Controlling Execution Flow with Pattern Matching

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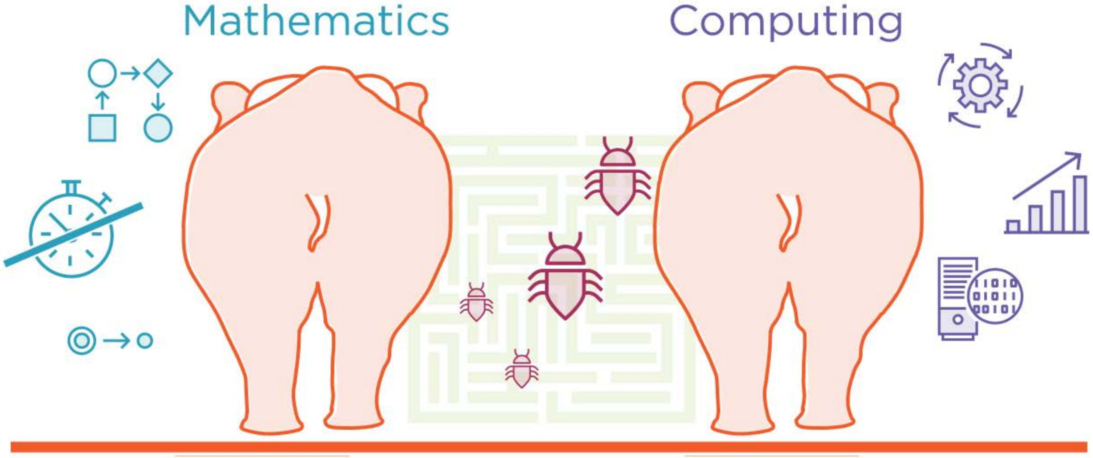
The Secret Life of Functions



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Pattern matching

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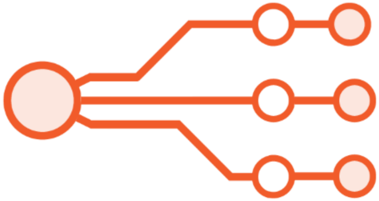
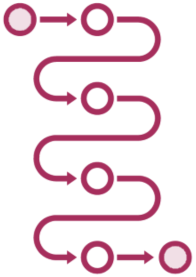
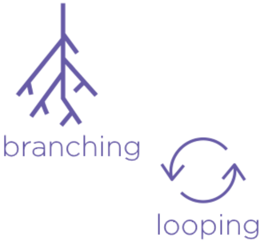


Function composition (pipelining)

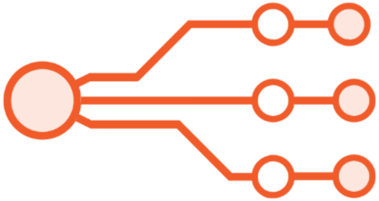


Imperative control flow



The Secret Life of Functions

Pattern matching



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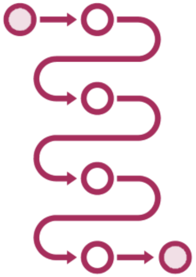


Imperative control flow

branching
looping

Defining a Function

```
static void Subtract(
  this Amount from,
  Amount amount)
```

Fail

from.Currency ≠ amount.Currency

Succeed partially

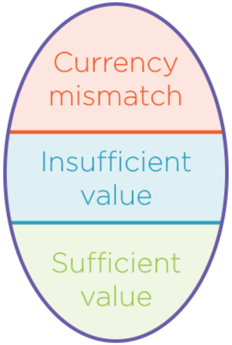
from.Currency = amount.Currency

from.Value < amount.Value

Succeed

from.Currency = amount.Currency

from.Value ≥ amount.Value



Mutually exclusive
Intersections
of cases are empty

Complete
Union of all cases
is the entire domain

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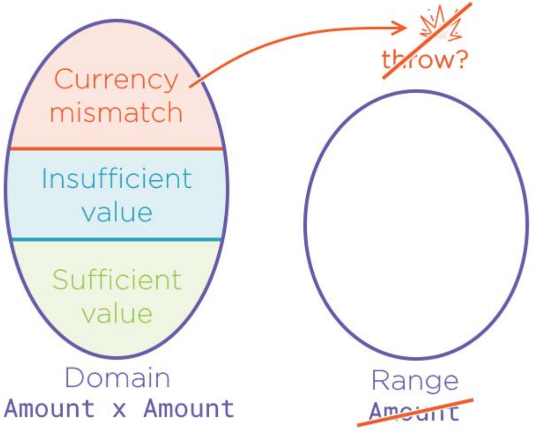

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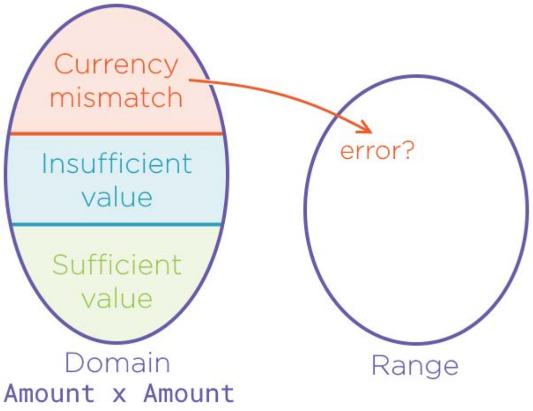

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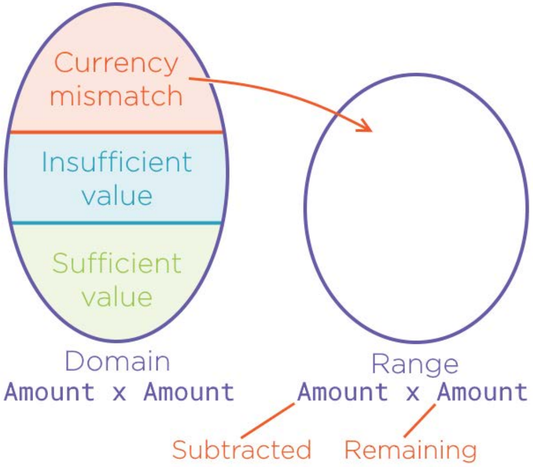

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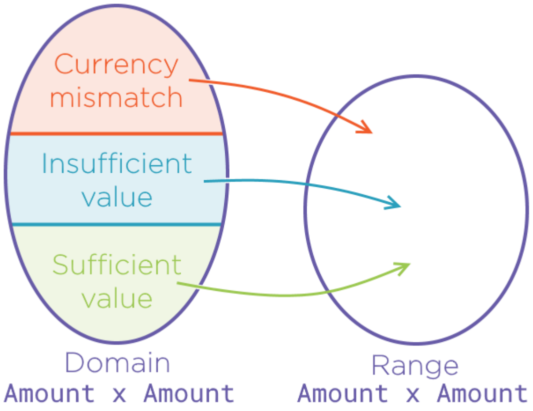
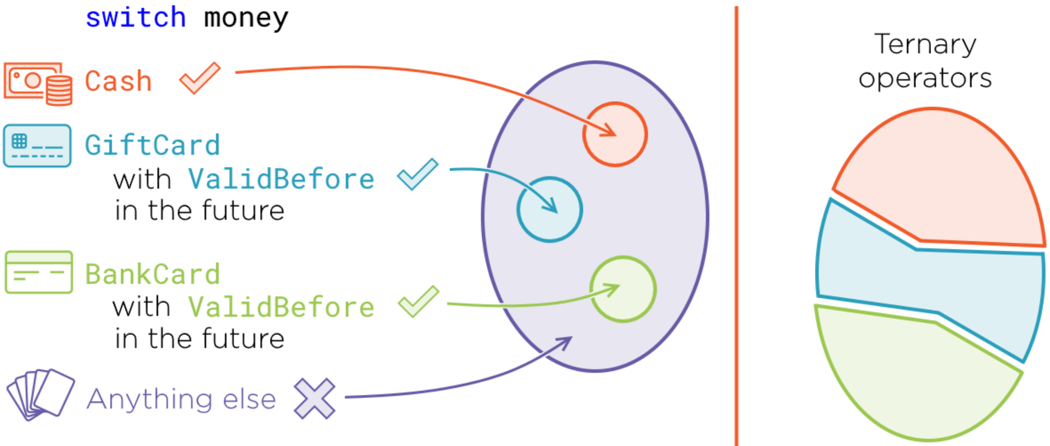


`switch` vs. Ternary Operator



Summary

Equality tests and pattern matching

- Patterns often call `Equals()`
- Patterns often test runtime type

Test type and set variable (C# 7)

- Used to mimic pattern matching

Chain of ternary operators

- Progressively constrains the domain

Switch instruction with type matching

- Declares patterns from specific to general
- Compiler handles evaluation

Summary

Pattern matching as a control flow

- The only form of branching

Applicable to some functions

- When a function looks like a "union" of several functions
- Pattern matching used to select one of the functions/mappings

Next module:

Working with Sequences in Functional Way