Introduction

Programming Paradigms

> **Definition**
>
> A method to solve a problem or do some given task

Imperative Paradigm

Procedure Oriented Programming

- Languages: BASIC, C, FORTRAN, Java, Pascal

Object Oriented Programming

- Languages: Java, C++, C#, Python, R, PHP, Visual Basic, .NET, JavaScript

Declarative Paradigm

Functional Programming

- Languages: Haskell, Scheme, Clojure, Racket, Erlang

Logic Programming

- Languages: Prolog, Curry

Programming Languages

Properties

- A language's designers must accurately define these properties
- A language's users must accurately use these properties

Syntax

- Basic vocabulary, grammar, method of syntax error detection

Names

- Entities in a program such as variables, type, functions, classes, objects
- Entity bound to a name within the context of scope, visibility, lifetime, and type

Types

- Collection of values and their respective collection of legal operations on those values

Semantics

- The meaning of a program
- Operational, static, and dynamic