V MODEL

Alfonso Urbano Ruz

1ºDAW IES CAMPANILLAS

Index

¿What is the V-Model?

The V-model or four-tier model is a model that is used in different development processes, such as software development. This model appeared in the 1990s as an idea based on the waterfall model.

The Phases of Model V

First, the V model defines the course of a project in increasingly detailed individual phases:

SPECIFICATIONS PHASE

At the beginning of the project, an analysis of the specifications of the planned system will be made.

DESIGN PHASE

Functional and non-functional requirements for the system architecture are then added in this system design phase, where system components and interfaces are planned.

CODING PHASE

Once these phases are completed, the software architecture can be designed in detail and it is now when the software development begins that the quality control or verification phases will take place.

The V method will cover the following tasks in these phases:

- Unit tests
- Integration testing
- System integration
- Validation

Development and Verification

The correct implementation of the planned software architecture is verified by unit tests. Here it is checked in detail whether the individual software modules fulfill exactly the required functions and actually deliver the expected results. To avoid errors, it is recommended to perform these tests in parallel with development.

Integration tests examine the design of the system. Here it is verified if each of the components interacts with the rest as planned – for example, if all the processes provide the expected results. At this point, an incorrect result could indicate an interface problem.

System testing verifies whether the overall system requirements defined when designing the system architecture have been met. In general, these tests take place in a test environment that simulates real customer conditions as accurately as possible.

At the end of the project, the analysis of the requirements is opposed to the validation of the finished product. Here, the customer checks whether the specifications are met during operation. As a general rule, software performance is only superficially tested, that is, what the customer sees during daily use is tested. This is also known as validation testing.

Advantages and disadvantages of the V mode

The advantages of the V model:

- Optimization of communication between the parties involved through clearly defined terms and responsibilities.

- Risk minimization and better planning through fixed and predetermined roles, structures and results.

- Improved product quality thanks to integrated quality control measures.

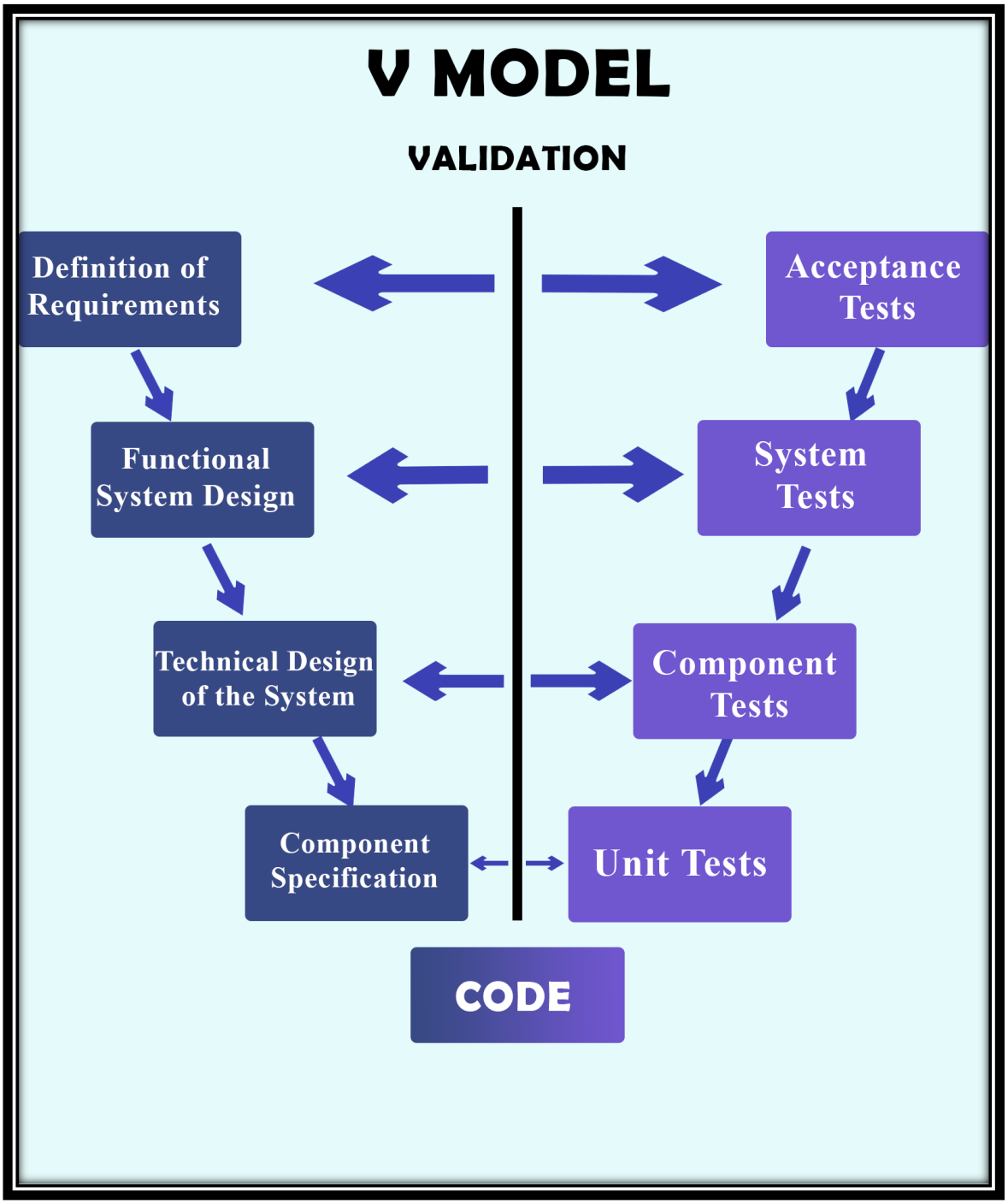
- Cost savings thanks to transparent processing throughout the entire product life cycle.

In general, the model can help avoid misunderstandings and unnecessary work. It also ensures that all tasks are completed on time and in the proper order and keeps downtime to a minimum.

The disadvantages of the V model:

The four-tier model may be too simple to map the entire development process from the developers' point of view. It is mostly focused on project management.

In addition, its relatively rigid structure allows for an inflexible response to changes during development, thus promoting a linear course of the project. However, if the model is understood and used correctly, it is possible to use the V model for agile development.


V MODEL
VALIDATION
Definition of Requirements
Acceptance Tests
Functional System Design
System Tests
Technical Design of the System
Component Tests
Component Specification
Unit Tests
CODE