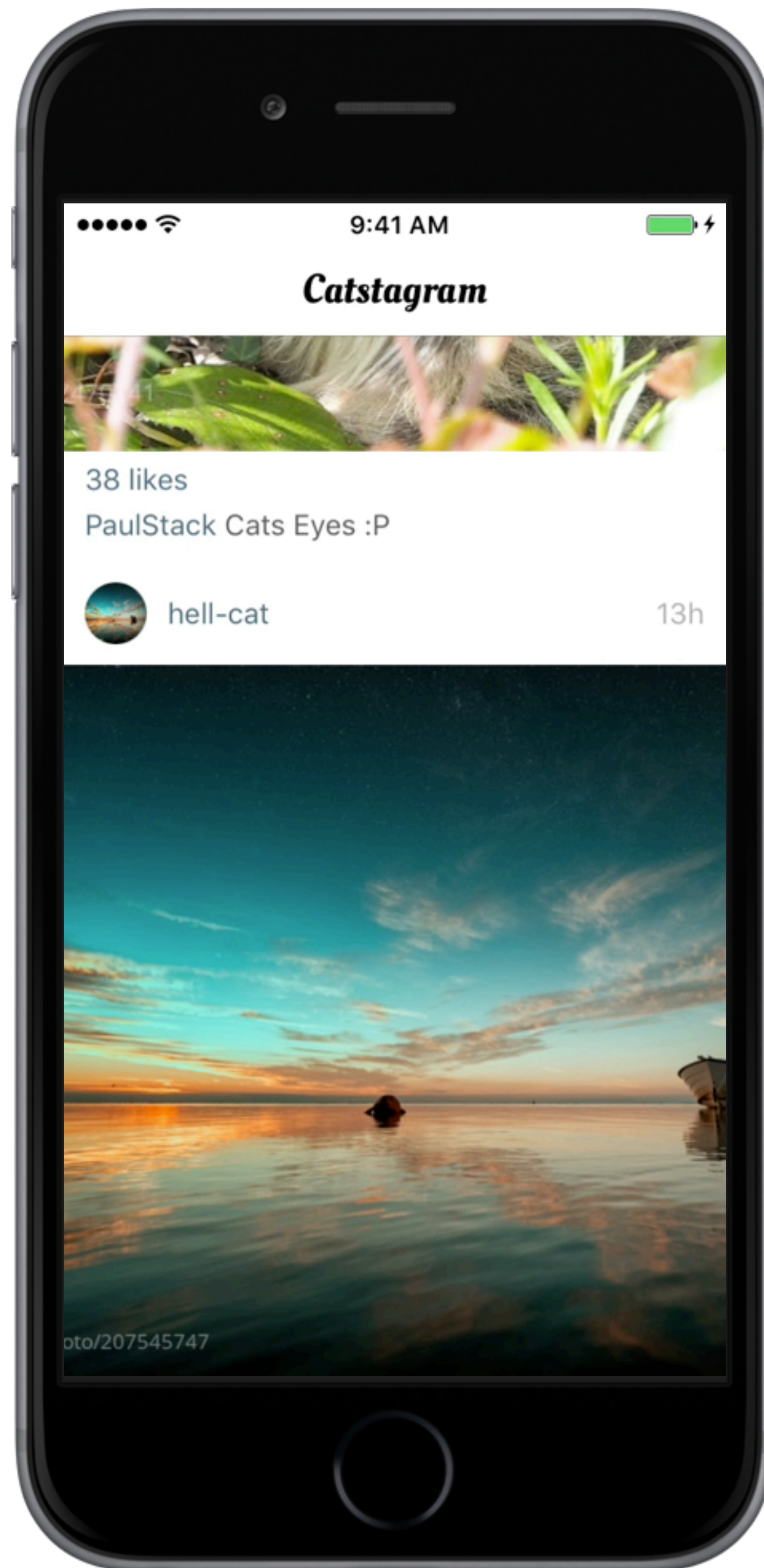
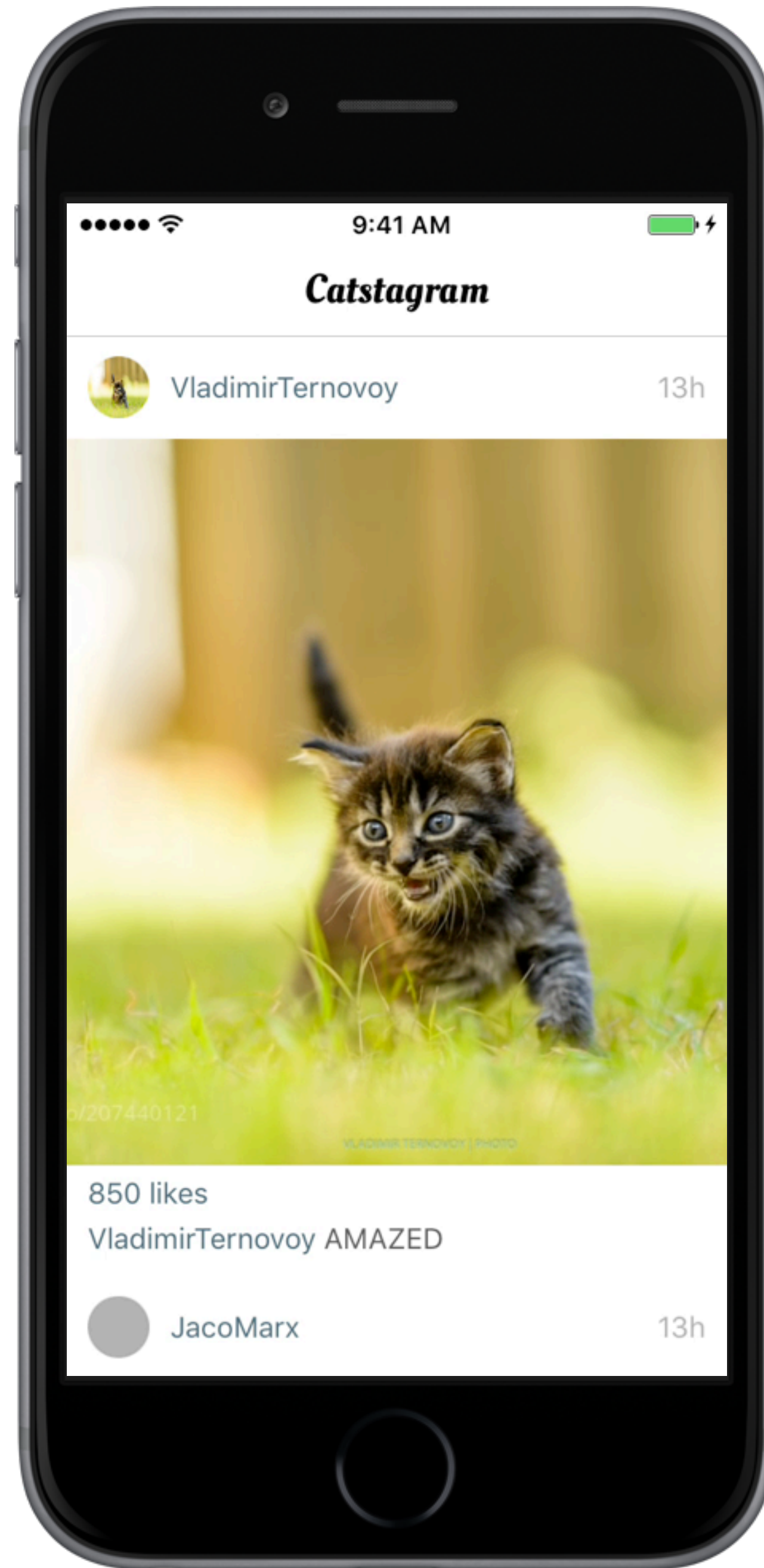
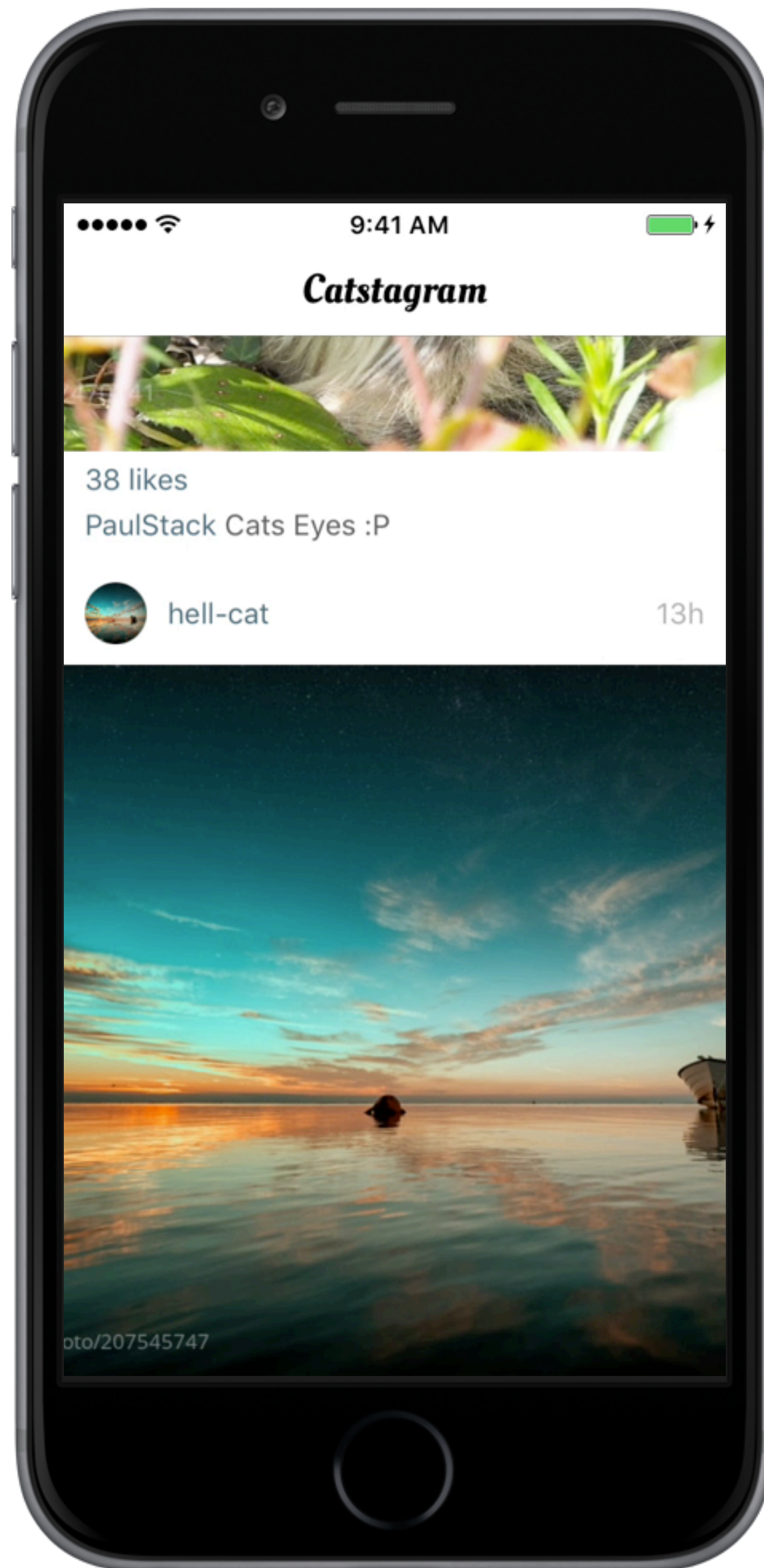


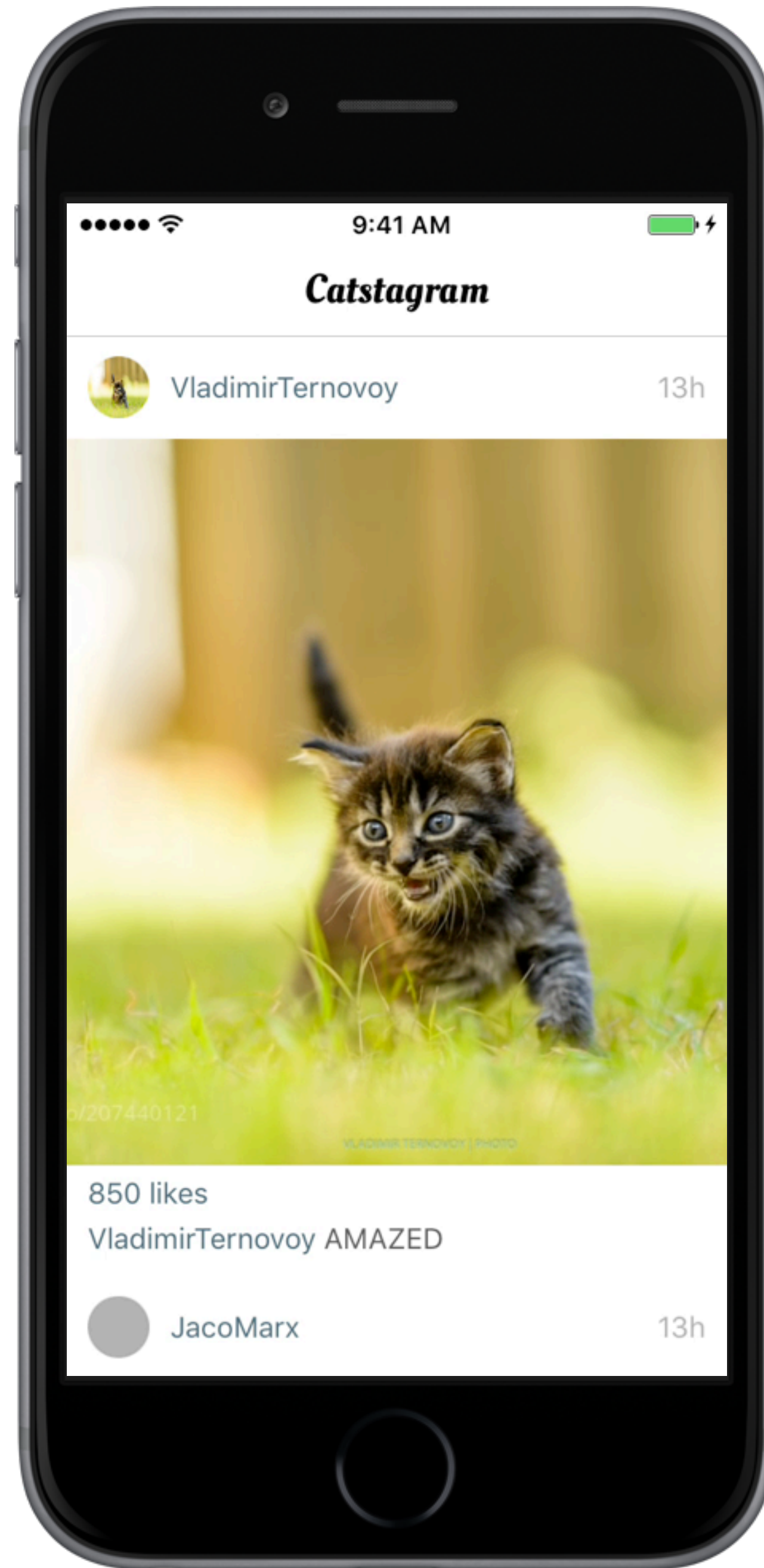
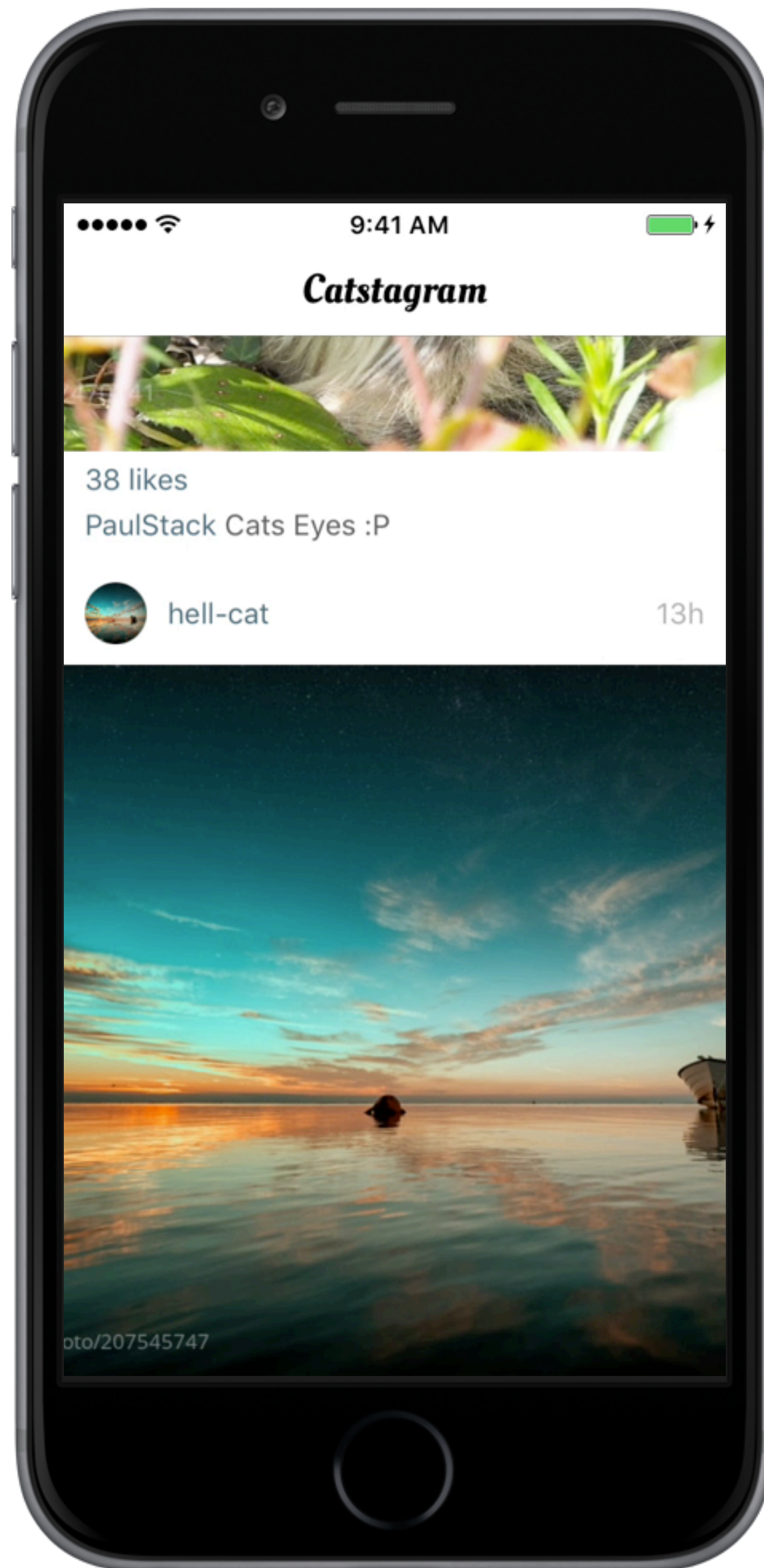
PRACTICAL INSTRUMENTS



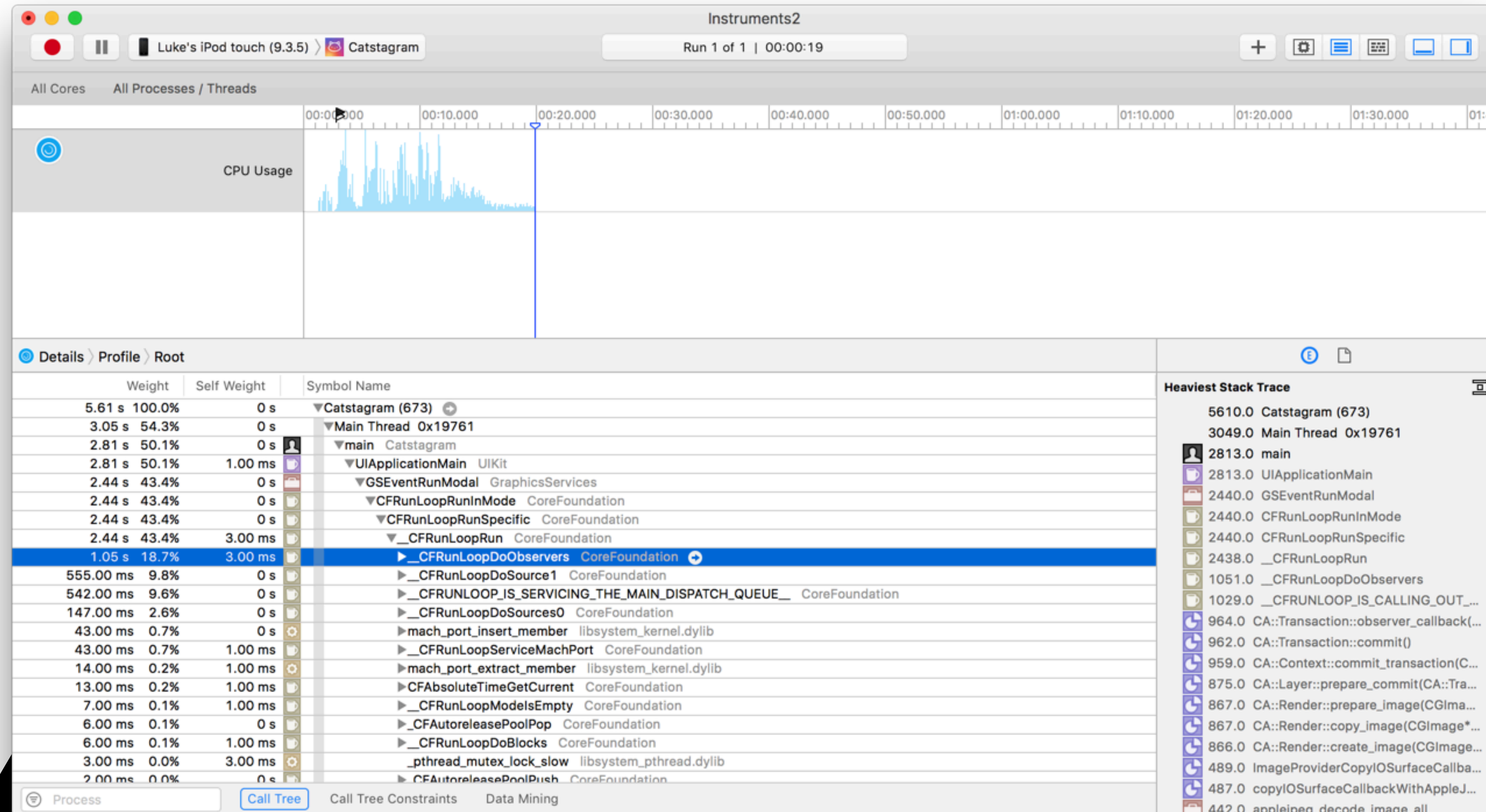
PART 3: TIME PROFILER



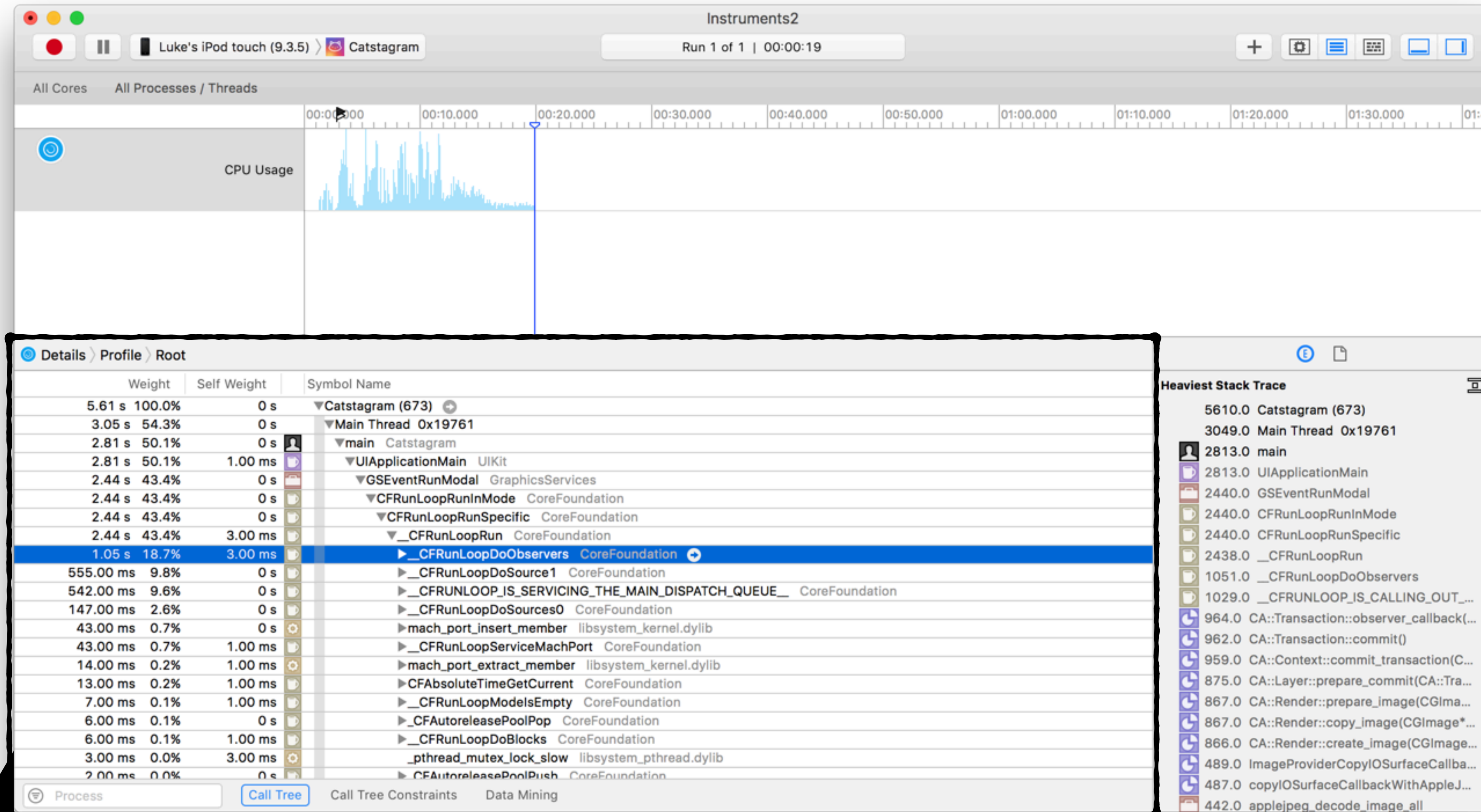




TIME PROFILER



TIME PROFILER



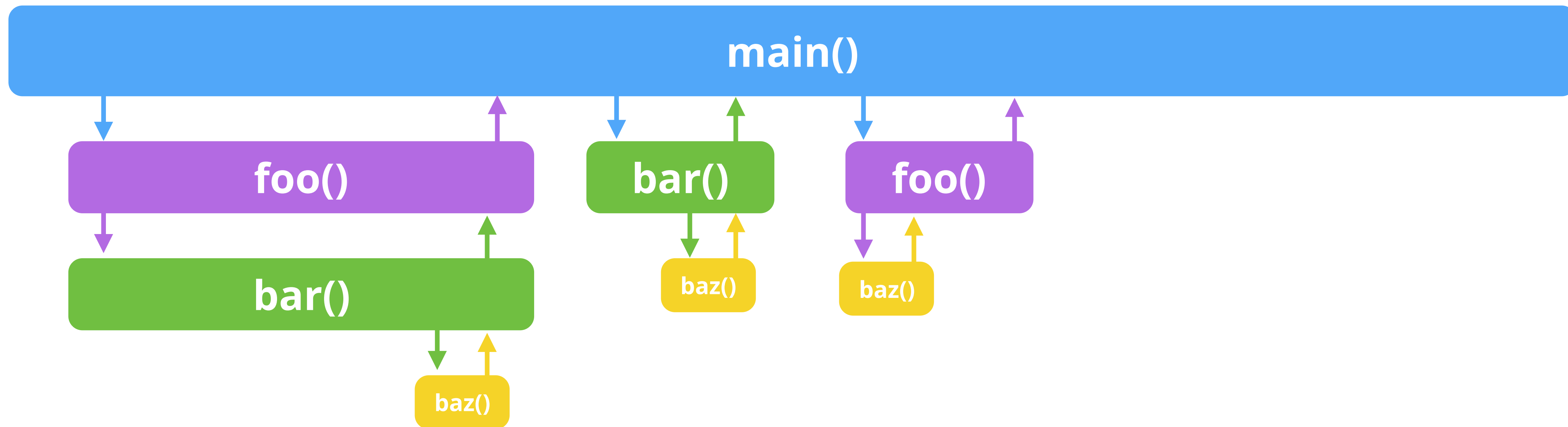
THE CALL TREE

TIME



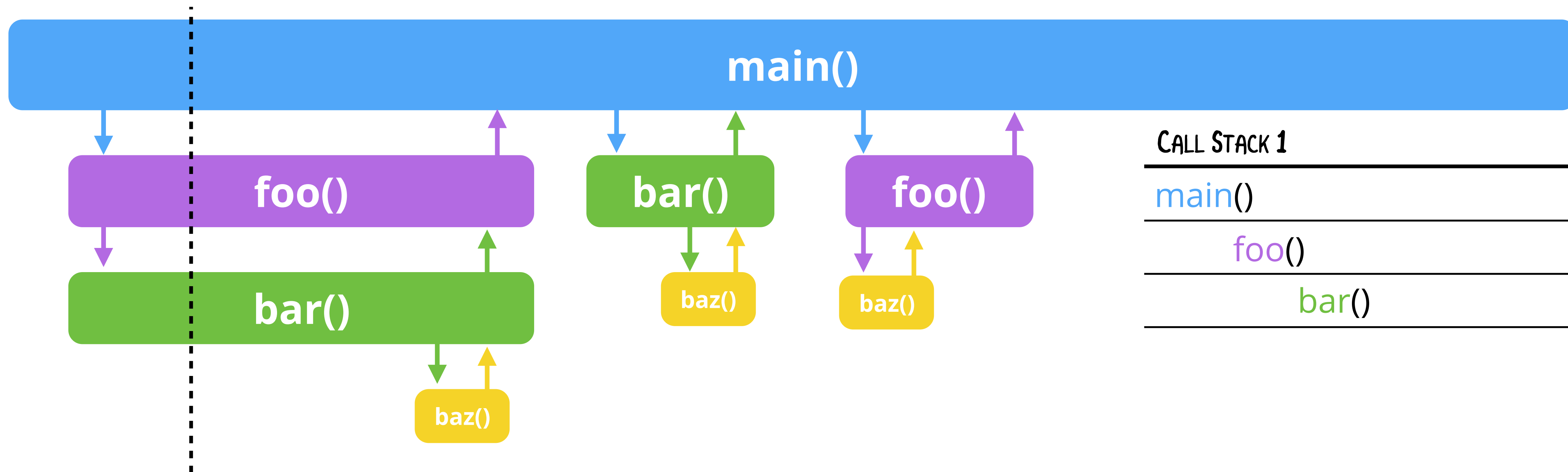
THE CALL TREE

TIME



THE CALL TREE

TIME



CALL STACK 1

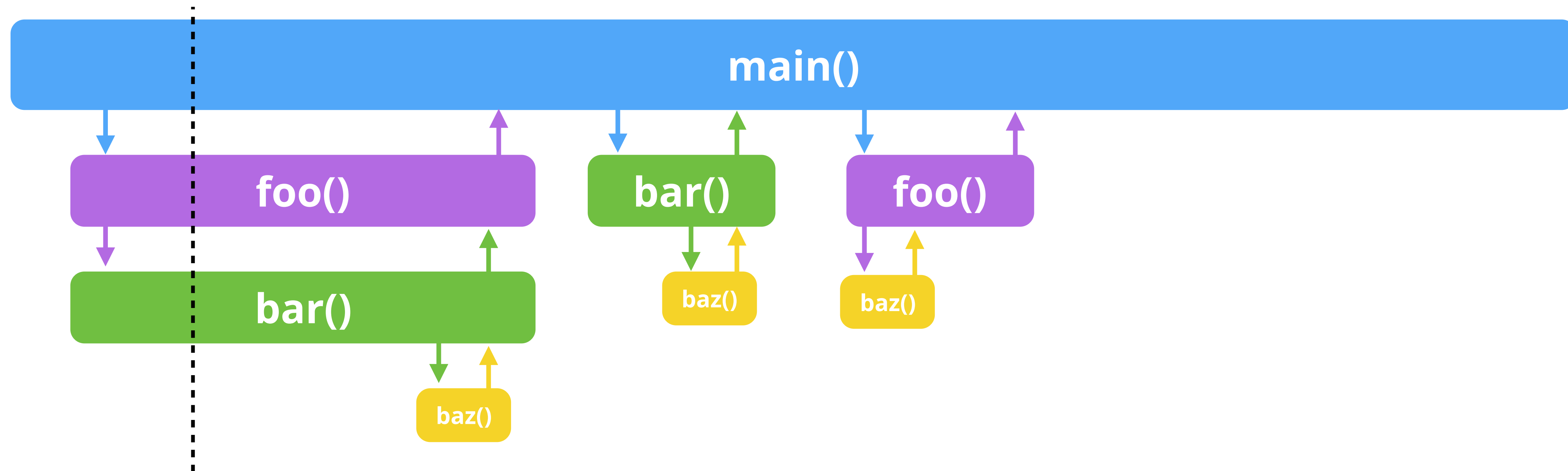
`main()`

`foo()`

`bar()`

THE CALL TREE

TIME



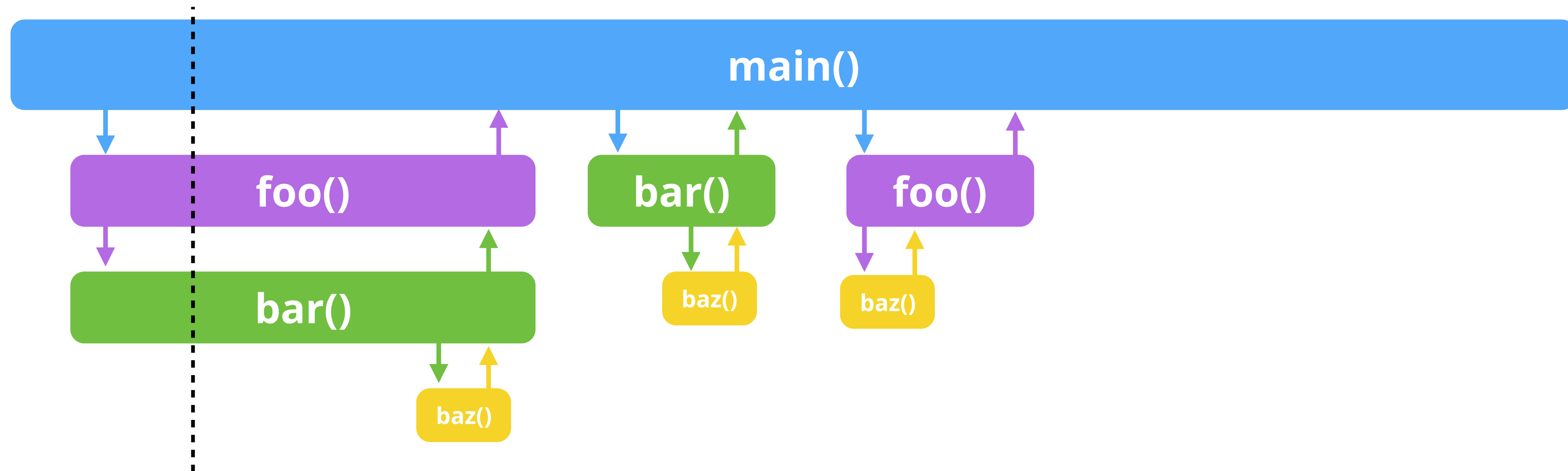
1 `main()`

1 `foo()`

1 `bar()`

THE CALL TREE

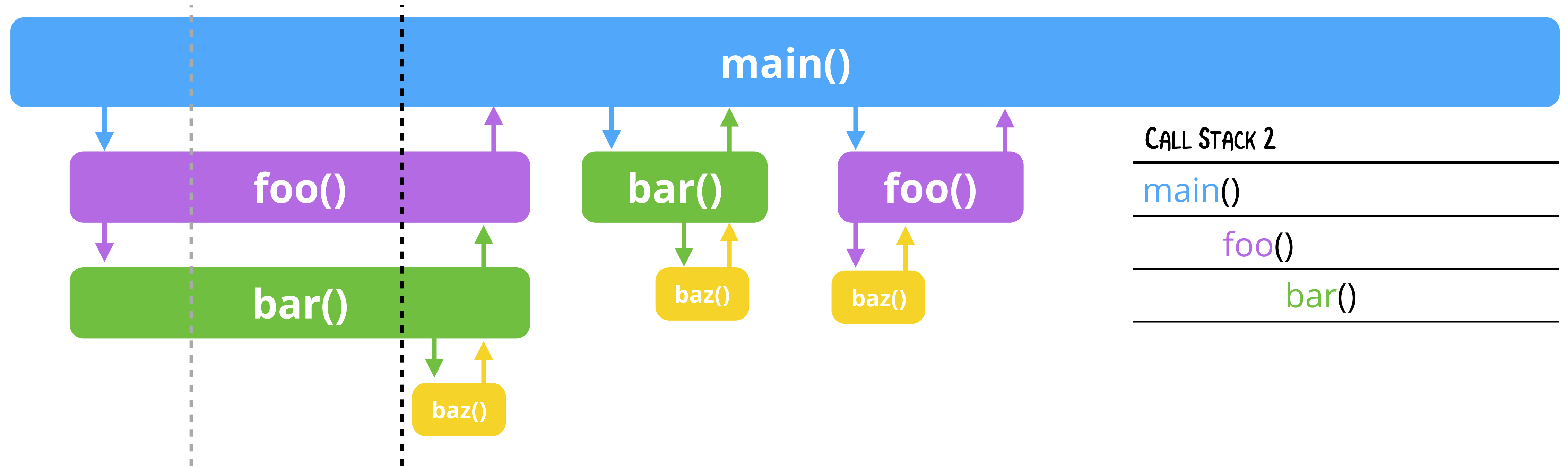
TIME



1 `main()`

1 `foo()`

1 `bar()`



main()

foo()

bar()

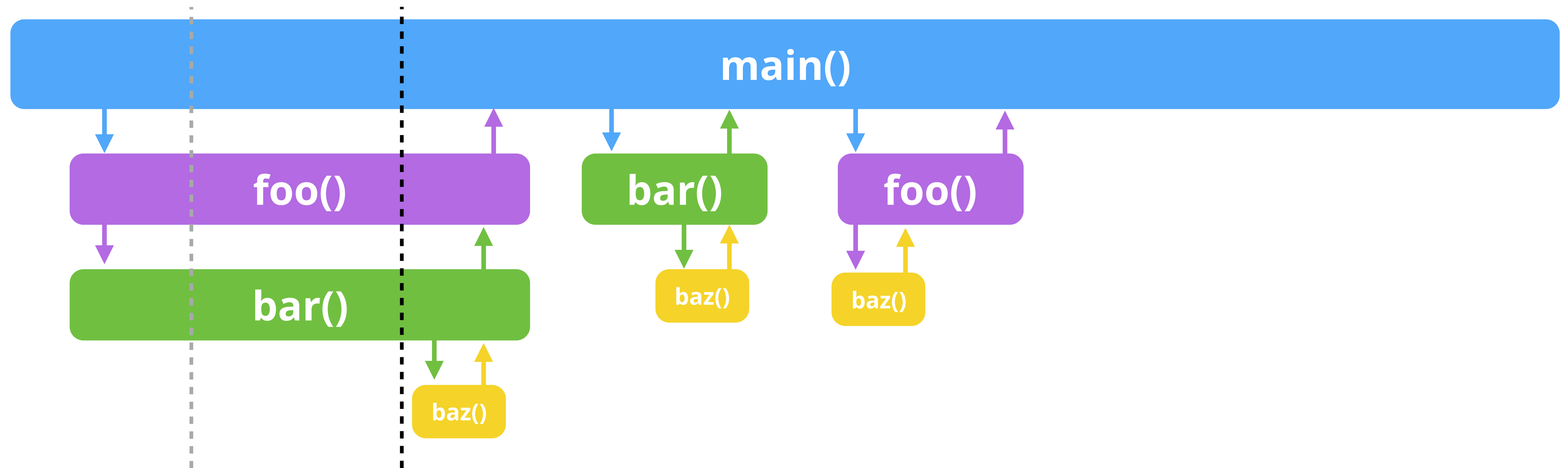
```
1  main()
```

```
1      foo()
```

```
1 bar()
```


THE CALL TREE

TIME



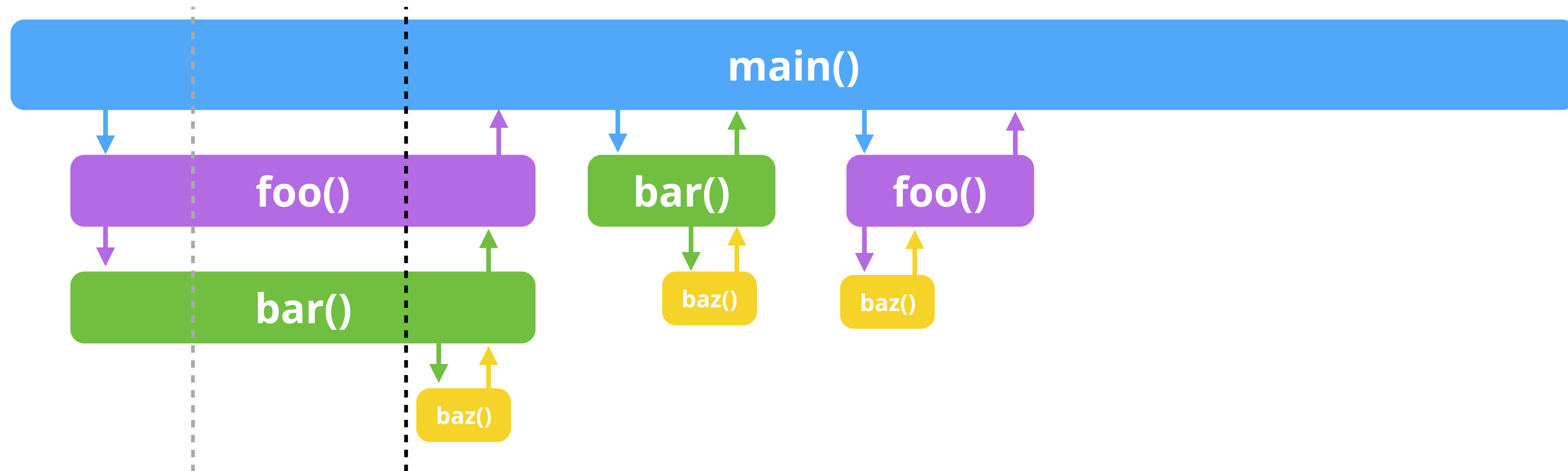
2 `main()`

2 `foo()`

2 `bar()`

THE CALL TREE

TIME



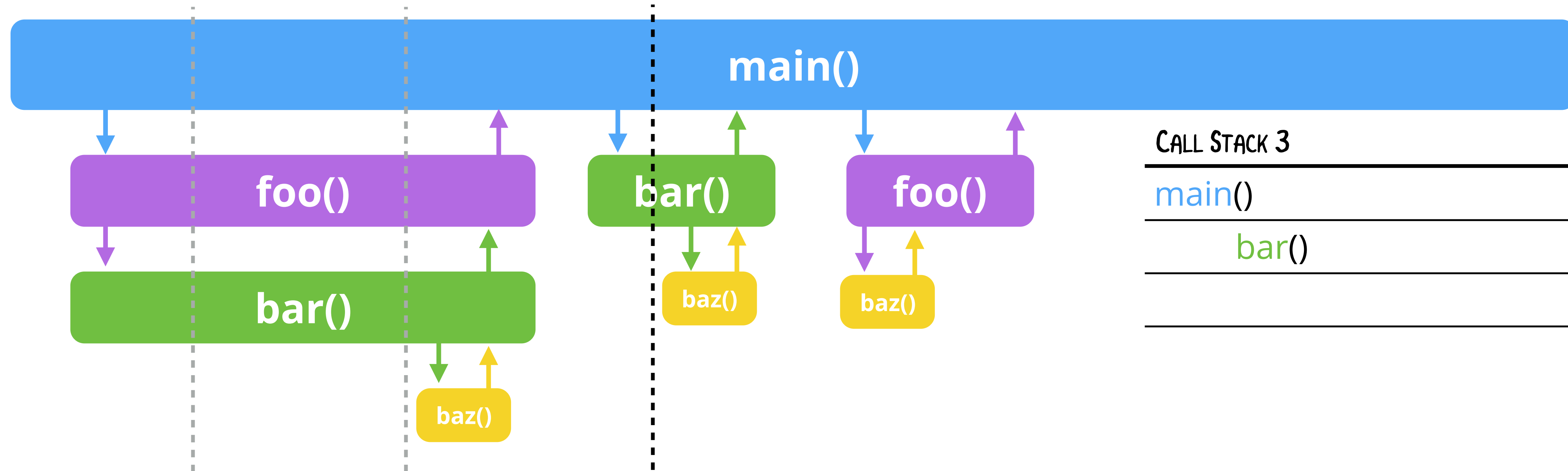
2 `main()`

2 `foo()`

2 `bar()`

THE CALL TREE

TIME



CALL STACK 3

`main()`

`bar()`

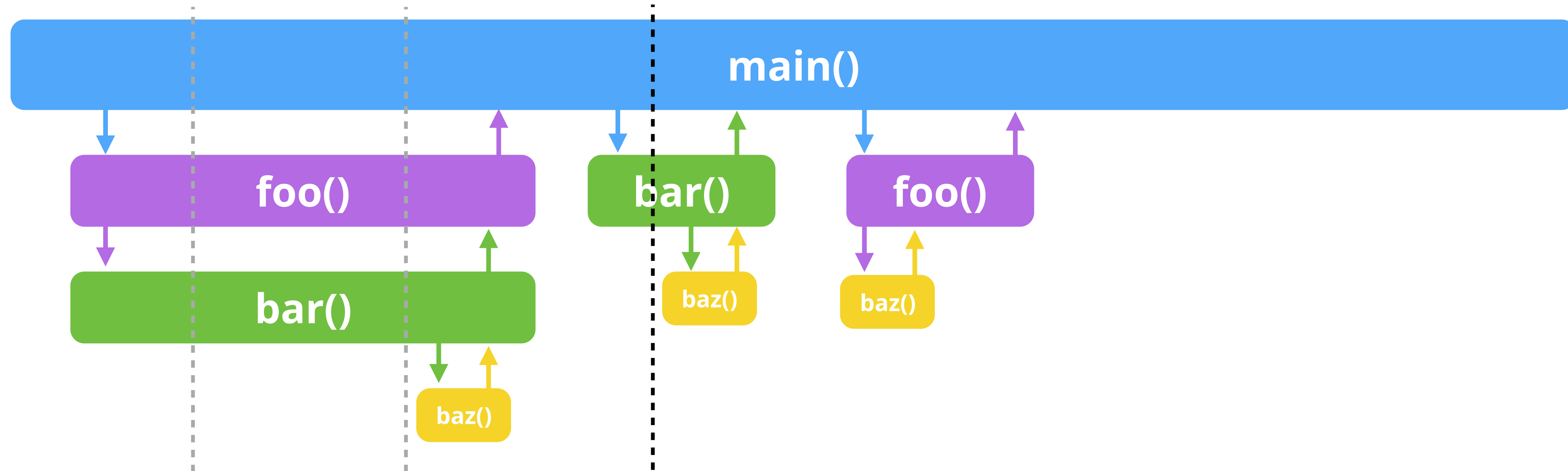
2 `main()`

2 `foo()`

2 `bar()`

THE CALL TREE

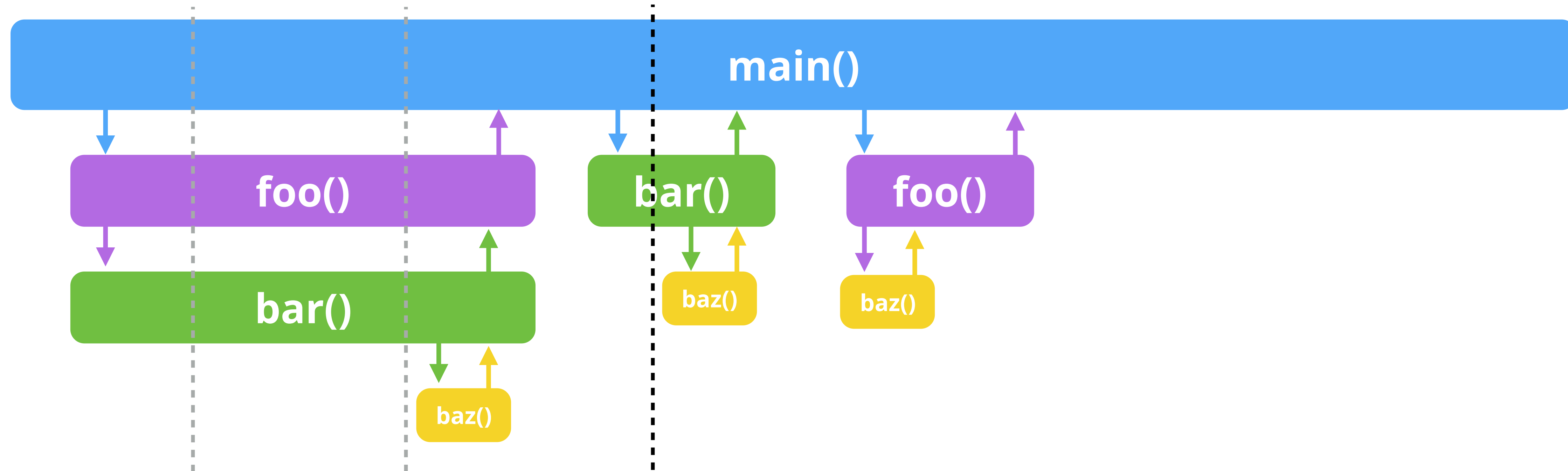
TIME



| | |
|---|--------|
| 3 | main() |
| 2 | foo() |
| 2 | bar() |
| 1 | bar() |
| | |

THE CALL TREE

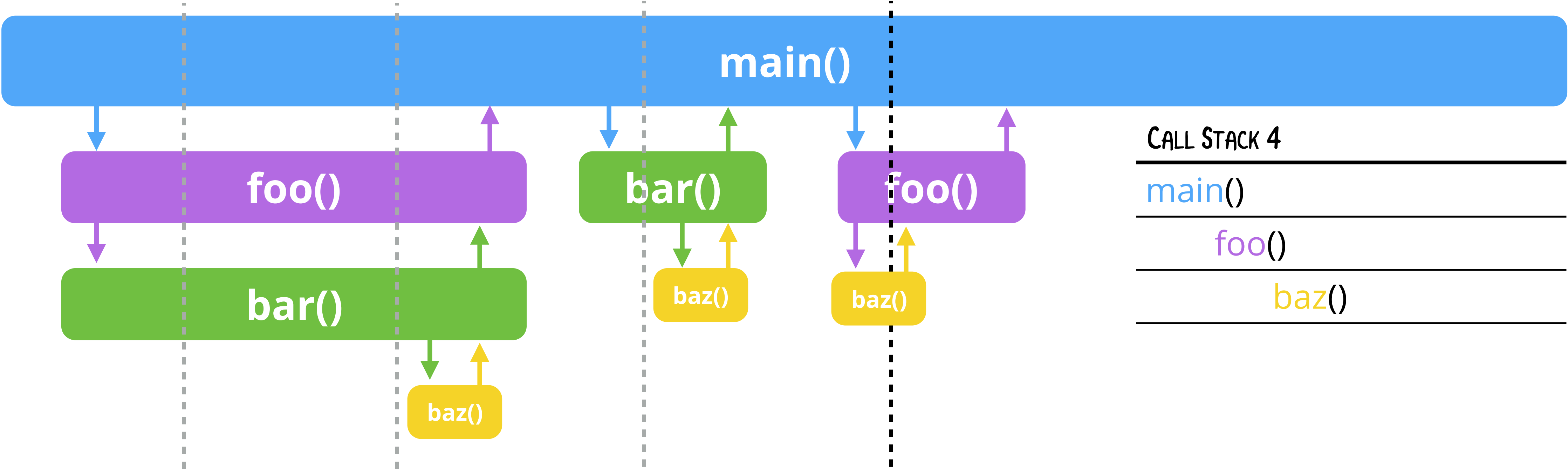
TIME



| | |
|---|--------|
| 3 | main() |
| 2 | foo() |
| 2 | bar() |
| 1 | bar() |
| | |
| | |

THE CALL TREE

TIME



CALL STACK 4

`main()`

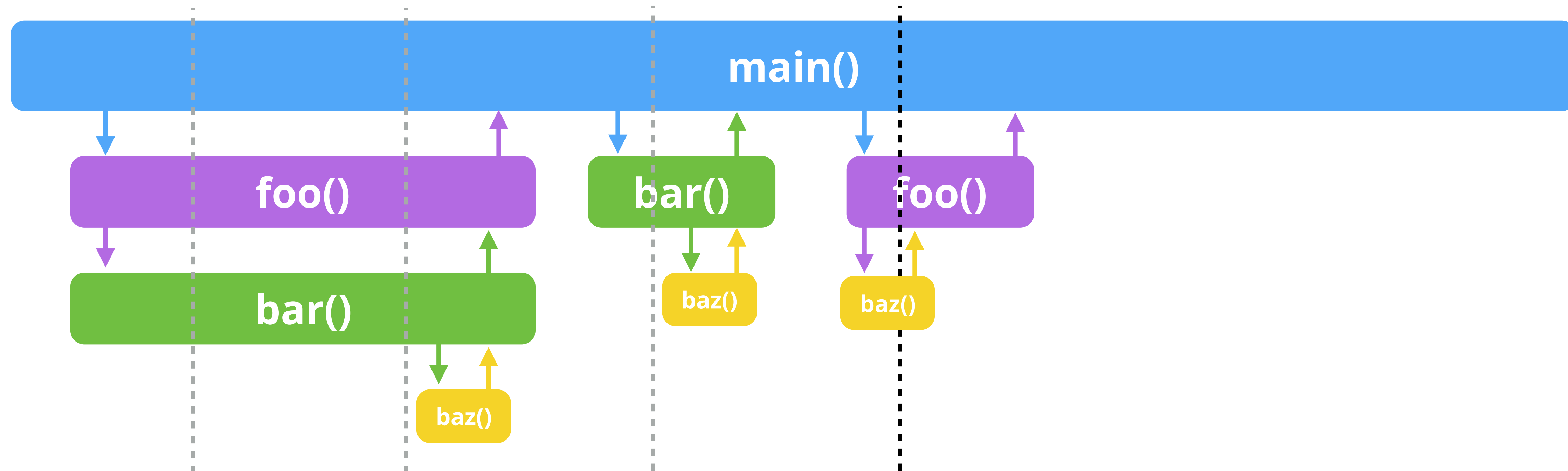
`foo()`

`baz()`

| | |
|---|---------------------|
| 3 | <code>main()</code> |
| 2 | <code>foo()</code> |
| 2 | <code>bar()</code> |
| 1 | <code>bar()</code> |
| | |
| | |

THE CALL TREE

TIME



| | |
|---|---------------------|
| 4 | <code>main()</code> |
| 3 | <code>foo()</code> |
| 2 | <code>bar()</code> |
| 1 | <code>baz()</code> |
| 1 | <code>bar()</code> |

DEMO TIME!



PERFORMANCE ON IOS



PERFORMANCE ON IOS

- ⚙ The Main Thread is responsible for:



PERFORMANCE ON IOS

- ⚙ The Main Thread is responsible for:
 - ⚙ Accepting user input



PERFORMANCE ON IOS

- ⚙ The Main Thread is responsible for:
 - ⚙ Accepting user input
 - ⚙ Displaying results to the screen



PERFORMANCE ON IOS

- ⚙ The Main Thread is responsible for:
 - ⚙ Accepting user input
 - ⚙ Displaying results to the screen
- ⚙ Goal should always be 60 fps

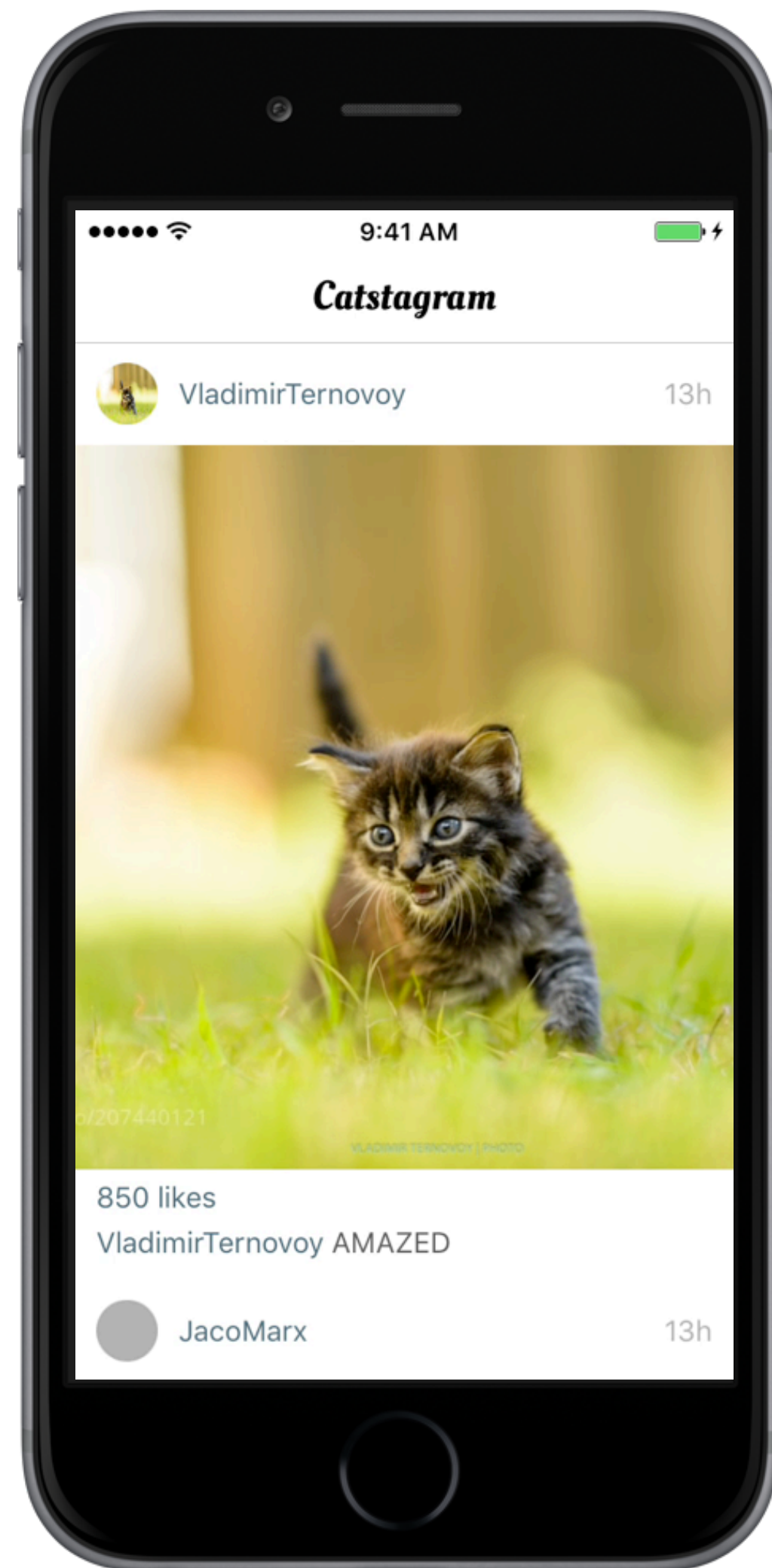


PERFORMANCE ON IOS

- ⚙ The Main Thread is responsible for:
 - ⚙ Accepting user input
 - ⚙ Displaying results to the screen
- ⚙ Goal should always be 60 fps
 - ⚙ ~16.67ms per frame



CHALLENGE TIME!



CHALLENGE TIME!

