

Functional programming for everyone



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Appsilon
DATA SCIENCE







Immutability Island

mutable

```
quantities = {  
  "bread": 2,  
  "eggs": 6  
}
```

```
update(quantities,  
       "eggs", 12)
```

side effect

immutable

```
quantities = {  
  "bread": 2,  
  "eggs": 6  
}
```

```
updated_quantities = update(  
  quantities, "eggs", 12)
```

no side effects



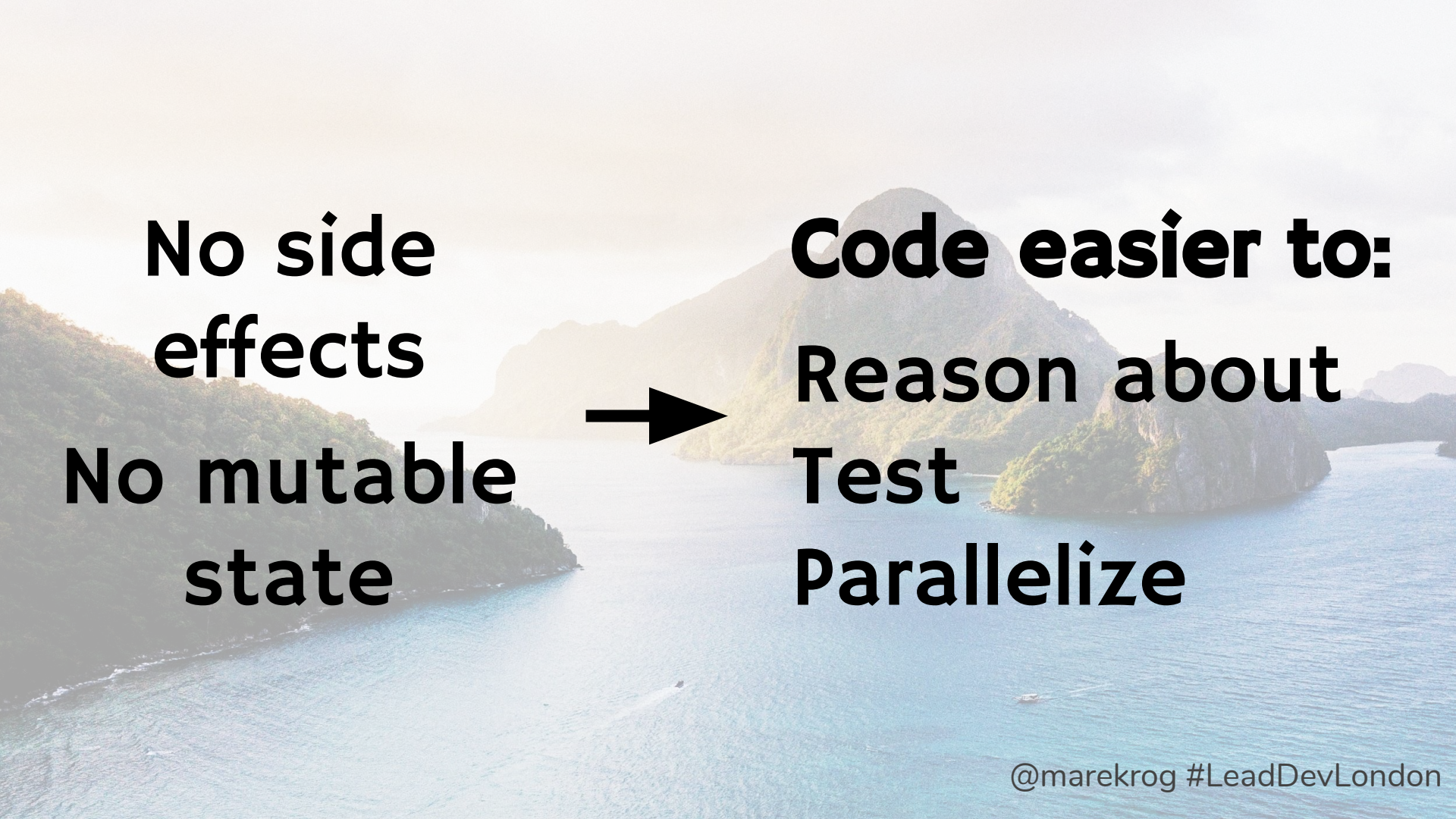
No talking to outside world



No hidden inputs



No surprises

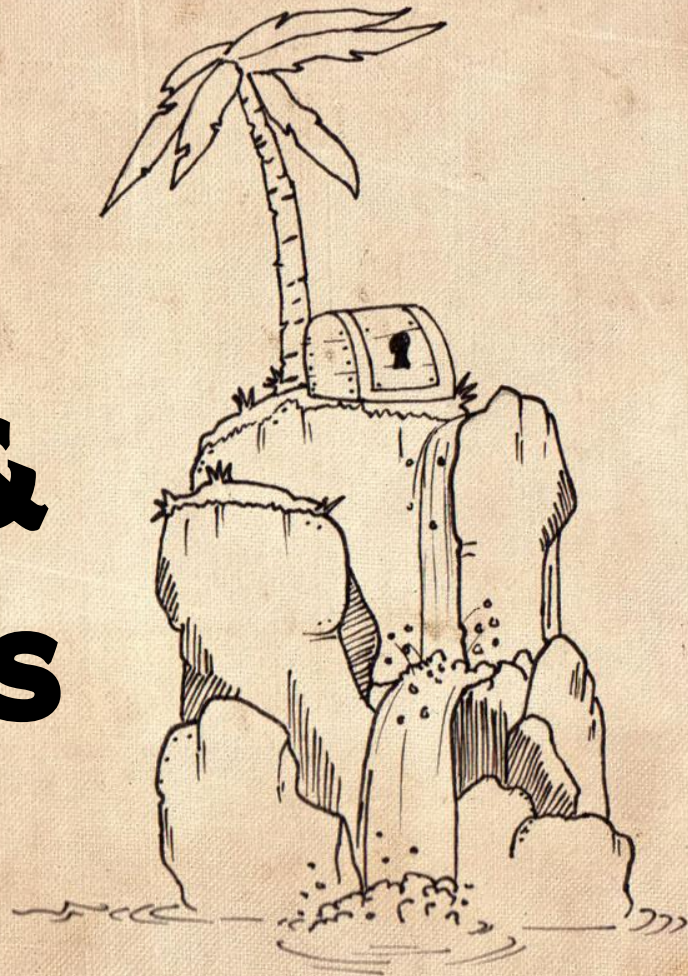
The background of the slide is a scenic photograph of a tropical island. In the foreground, there's a small boat leaving a white wake on the clear, turquoise water. The island is covered in lush green vegetation and has steep, rocky cliffs. In the distance, more islands are visible under a bright, slightly hazy sky. The overall tone is peaceful and scenic.

**No side
effects
No mutable
state**



**Code easier to:
Reason about
Test
Parallelize**

benefits of
**immutability &
no side effects**



A wide-angle photograph of a desert landscape featuring rolling sand dunes. The dunes are a warm, golden-brown color and are sparsely covered with small, dark green desert shrubs. In the distance, a few more prominent trees are visible on a ridge. The sky is a pale, hazy orange, suggesting a sunrise or sunset. The overall atmosphere is serene and expansive.

Declarative desert

declarative: what

```
soup = boiled(  
    chopped(peeled(tomatoes)) +  
    water  
)
```

imperative: how

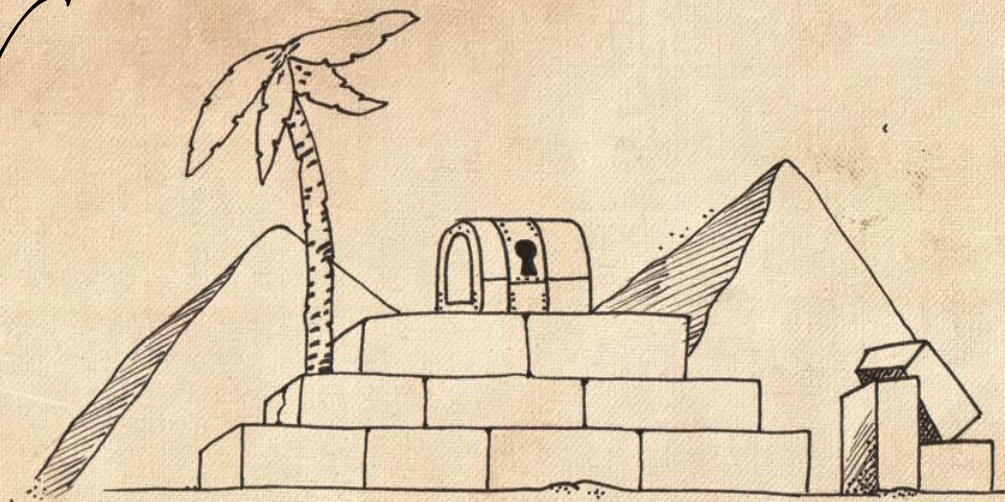
```
soup = new Soup()  
tomatoes.peel()  
tomatoes.chop()  
soup.add(water,  
    tomatoes)  
soup.boil()
```


**Declarative
programming**



Code easier to:
Understand
Optimize
Reuse

design around
what



Perspective Peak



A person wearing a red jacket and dark pants stands on a rocky outcrop covered in snow. In the background, a large, jagged mountain peak rises against a hazy, overcast sky. The scene is a high-altitude mountain landscape.

Functional way is different

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new

perspective on programming

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The background is a dark, moody scene. On the left, there is a wooden crate with its lid slightly ajar. To its right is a heavy metal safe with its door open, revealing a dark interior. The lighting is low, creating a sense of mystery and depth. The overall tone is professional and tech-oriented.

Frameworks come and go

**New way of thinking
never outdated**

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Idea & space




Talk relevant gains



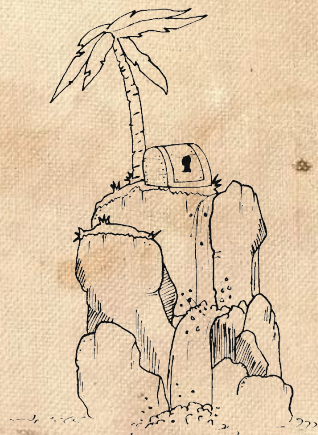
Set expectations

Share resources

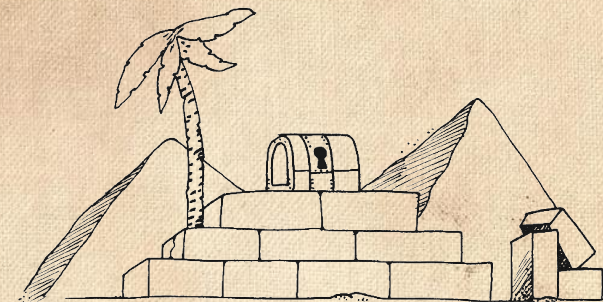
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1. Why functional programming matters (talk + paper)
 2. Functional programming. Simplified (book)
 3. So you want to be a functional programmer (articles)
 4. Learn you a haskell (online book)
 5. Functional Programming in Scala (MOOC)
 6. Community (Twitter, Gitter channels)
 7. Contribute to friendly Open Source projects, e.g. Scalaz



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**immutability &
no side effects**



designing around *what*



new way of thinking