GeeksforGeeks

COMPILER DESIGN

DETAILED COURSE SYLLABUS

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BASICS OF COMPILER DESIGN

- Introduction to Compiler Design
- Ambiguous Grammar
- Recursive Grammar
- Left factoring
- Introduction to Compiler Phase
- Language Processing

LEXICAL ANALYZER PHASE

- Lexical Analyzer or Scanner
- Gate Questions on Lexical Analyzer

SYNTAX ANALYZER PHASE -> TOP-DOWN PARSER

- Parsers
- Recursive Descent Parser
- Recursive Descent Parser with Left Recursive and Left
- Factored grammar
- LL(1) Parser
- First() function
- Follow() function
- LL(1) parsing table construction
- Checking a Grammar LL(1) or not
- How much powerful is LL() parser

SYNTAX ANALYZER PHASE -> BOTTOM-UP PARSER

- Bottom-up Parsers
- LR(0) parser
- Goto() and Closure() functions
- LR(0) parsing table construction
- Problem Solving with LR(0) parser
- Types of conflicts in LR(0) and SLR(1)
- Handling Left Recursive grammar with LR(0) parser
- SLR(1) parsing table construction

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- Problem solving with SLR(1) parser - Part 1
- Problem solving with SLR(1) parser - Part 2
- Closure/ Goto functions with LR(1) item
- CLR(1) parsing table construction
- LALR(1) parsing table construction
- Types of conflicts in CLR(1) and LALR(1)
- Problem solving with CLR(1) and LALR(1) parser - Part 1
- Problem solving with CLR(1) and LALR(1) parser - Part 2
- Power comparison of parsers
- Operator Precedence Parser
- Operator Precedence Parser Table Construction

SEMENTIC ANALYZER PHASE

- Syntax Directed Translation
- Applications of SDT-Part 1
- Applications of SDT-Part 2
- Applications of SDT-Part 3
- Construct SDT based on S-attributed definition and attributed definition
- Gate Question 1 based on SDT
- Gate Question 2 based on SDT
- Gate Question 3 based on SDT

INTERMEDIATE CODE GENERATION PHASE

- Intermediator Code Generator
- Examples-Intermediate Code Generation
- Types of 3-address code
- Conditional statement in 3-address code
- Loop statement in 3-address code
- Switch statement in 3-address code
- Representation of 3-address code in memory

SYMBOL TABLE AND STORAGE ALLOCATION

- Run time environment
- Symbol table
- Representing scope information
- Error Detection and Recovery
- Storage Allocation

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CODE OPTIMIZATION PHASE