

Dive into GHC

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Outline

Frontend

Backend

The parser phase

- ▶ Alex & Happy: The lexer/parser generation tools in Haskell.
- ▶ Decorated Parse Tree: All operators are left-recursion; Treat indents as virtual curly
- ▶ Detour: Monadic Combinatorial Parsers

The renamer and typechecker phase

- ▶ Renamer: Locate all the names and refactor the syntax tree
- ▶ Typechecker: type reconstruction and `OutSideIn(X)` method

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The simplifier and optimizer phase

- ▶ Core language: the most stable part of GHC
- ▶ Optimizations

Code generator: from lazy,functional to strict,imperative

- ▶ Spineless Tagless G-machine: The key of the compilation
- ▶ C-: a portable assembly language