Verification and Validation

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Verification:

It's the process of checking documents, design and code to make sure that the software has been built according to its requirements.

The main goal of verification is to ensure quality of the software application.

- The verification process does not involve executing code.
- Verification uses methods like reviews, walkthroughs and inspections.
- Verification checks whether the software conforms to its specification.
- It finds bugs early in the development cycle.
- It comes before validation.

Example of verification:

Say the software has a login button with certain specifications like its size, color, text written on it etc.

The verification process will check that the login button conforms to all of its specifications stated in the documents.

It's been found that the login button text is "loogin" instead of "login", the problem is noted and will be fixed in code.

Validation:

It's a dynamic mechanism of testing and validating if the software product actually meets the exact needs of the customer or not.

The validation process involves activities like unit testing, integration testing, system testing and user acceptance testing.

- The validation process always involves executing the code.
- It uses methods like Black Box Testing, White Box Testing, and non-functional testing.
- It checks whether the software meets the requirements and expectations of a customer.
- It can find bugs that the verification process can not catch.
- It comes after verification.

Example of validation:

Consider the same login button in the previous example, during the validation process the code will be executed to make sure the button works as intended.

It's been found that the button is not clickable, so the development team will make sure to fix it and make it clickable.