

COMP26020 Programming Languages and Paradigms Part 1: C Programming

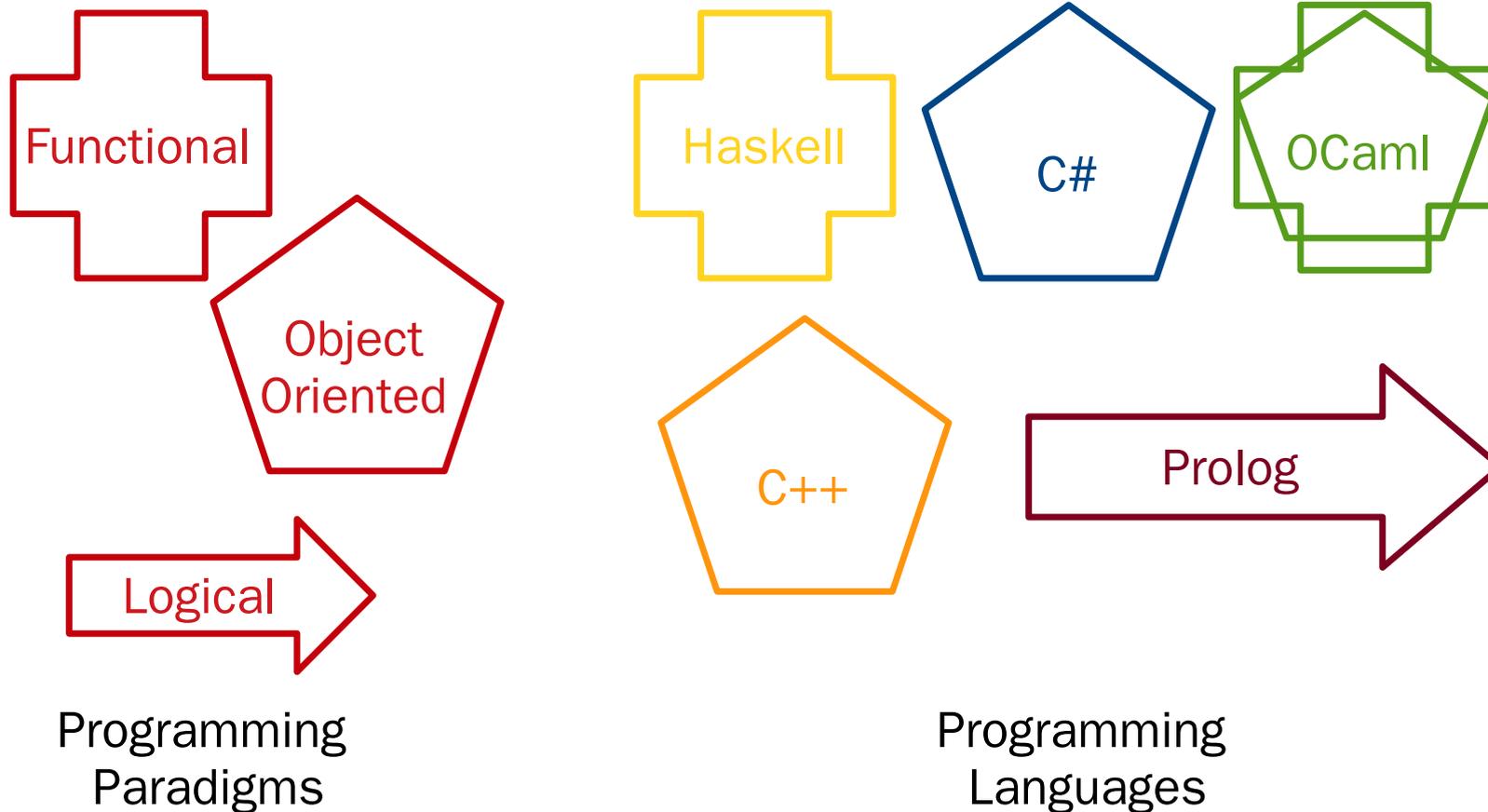
Programming Paradigms

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- How do programming paradigms related to programming languages?
 - **Paradigms can be used to classify languages** based on the programming styles they support



- **A language belongs to one or several paradigms**, i.e. it makes it easy to develop using the style defined by the paradigm

adapted from <https://www.janeve.me/software-programming/understanding-programming-paradigms>

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function mult_by_two_imperative (array) {  
  let results = []  
  for (let i = 0; i < array.length; i++){  
    results.push(array[i] * 2)  
  }  
  return results  
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[01-programming-paradigms/mult2-imperative.js](#)  

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2. Using the **declarative** paradigm:

```
function mult_by_two_declarative (array) {  
  return array.map((item) => item * 2)  
}
```

[01-programming-paradigms/mult2-declarative.js](#)  

Result is the same, the way to describe the computations is different

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 - Can be divided into functions
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 - etc.

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 - etc.
- Paradigm also defines how the programmer describes the **data** computations are applied on
 - Basic types
 - Custom data structures
 - Local/global variables
 - etc.

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 - Compile-/run-time characteristics such as memory footprint and program speed

Wrapping Up

- Programming paradigm → programming style
 - Each programming language implements one or more paradigms
 - Choose the right paradigm for the right software engineering problem
-

Feedback form: <https://bit.ly/37p8WZ3>

