



Compiler Design

Introduction

Overview

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Outline

- Language Processors
- The Structure of a Compiler
- The Evolution of Programming Languages
- The Science of Building a Compiler
- Applications of Compiler Technology
- Programming Language Basics
- Summary

The Structure of a Compiler

- Lexical Analysis
- Syntax Analysis
- Semantic Analysis
- Intermediate Code Construction
- Code Optimization
- Code Generation
- Symbol-Table Management
- The Grouping of Phases into Passes
- Compiler-Construction Tools



The Evolution of Programming Languages

- The Move to Higher-Level Languages
- Impacts on Compilers

The Science of Building a Compiler

- Modelling in Compiler Design and Implementation
- The Science of Code Optimization

Applications of Compiler Technology

- Implementation of High-Level Programming Languages
- Optimizations for Computer Architectures
- Program Translations
- Software Productivity Tools

Programming Language Basics

- The Static / Dynamic Distinction
- Environments and States
- Static Scope and Block Structure
- Explicit Access Control
- Dynamic Scope
- Parameter Passing Mechanisms
- Aliasing

Bibliography

- Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman – Compilers, Principles, Techniques and Tools, Second Edition, 2007