Quality Management

Quality Assurance

is focused on **proper processes**.

With proper processes the work products are generally of higher quality, which contributes to prevention.

Root cause analysis and proper application of findings are also important for effective QA.

A **source of a defect** such that if it is removed, the occurance of the defect type is decreased or removed.

Defects can be analyzed to identify their root causes, so as to reduce the occurance of similar defects in the future.

Quality Control

is various activities, including **testing**, that support the achievement of appropriate levels of quality.

Testing is part of development and maintenance process. It is a way to assess the quality of the software and to reduce the risk of software failure in operations.

The purposes of testing:

- preventing defects by evaluating work products (requirements, user stories, design and code);

- verifying if all specified requirements are fulfilled;

- checking if the test object is complete and work as users and stakeholders expect (validating);

- building confidence in the level of quality of the test object;

- finding defects and failures in order to reduce the risk of inadequate software quality;

- providing sufficient information to the stakeholders for making informed decisions regarding test object quality or risks of releasing the system at a given time;

- complying with contractual, legal or regulatory requirements or standards, and/or verifying the test object's compliance with requirements or standards;

- increasing code coverage of the component tests.

Debugging is the development activity that finds, analyzes and fixes defects in software that causes failures found during testing.

Subsequent confirmation testing checks whether the fixes resolved the defects.

In some cases, testers do initial testing and final confirmation testing, while developers do debugging, associated components and component integration testing.

Error: a human action that produces an incorrect result → **Defect**: an imperfection or deficiency in a work product where it does not meet its requirements or specifications → **Failure**: an event in which a component or system does not perform a required function within specified limits

Effect: customer complaints, etc.