

Introduction to Program Analysis

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Purposes of Program Analysis

- To detect and trace defects such as memory leaks, security vulnerabilities etc.
- To judge complexity of programs.
- To compile programs.
- To migrate or evolve programs.

Analysis for Compiling

- Syntax checks
- Optimizations for improving performance
- Simple error checks

Analysis for Migration and Evolution

- Migration from one platform to another platform such as migrating code from a serial to a parallel computer.
- Evolution to improve efficiency, performance or functionality of software.

Software Complexity Analysis

- The analysis may be done to avoid unwarranted complexity.
- It may be for estimating maintenance cost.

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Types of Program Analyses

- Are there different types of program analyses?
- How do we differentiate the different types of program analyses?