QA vs Testing

Quality Assurance (QA)

- **Definition:** QA = A **process-oriented activity** that ensures the whole **software development process** is designed to build quality software.
- **Focus:** *Preventing defects before they happen.*
- **Who:** Everyone in the team (not just testers).
- **Activities include:**
  - Defining standards and best practices.
  - Reviewing requirements, design, and code.
  - Process audits.
  - Training the team on quality methods.

Example:

- In construction → QA ensures the **building plan, materials, and process** are correct before building starts.
- In software → QA ensures requirements are clear, coding standards are followed, and good testing practices exist.

QA = **Make sure we are building it the right way.**

Testing

- **Definition:** Testing = A **product-oriented activity** that checks the actual software to find bugs.
- **Focus:** *Detecting defects after they happen.*
- **Who:** Mainly testers (but also devs with unit tests, users with acceptance tests).
- **Activities include:**
  - Writing test cases.
  - Executing test cases (manual or automated).
  - Reporting and retesting defects.
  - Checking if software meets requirements.

Example:

- In construction → Testing is like **inspecting the elevator** after it's built to see if it works safely.
- In software → Running login test cases, checking checkout process, or automating regression tests.

Testing = **Make sure we built the system right.**

Key Differences (QA vs Testing)

Aspect	Quality Assurance (QA)	Testing
Focus	Process → prevent defects	Product → find defects
Type	Proactive (before coding/testing)	Reactive (after code is built)
Goal	Build the right way	Check if it works right
Who	Entire team	Testers (mainly)
Examples	Reviews, audits, standards, training	Executing test cases, defect log