## STATIC ANALYSIS BY TOOLS

SOFTWARE TESTING, VERIFICATION, VALIDATION AND QUALITY ASSURANCE

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## STATIC ANALYSIS

- O Performed on requirement design or code without actually executing the software or before the code is actually run.
- O Goal of static analysis is to find the defects whether or not they may cause failure.
- O Static analysis **find defects** rather than failures.

## **TOOLS**

- O Used by the designers during software modelling.
- O Typically used by the developers before and sometimes during component and integration testing.
- O Compiler can be considered as a static analysis tool because it builds a symbol table, points out incorrect usage and checks for non-compliance to coding language conventions or syntax.

## VARIOUS FEATURES OF STATIC ANALYSIS TOOLS

#### O Coding standards

- ✓ set of programming rules, naming conventions and layout specifications,
- most of the coding standards probably have checking tools (plugins, library) available which support the standard,
- ✓ if rules in coding standard is not applied, then large number of rules may create problem leading to failure

#### O Code metrics

- measurement of depth of nesting, cyclomatic number and number of lines of code,
- ✓ monitors the change, complexity and growth of the project

### VARIOUS FEATURES OF STATIC ANALYSIS TOOLS

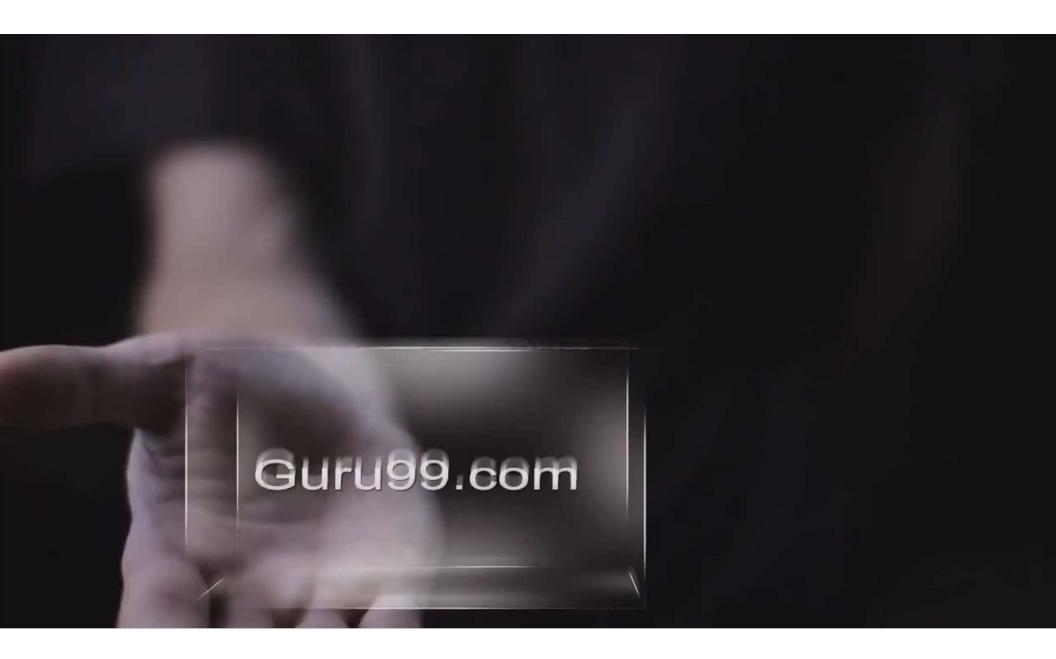
#### O Code structure

the effort required to write the code in the first place, to understand the code while making the change, or to test the code using particular tools or techniques

- O Control flow structure addresses the sequence in which the instructions are executed.
- O Data flow structure follows the track of the data item as it is accessed and modified by the code.
- O Data structure refers to the organization of the data itself, independent of the program.

## Review









# Static Code Analysis

