

# A Brief Essay on Software Testing

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(Software Engineering II - EEL 6883)

# Testing

- Testing refers to many different activities used to check a piece of software
- Even after successful completion of an extensive testing, the software can still contain faults
- Testing can never prove the absence of defects, it can only possibly reveal the presence of faults by provoking malfunctions

# Definition - Testing

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  - Software Testing consists of the dynamic verification of the behavior of a program on a finite set of test cases, suitably selected from the usually infinite executions domain, against the specified expected behavior.
- Explanation
  - **Dynamic** – means that testing implies executing the program on (valued) inputs
  - **Finite** – means that only a limited number of test cases can be executed during the testing phase, chosen from the whole test set, that can generally be considered infinite
  - **Selected** – refers to the test techniques adopted for selecting the test cases (and testers must be aware that different selection criteria may yield vastly different effectiveness)
  - **Expected** – points out to the decision process adopted for establishing whether the observed outcomes of program execution are acceptable or not