

A dark blue, irregular ink splash or blotch serves as the background for the text. The splash has a textured, watercolor-like appearance with some lighter blue and white areas around the edges. The text is centered within the dark blue area.

# Verification and Validation

# Verification And Validation (V and V)

- Verification and validation is the name given to the checking done after the implementation process
- Verification and activities take place at each stage of the software process.
- V and V starts with requirements reviews and continues through design reviews and code inspections to product testing
- Verification and validation are different things as expressed below
  - Validation – Are we building the right product?
  - Verification – Are we building the product right?

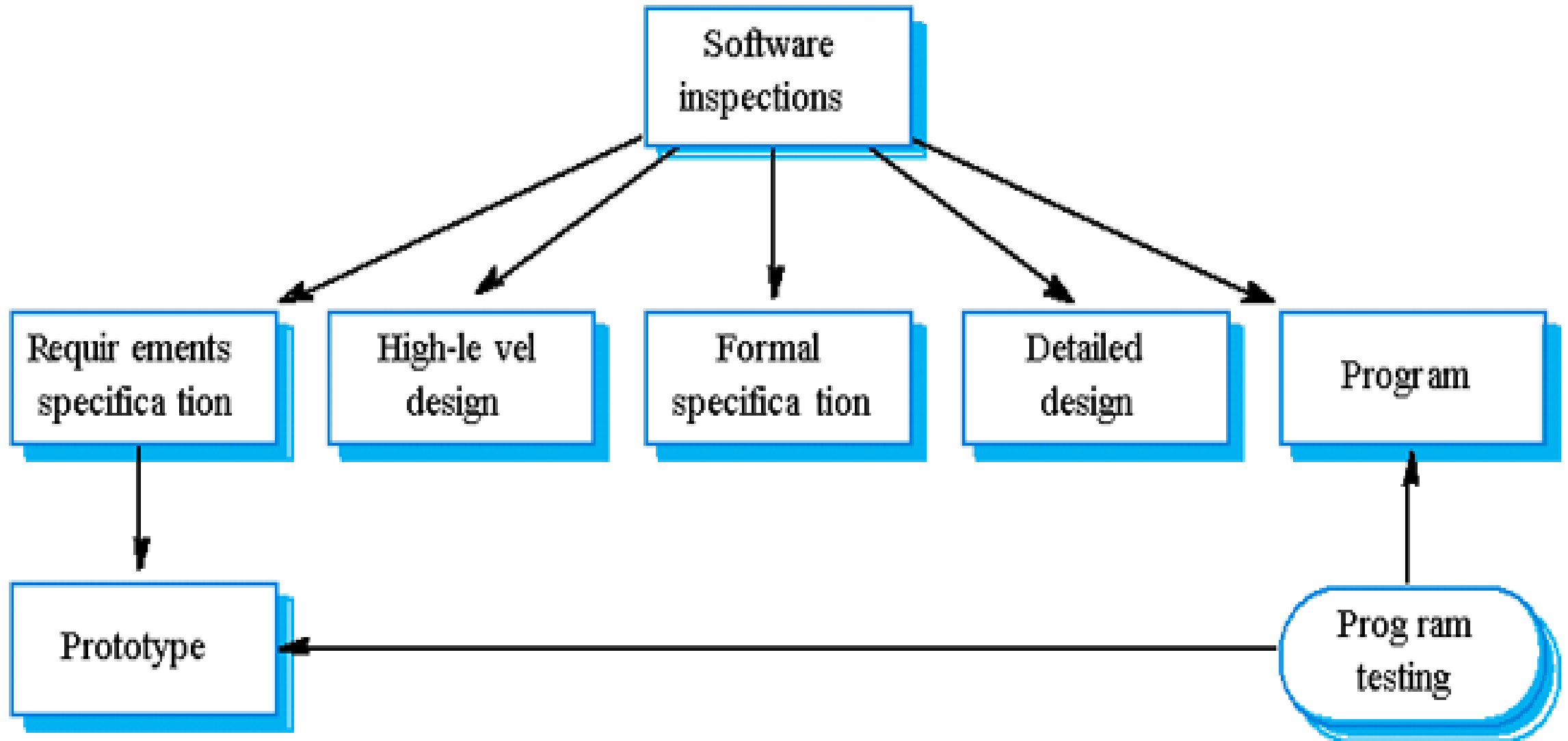
# Verification And Validation (V and V)

- These definitions tell us that the role of verification involves checking that the software conforms to its specification
- Validation is a more general process and its aim is to ensure that the software system meets the customers expectation
- The ultimate goal of verification and validation process is to establish a confidence that the system is fit for purpose
- This means that the system must be good enough for its intended use.
- The level of required confidence depends on the systems purpose, the expectation of the system users and the current marketing environment for the system

# Verification And Validation (V And V)

- Within V and V process there are two complementary approaches to system checking and analysis
  - Software inspections or peer reviews analyse and check system representation such as the requirements document, design diagrams and the program source code.
  - Inspection may be used at all stage of the process and may be supplemented by some automatic analysis of the source text of the system or associated documents.
  - Software inspections and automated analysis are static V and V techniques as it is not needed to run the software on the computer
  - Software testing involves running an implementation of software with test data.
  - The outputs of the software and its operational behaviour are examined to check that it is performing as required. Testing is a dynamic technique of verification and validation

# Static And Dynamic Verification And Validation



# Software Inspections

- Inspection techniques include program inspections, automated source code analysis and formal verification
- Software inspections is a static V and V process in which software system is reviewed to find errors, omissions and anomalies
- The advantages of inspections over testing are
  - Testing can hide other errors where as inspection can discover many errors in a system
  - Incomplete versions of a system can be inspected without additional costs where as specialised tests have to be developed for incomplete versions
  - Inspection considers broader quality attributes of a program such as standards, portability and maintenance

# Program Inspection Process

- The program inspection is a formal process that is carried out by a team, main objective of the program inspection is defect detections thorough reviews. Program inspection is widely used in critical system reviews
- The key difference between program inspections and other types of reviews is that the main aim of inspections is to find defects instead of considering a broader design issues Defects can be logical errors, glitch in the code that might lead to an erroneous condition or noncompliance with organizational standards.
- On the other hand other types of review may be more concerned with schedule, costs progress against defined milestones or assessing whether the software is likely to meet organizational goals

# Successful Inspection in an organization following role should be considered in the team

ROLE	DEFINITION
Author	The programmer /designer responsible for developing/writing the program or document. Person responsible for fixing defects discovered during the inspection process.
Inspector	Finds errors, lapses and inconsistencies in programs and documents. May also identify broader issues that are outside the scope of the inspection team. This can be a 1 person or a team of at least 4 experts.
Reader	Responsible for presenting the source code or document to the inspection team.
Scribe	Responsible for noting the comments, defect raised during the inspection.
Chairman/Moderator	Responsible for managing the process and facilitates the inspection.
Chief Moderator	Responsible for inspection process improvements, checklist updating, standards development.



# Inspection Process

