V MODEL

PREPARED FOR

Engineering Students

All Engineering College

(SPM)
PREPARED BY: MS. SHWETA TIWARI
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V- MODEL

- V-model is also called verification and validation (V&V) model.
- The v-model is a SDLC model where the process is executed in a V shape.
- The v-model is useful for each phase of the software development life cycle.

V- MODEL

- The v-model is an extension of the waterfall model.
- And it determines that each development phase is associated with the testing phase.
- This means that there is a testing phase for each phase of software development.
- This is a very disciplined model, in which the next phase starts only till the previous phase is not completed.

V- MODEL

- In the picture, there are verification phases on the **left side** and validation phases on the **right side.**
- This whole picture is looking like a V,
- so it is called a V-model.

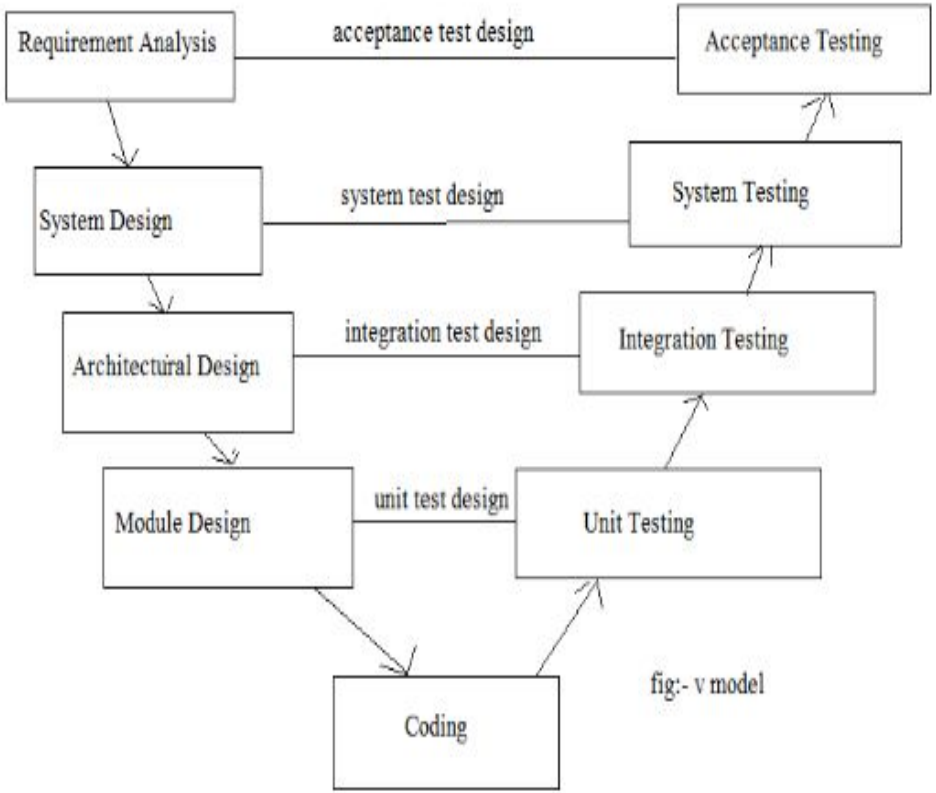

fig:- v model

V MODEL: VERIFICATION-PHASES

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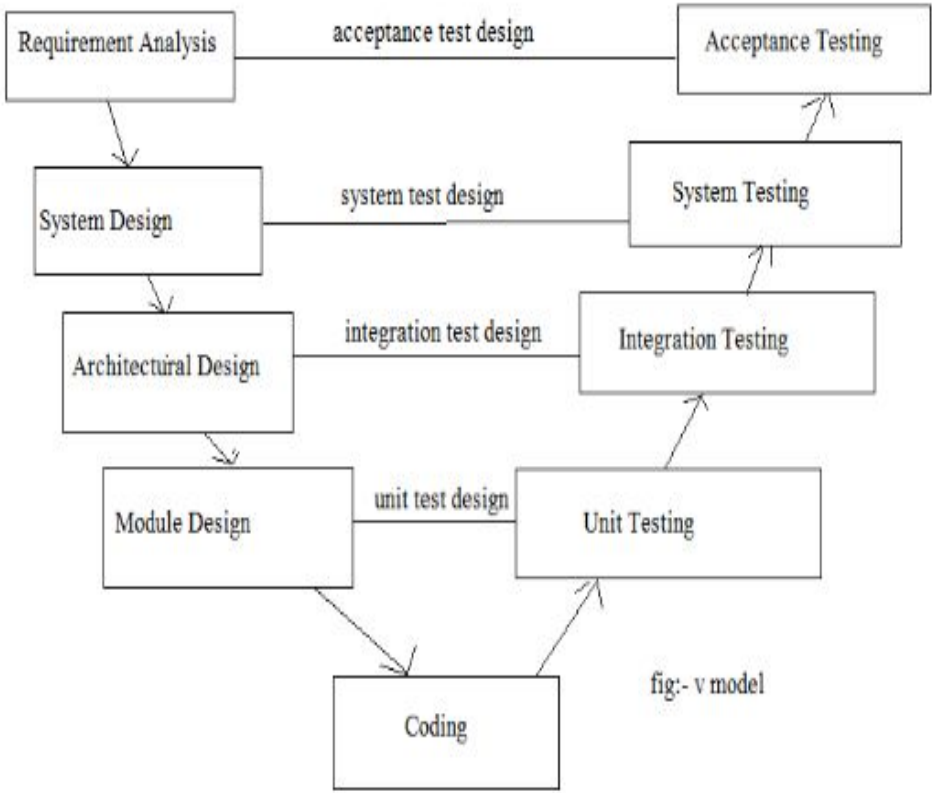
v-model verification phases:-

1:- Requirements analysis:-

- This is the first phase of the developmen cycle, in which the requirements of the product are analyzed according to the needs of the customer.
- In this phase, the needs related to the product are thoroughly collected from the customer.
- This is a very important phase because this phase determines the coming phases.
- Acceptance tests are designed for use later in this phase.



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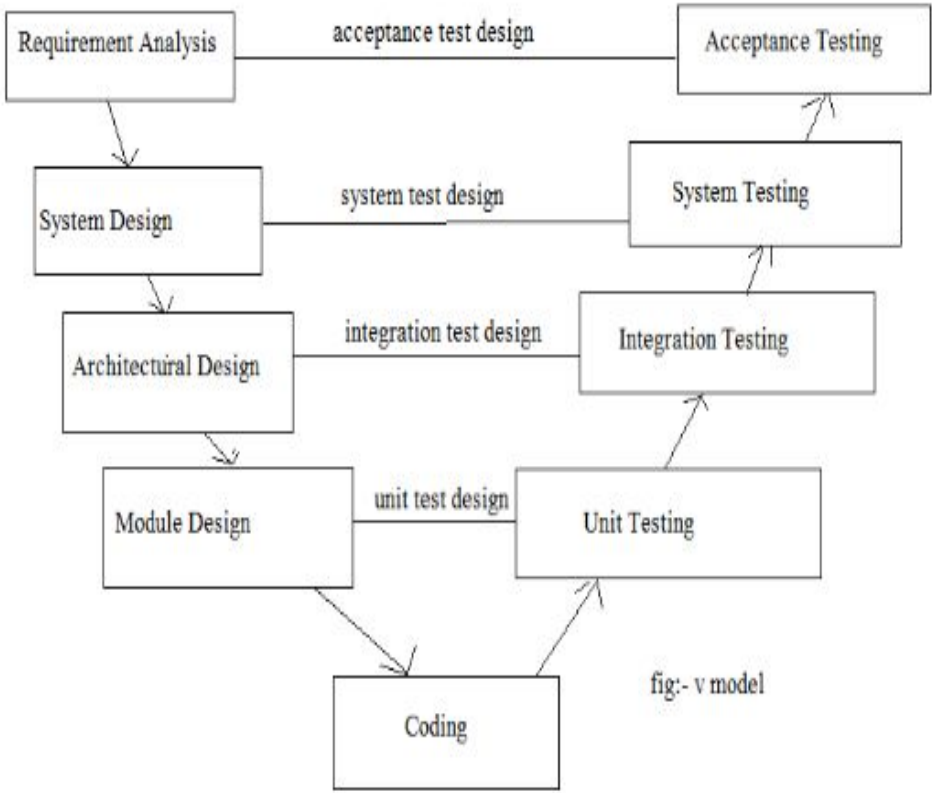
V- MODEL: VERIFICATION-PHASES

v-model verification phases:-

2- System design:-

- When we have the requirement of the product,
- now we prepare a complete design of the system.
- In this, a complete description of the hardware and all the technical components required to make the product is made.



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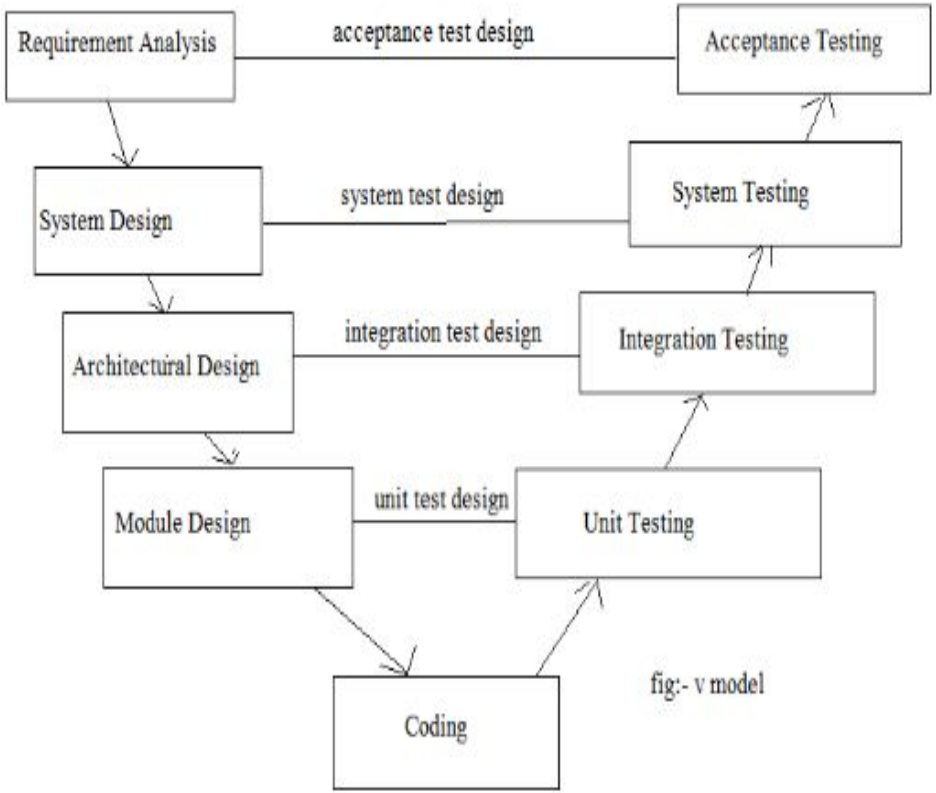
V- MODEL: VERIFICATION-PHASES

v-model verification phases:-

3:- Architectural design:–

- Architectural specifications are designed in this phase.
- It contains the specification as to how the software will link internally and externally with a the components.
- That's why this phase is also called high level design (HLD).



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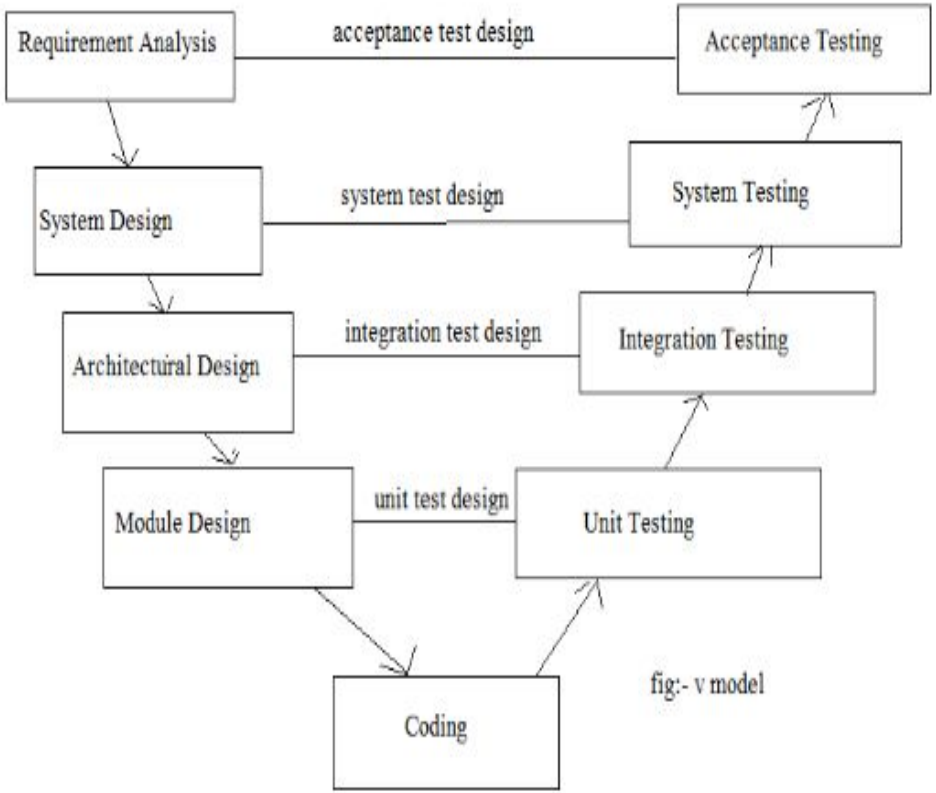
V- MODEL: VERIFICATION-PHASES

v-model verification phases:-

4:- Module design:-

- In this phase the internal design of al the modules of the system is specified.
- That's why it is called low level design (LLD).
- It is very important that the design of all the modules is according to the system architecture.

- Unit tests are also designed in the module design phase.



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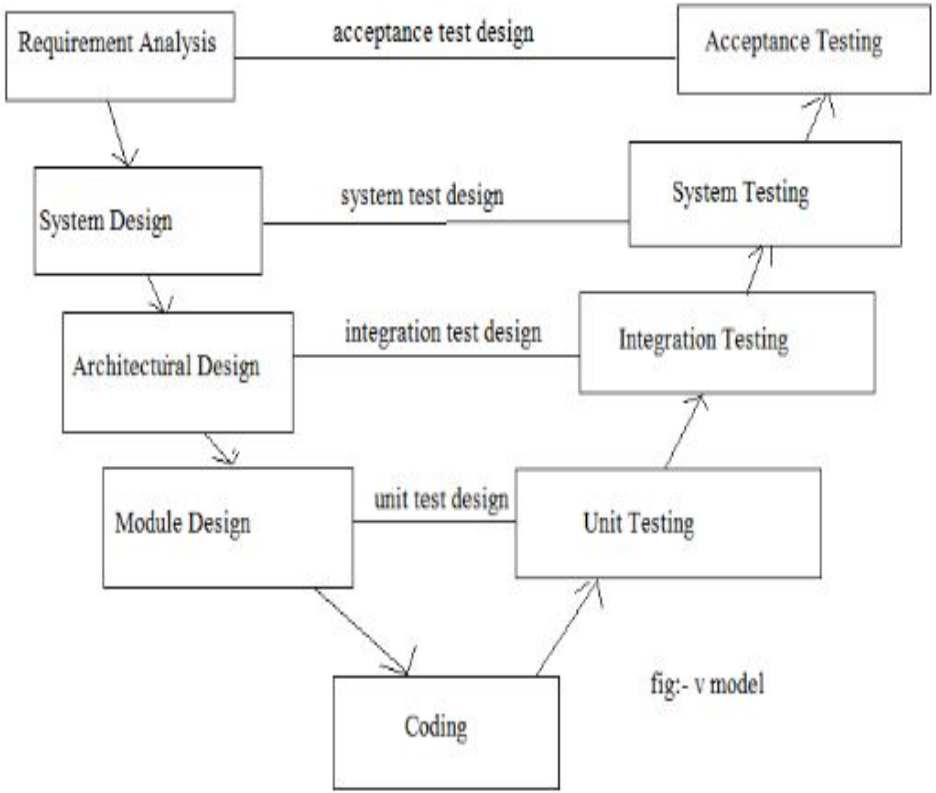
V- MODEL: VERIFICATION-PHASES

v-model verification phases:-

5:- Coding phase:--

- In the coding phase, the coding of the design and specification done in the previous phases is done.
- This phase takes the most time.

- Suitable programming languages are selected for coding and they are repeatedly reviewed while writing the code.



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V MODEL: VALIDATION-PHASES

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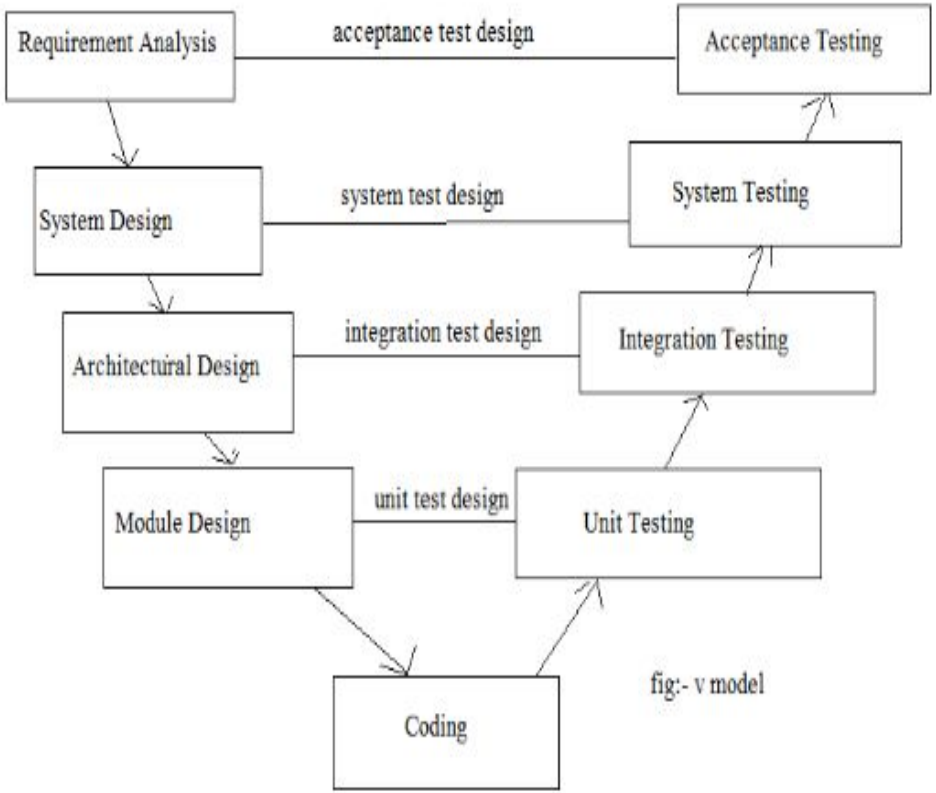
v-model validation phases:-

1:- unit testing:-

- In the unit testing phase, the unit tests created during the module design phase are executed.
- Unit testing is the testing of the code level, it verifies only the technical design.
- Therefore it is not able to test all the defects.



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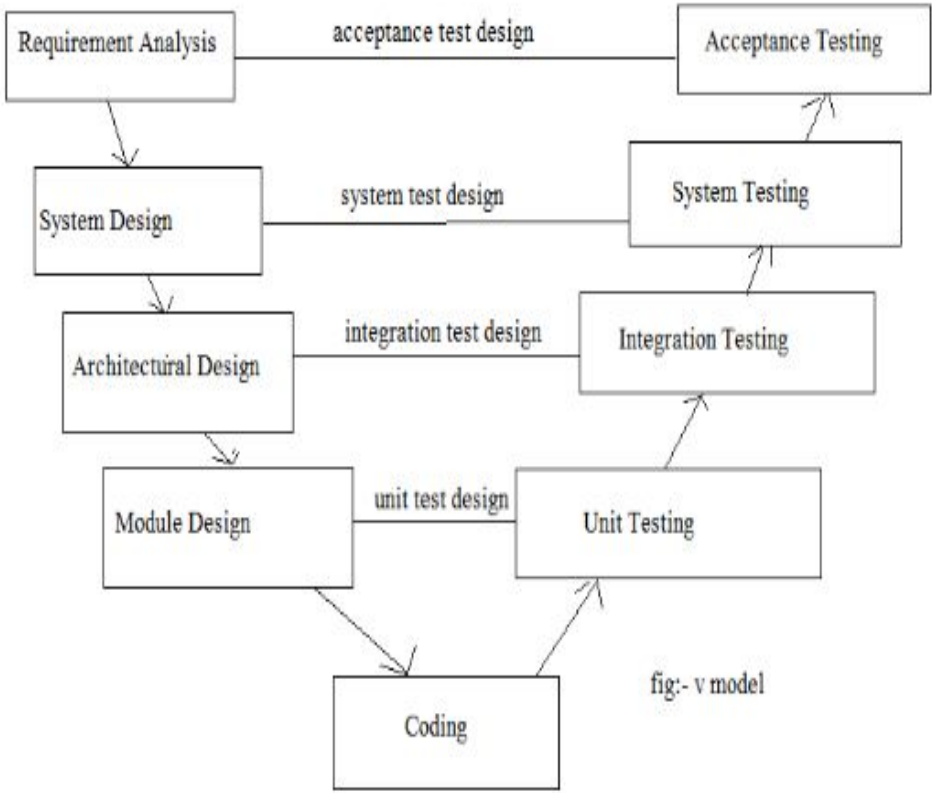
V- MODEL: VALIDATION-PHASES

v-model validation phases:-

2:- Integration testing:-

- In integration testing, the integration tests created in the architectural design phase are executed.
- Integration testing ensures that all the modules are working well with each other.



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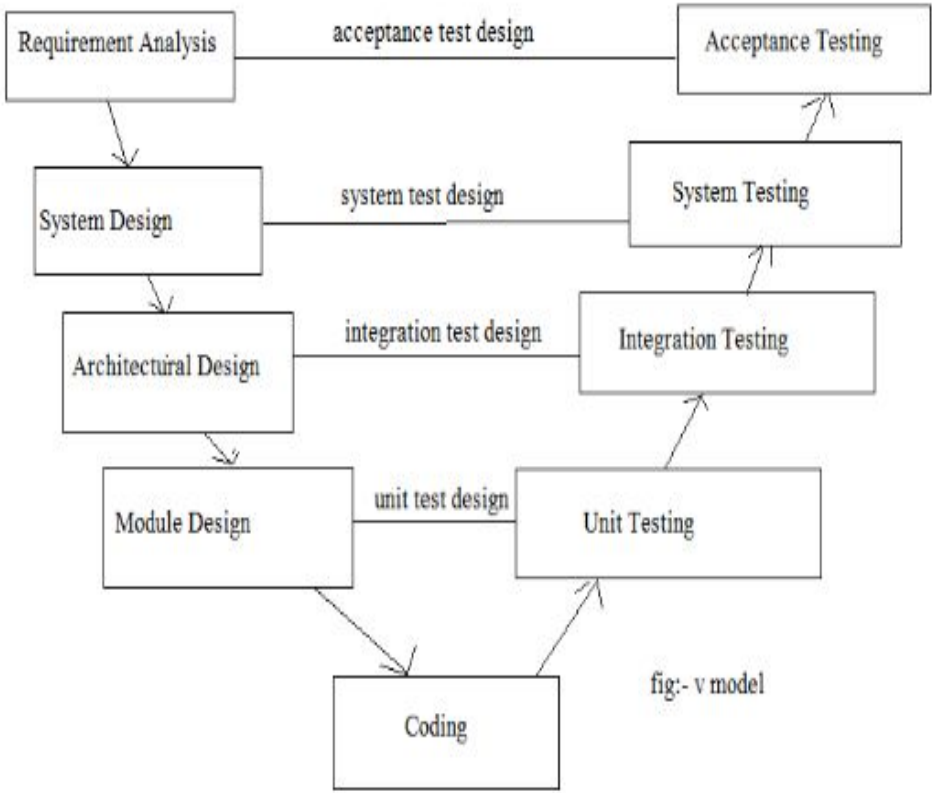
V- MODEL: VALIDATION-PHASES

v-model validation phases:-

3:- system testing:-

- In system testing, the system tests created in the system design phase are executed.
- System tests check the complete functionality of the system.

- In this, more attention is paid to performance testing and regression testing.



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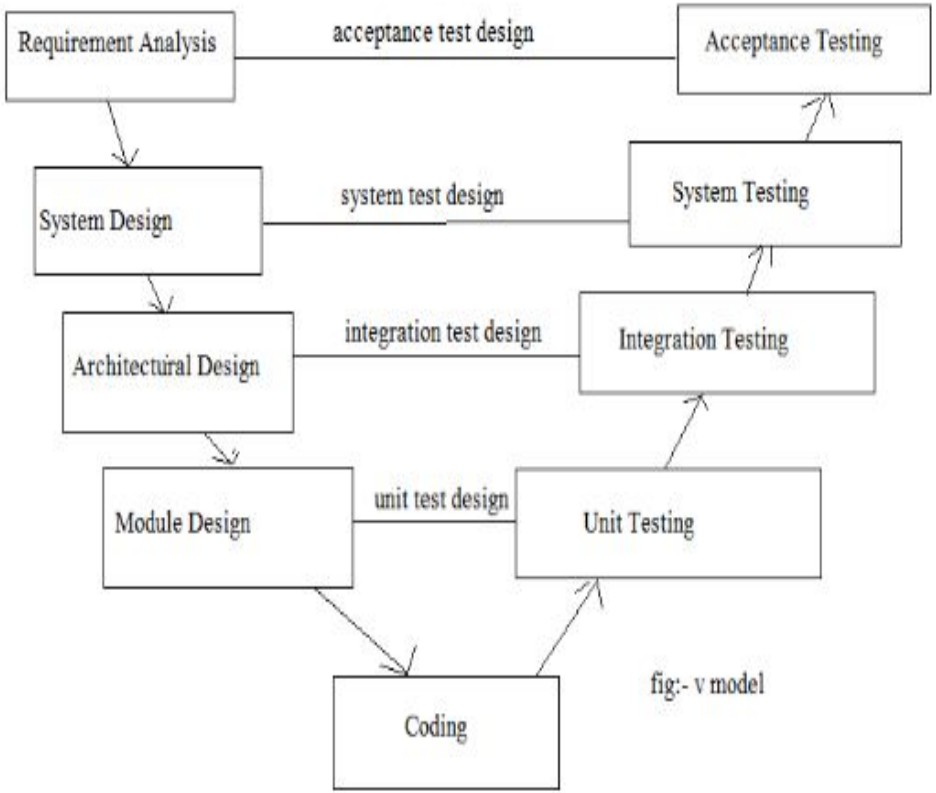
V- MODEL: VALIDATION-PHASES

v-model validation phases:-

4:- Acceptance testing:-

- In acceptance testing, the acceptance tests made in the requirement analysis phase are executed.

- This testing ensures that the system is compatible with other systems.
- And in this non-functional issues like:- load time, performance etc. are tested in the user environment .



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V MODEL: ADVANTAGES

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Following are the advantages of v-model:-

1:- This is a very disciplined model, in which only one phase is completed at a time.

2:- This is a very simple model, it can be easily understood and used.

3:- Due to the stiffness of this model, it can be easily managed.

4:- In this, planning and designing tests are done before coding, which saves time.

V- MODEL: ADVANTAGES

Following are the advantages of v-model:-

5:- In this the defects are detected only in the early stages.

6:- It is great for small projects where the requirements can be well understood.

7:- Resources can be utilized well in this.

V MODEL: DISADVANTAGES

V- MODEL: DISADVANTAGES

Following are the disadvantages of v-model.

1:- There is a lot of risk and uncertainty in this.

2:- This model is not right for big, difficult and object oriented projects.

3:- This is not a flexible model.

4:- If any change is made in this, then the test documents also have to be changed.