VI. Synchronize & stablize model - (A version of incremental model)

(i) Requirement analysis - interview, extract a list of features with priorities set by the customer

(ii) A specification document

(iii) Work is divided into 3 or 4 builds

1st build consist of most critical features
2nd build consist of next critical features
& so on.

(iv) Each build is carried out by a no. of small team working parallel

(v) At end of each day all the team synchronize - partially completed components are tested together & debug the resulting product.

(vi) stabilization - at the end of each build and faults detected are fixed & the build is frozen

Adv. (i) synchronization - components always work together

(ii) Early insight into the operation of product & can modify the requirement during course of a build

(iii) for incomplete requirements.

iv. Extreme programming - (Based on incremental model)

(i) S/W development team determine the features that client would like the product to support

(ii) for each feature - team informs the client how long it will take to implement that features & how much it will cost.

(iii) client selects features to be included in successive build using cost benefit analysis.

(iv) The proposed build is broken down into several pico-planned tasks.

(v) Task is then integrated into current version of product. Test cases for task are retained & utilized in all further integration testing.

features of extreme programming

1. computers are setup in the centre of large room lined with small cubicles.
2. A client representative work with XP team
3. NO individuals can work overtime for 2 successive weeks
4. There is no specialization .. All work on design, code & testing
5. NO overall design phase before various builds are constructed.
6. The design is modified while the product is being build.
7. Whenever a test case will not run, code is

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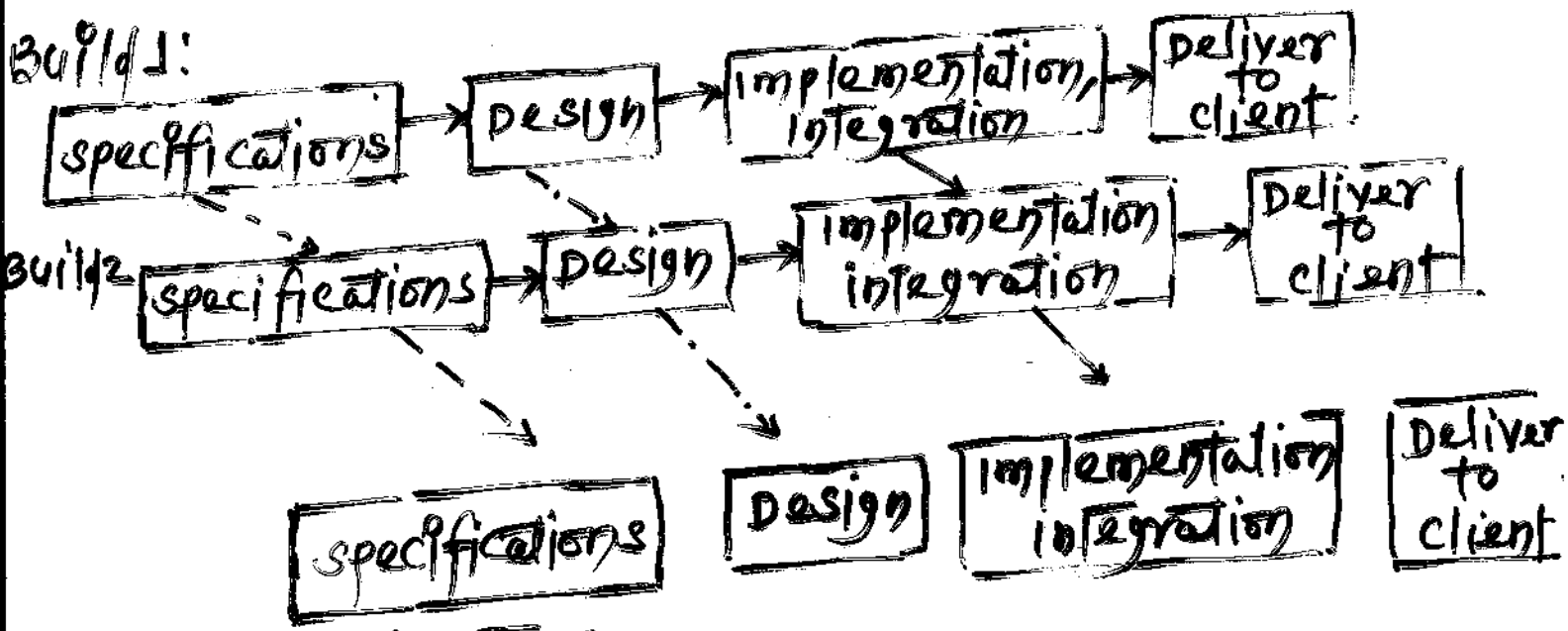
Analysis-

In waterfall & rapid prototyping model-
- deliver to client a complete product
- There is project delivery date

Incremental model - It deliver an operational quality product at each stage



- - - → specification team
— . — → Design team
——→ implementation/integration team

Adv. - Gradual introduction
- change & adoptions are natural

Difficulty- Each additional build has to be incorporated into existing structure.

Incremental model does not distinguish b/w developing a product & maintaining it.

Begin with a design that support entire product view product as a sequence of builds, each independent of next.

Advantage.

1. As compared to a waterfall model Development of the process is linear preceding from rapid prototype to delivered product. feedback loops are less likely to be (needed) in this case

Rapid-

* construct the product prototype as possible
* use of rapid prototype- determine what the client's real needs are:
* Rapid prototype implementation is discarded
* Internal structure of rapid prototype is not relevant.
* prototype is modified rapidly to reflect client need

Integrating the waterfall & Rapid prototyping Model

iv. Incremental Model

The product is designed, implemented, integrated & tested a series of incremental builds, where a build consists of code pieces from various modules interacting to provide a specific functional capability

At each stage - a new build is coded & then integrated & tested as a whole.

Break up the target product into builds subject to constraint that each build is integrated into existing s/w the resulting product must be testable.

If too many or too few builds

(ii) RAPID PROTOTYPING MODEL

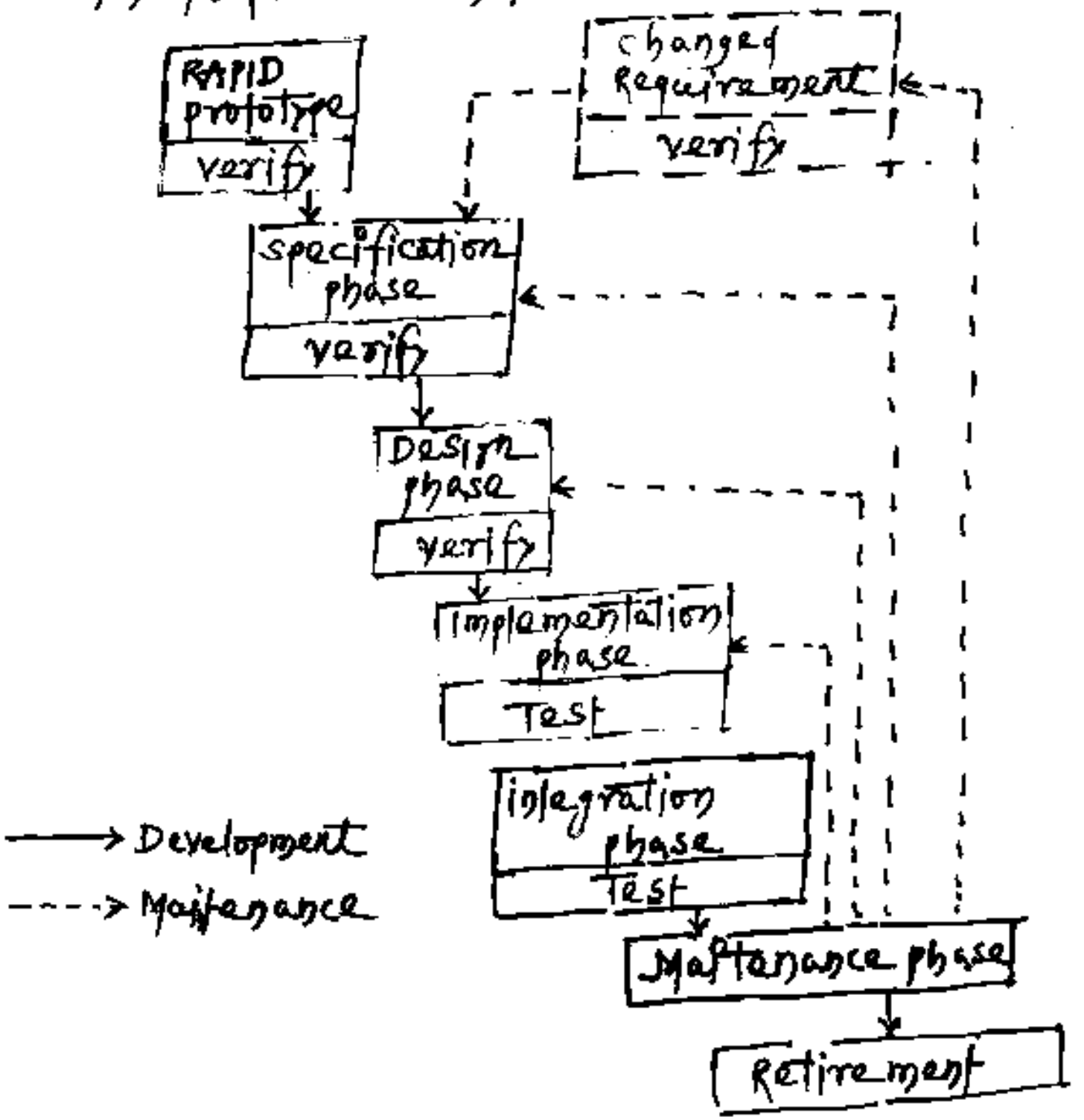
RAPID PROTOTYPING IS A WORKING MODEL FUCTIONALLY EQUIVALENT TO A SUBSET OF THE PRODUCT

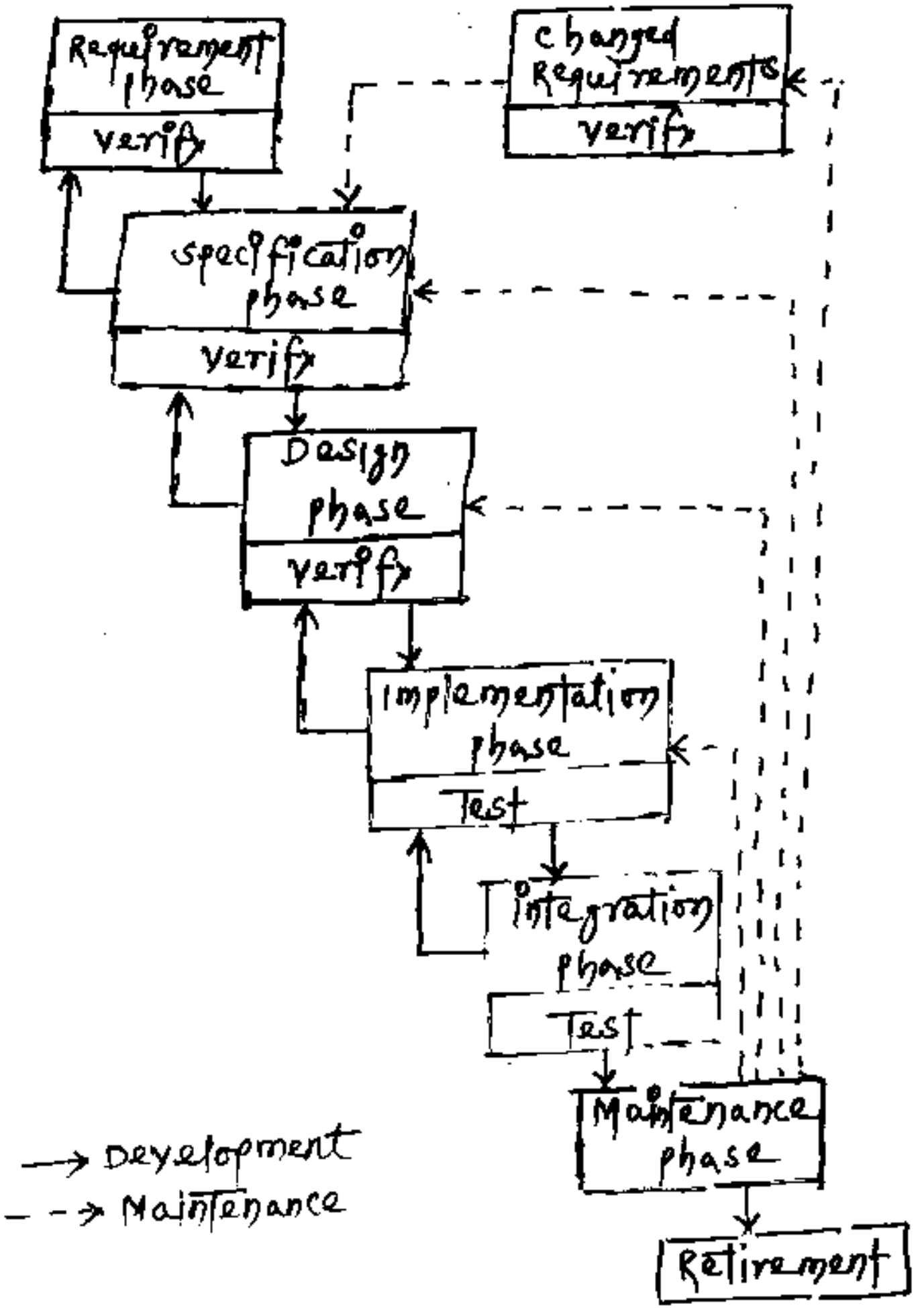
(i) Build a RAPID prototype

(ii) The client and future interact & experiment with it.

(iii) once the client is satisfied, the developer can draw up Specs. document

Then s/w process continues.





Waterfall model

(vi) Design - "how to do". If some problems in specification (incomplete, contradictory & ambiguous) planning and design documents are adjusted

(vii) Implementation:

If flaws --

feedback loops permits modification to be made to design document, specification document & requirement if needed.

(viii) Documentation:

No phase without documentation

Also approved by SQA group

(ix) Acceptance testing

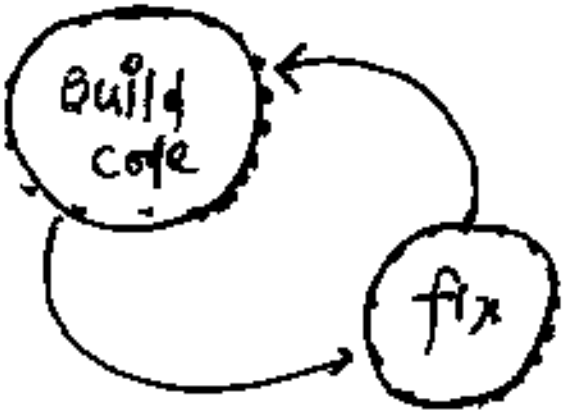
(x) Installation

(xi) Maintenance

Not only implementation changes but also design & specification changes.

Adv. (i) enforce the documentation after every phase
(ii) product of each phase check by SQA
(iii) Testing is inherent in every phase
(iv) Dynamic model - feedback loops

Dis (i) specification documents are long, detailed & very boring to read, client is inexperienced because of its style
(ii) The 1st time the client see a working product after entire coding



Disadvantages.

(i) cost --> very high development cost
(ii) Maintenance difficult → Without specification and document
(iii) unsatisfactory for S/W of any reasonable size
(iv) code soon becomes unfixable and unenhanceable

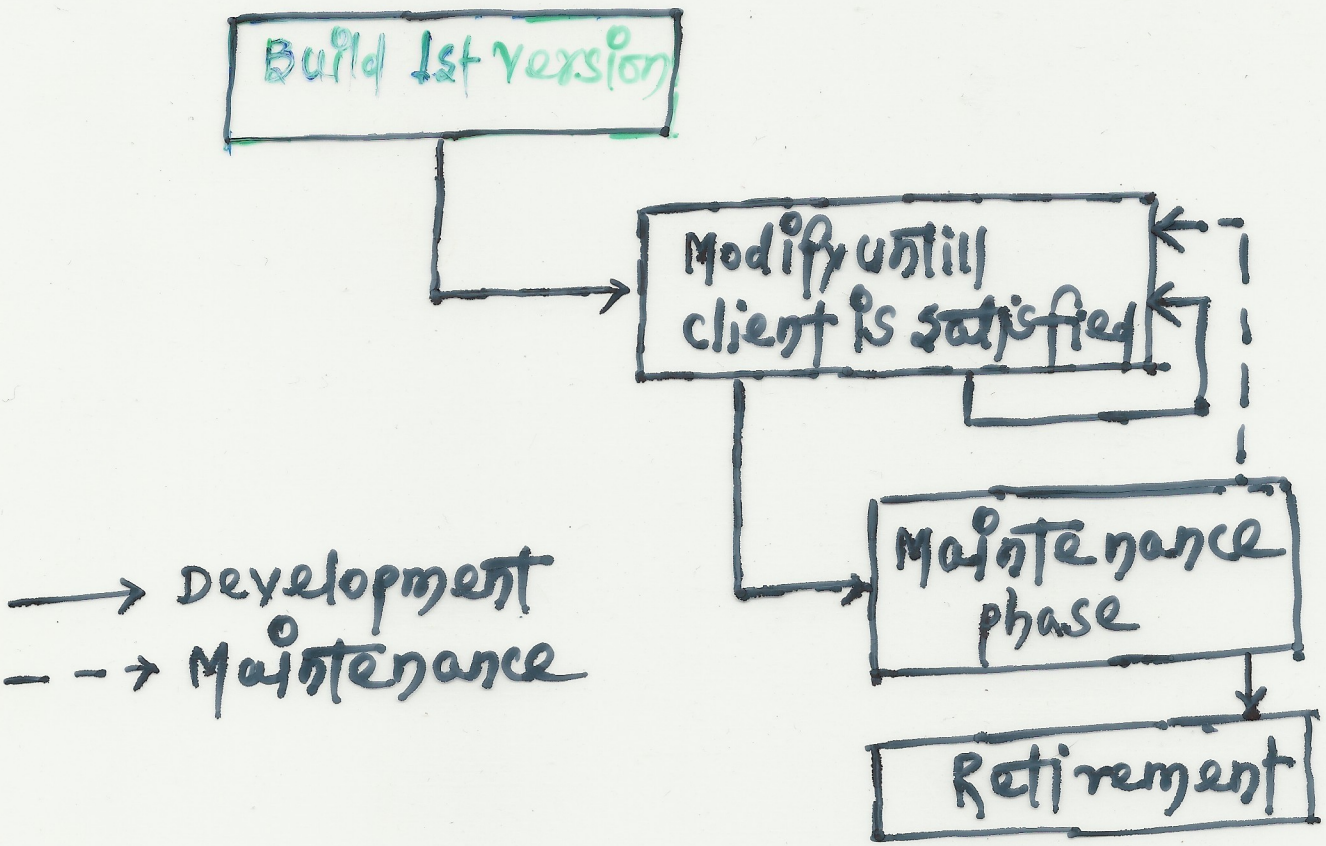
II. Waterfall Model

(i) Requirements determined & checked by the client & SQA group
(ii) Specification drawn
(iii) Specification checked by the SQA group & shown to the client.
(iv) Sign off the specification document
(v) S/W project management plan - checked by SQA group

S/W LIFE cycle Model

1. Build and fix model:

(i) product is constructed with no specifications.
(ii) Rework as many times as necessary.
(iii) This is an adhoc approach and not well defined
(iv) Basically it is a simple two phase model.
(v) The first phase is to write code and the next phase is to fix it.



(vi) fixing in this context may be error correction and/or addition of further functionality.
(vii) Although this approach may work well on small programming exercise 100 or 200 lines long.