UNIT 1 -SUMMARY

Vasuki P
<VasukiP@ssn.edu.in>

Introduction

Summary

- **Compiler is a translator** - Compilation is the conceptual process of translating source code into a CPU-executable binary target code.
- **Interpretation** - is the conceptual process of running high-level code by an interpreter
- Unit 1 Deals about introducing various phases of compilers.

Phases of Compiler

- **Analsis Phase** Verifying the syntatic and semantic correctness of the program and handling errors.
- **Synthasis Phase** Generating appropriate intermediate and final machine code

Highlights

- **Language Processors** An integrated software development environment includes many different kinds of language processors such as compilers, interpreters, assemblers, linkers, loaders, debuggers, profilers.
- **Compiler Phases** A compiler operates as a sequence of phases, each of which transforms the source program from one intermediate representation to another.
- **Machine and Assembly Languages**. Machine languages were the firstgeneration programming languages, followed by assembly languages. Programming in these languages was time consuming and error prone

Highlights

- **Modeling in Compiler Design** Compiler design is one of the places where theory has had the most impact on practice. Models that have been found useful include automata, grammars, regular expressions, trees, and many
- **Code Optimization** Although code cannot truly be "optimized," the science of improving the efficiency of code is both complex and very important. It is a major portion of the study of compilation. others.

Reference: [Aho et al.(1986)Aho, Sethi, and Ullman]

Phases of Compiler

- **Lexical Analysis** Segregate the lexeme, analyze, categorize and generate smbol table
- **Syntax Analysis** Verifies the structural correctness, generates parse tree using grammer
- **Semantic Analysis** Verifies semantic correctness like type checking
- **Intermediate Code Generation** Generate machine independent intermediate code from annotated syntax tree.

Phases of Compiler Review contd...

- **Code Optimization** Code is optimized to minimize the time taken to execute a program and to minimize the amount of memory occupied
- **Code Generation** - Conversion of intermediate code into targe machine code.
- **Symbol Table** Symbol table consists the information of variables,functions and their types and scope etc.

References

- Aho, A.V., Sethi, R., and Ullman, J.D., *Compilers principles, techniques, and tools*, Addison-Wesley, Reading, MA, 1986.