SPM: VERIFICATION AND VALIDATION

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What is Verification?

Verification is a type of process that examines and evaluates the development phase of any product and finds out whether the product is able to meet all the requirements or not. Its main purpose is that we can find out that the reason and need for which this product has been made is fulfilling all the needs well. It is made up of processes like reviews, meetings and inspections.

What is validation?

This process When the evaluation development process is over, after that it is evaluated by the product that is made. Whether it is made according to the wishes and needs of the customer or not. Its main purpose is to ensure that the product as it stands is meeting the needs of the user and whether the specifications are correct in the first place.

Difference between Verification and Validation

1. Verification involves the process of review, meeting and inspection, whereas validation consists of tests such as: Black Box Testing, White Box Testing and Gray Box Testing etc.
2. Verification ensures that the product you are making is making it properly, whereas validation ensures that the product which is made is made properly or not.
3. Verification consists of the QA team which keeps on checking the software being made while the validation consists of the testing team which checks that the product i.e. the software is properly made as per the requirement and expectation of the customer.
4. Execution code is not required in verification whereas execution code is required in validation.

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5. Through the process of verification, it is ascertained that the output that is received is according to the input and at the same time validation finds out whether the input being given is being taken by the software by the user or not.
6. Verification is a pre-validation process and validation is an immediate post-verification process.
7. The processes that are taken care of during verification are as follows: Plans, Requirement Specifications, Design Specifications, Code, Test Cases etc. And during validation, it is ascertained that the manufactured product is passing the test. of no.
8. The cost of error detected in verification is less as compared to error detected in validation.
9. Verification is a type of manual checking and validation is a program based one.

Verification is the process of checking that a software achieves its goal without any bugs. It is the process to ensure whether the product that is developed is right or not. It verifies whether the developed product fulfils the requirements that we have. Verification is static testing.

Verification means **Are we building the product right?**

Validation is the process of checking whether the software product is up to the mark or in other words the product has high level requirements. It is the process of checking the validation of a product i.e. it checks what we are developing is the right product. It is validation of the actual and expected product. Validation is dynamic testing.

Validation means **Are we building the right product?**

The difference between Verification and Validation is as follow:

Verification	*Validation*
It includes checking documents, design, codes and programs.	It includes testing and validating the actual product.

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Verification is the static testing.	Validation is dynamic testing.
It does *not* include the execution of the code.	It includes the execution of the code.
Methods used in verification are reviews, walkthroughs, inspections and desk-checking.	Methods used in validation are Black Box Testing, White Box Testing and non-functional testing.
It checks whether the software conforms to specifications or not.	It checks whether the software meets the requirements and expectations of a customer or not.
It can find the bugs in the early stage of the development.	It can only find the bugs that could not be found by the verification process.
The goal of verification is application and software architecture and specification.	The goal of validation is an actual product.
Quality assurance team does verification.	Validation is executed on software code with the help of the testing team.

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It comes before validation.	It comes after verification.
It consists of checking documents/files and is performed by humans.	It consists of execution of a program and is performed by computer.