Static vs. Dynamic Testing

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Static vs. Dynamic Testing

- **Common Points**
  - **Evaluating and improving the SW quality**
    - **To find and fix errors, defects and other potential problems**
- **Different Points**
  - **Static Vs. Dynamic Testing**
  - **Inspection can be done before code can be tested.**
  - **Inspections cannot check non-functional characteristics such as performance, usability, etc.**
  - **Testing is to evaluate the product working(performing)**
- **Relationship**
  - **Not mutually exclusive alternatives**
    - **The both perform some unique functions**
    - **Techniques do not replace with each other**
  - **Both should be used during the V & V process**
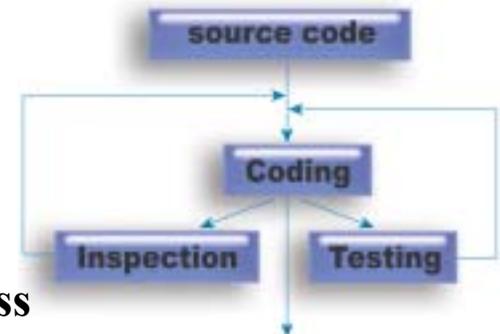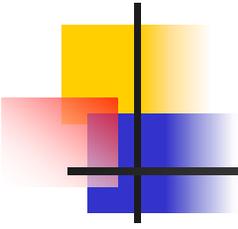
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- **Static testing: Does not involve program execution**
  - Verification performed with out executing the system code
  - Compiler task such as Syntax & type checking, symbolic execution, program proving, data flow analysis, control flow analysis

- **Dynamic testing: Required program to be executed**
  - Verification and validation performed by executing the system code
  - The program is run on some test cases & results of the program's performance are examined to check whether the program operated as expected

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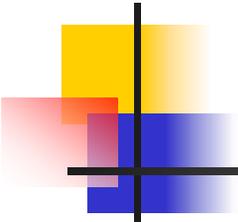
Static vs. Dynamic Testing

	Static Testing VS. Dynamic Testing
1	Static testing is about prevention, dynamic testing is about cure
2	The static tools offer greater marginal benefits.
3	Static testing is many times more cost-effective than dynamic testing.
4	Static testing beats dynamic testing by a wide margin.
5	Static testing is more effective!
6	Static testing gives you comprehensive diagnostics for your code.
7	Static testing achieves 100% statement coverage in a relatively short time, while dynamic testing often often achieves less than 50% statement coverage, because dynamic testing finds bugs only in parts of the code that are actually executed.
8	Dynamic testing usually takes longer than static testing. Dynamic testing may involve running several test cases, each of which may take longer than compilation.
9	Dynamic testing finds fewer bugs than static testing.
10	Static testing can be done before compilation, while dynamic testing can take place only after compilation and linking.
11	Static testing can find all of the followings that dynamic testing cannot find: syntax errors, code that is hard to maintain, code that is hard to test, code that does not conform to coding standards, and ANSI violations.

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