fundamentals of programming language

Fa24 - CS314

compiler PHASES

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Agenda

1. Introduction
2. Types of compiler
3. compiler phases
4. cfg design
5. project implementation
6. conclusion

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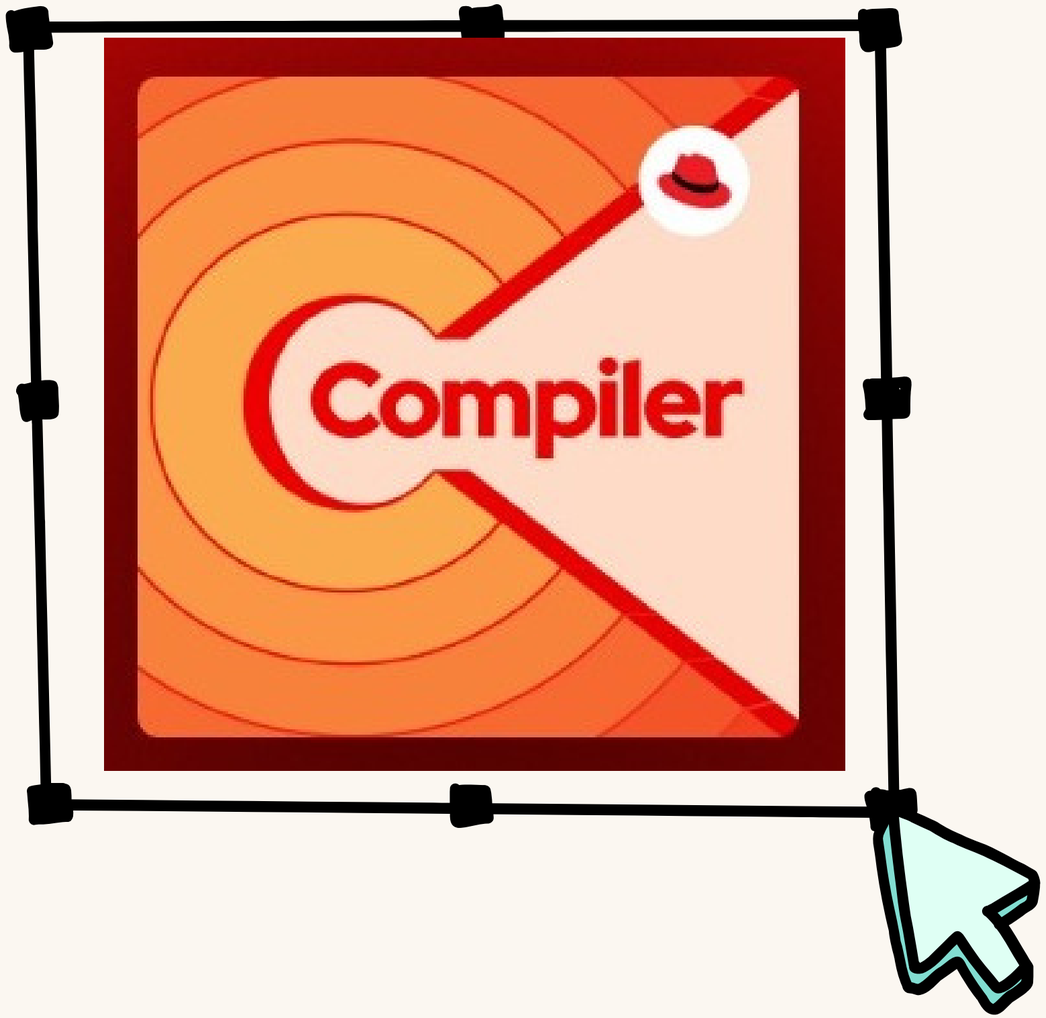

Introduction

It is special program that translates a programming language's source code into machine code, bytecode or another programming language.
contains the sequence of various phases.

TYPES OF COMPILER

1. single pass
2. Multi pass
3. Just-in-time
4. CROSS COMPILER
5. AHEAD OF TIME

COMPILER PHASES

- Lexical analyzer
- syntax analyzer
- Semantic analyzer
- intermediate code generator
- optimizer code generator
- code generator

snapshots of running

Run of the code

Input: Enter your equation

Form: Math Form / Source Form

Submit

Lexical Analysis

Syntax Tree

Semantic Tree

Intermediate Code

Optimized Code

Machine Code

CFG DESIGN

PRODUCTION RULES

1. Exp → E Add_op term
2. Exp→ term
4. Term → Term Mulop Factor
5. Term → Factor
5. Factor → (Exp) | id | num
6. Mulop → *,/
7.add_op → +,-

CONCLUSIONS

At the end we know how compilers work by breaking down each phase, analyzing code to generating machine instructions.
In the future, we could expand the compiler to support more complex programming constructs and optimize performance further

“ The most dangerous phrase in the language is, 'We've always done it this way.'" By learning compiler design, we challenge and innovate the way code is translated and executed. “

Grace Hopper

THANK YOU!