CSE IT-02 | Home Assignment -1 [SE] | 2100090065

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1) Difference between waterfall model and Spiral model

Ans)

Waterfall model	Spiral model
1. waterfall model is simple and easy	1. Spiral model is a lot more Complex
2. waterfall method works in Sequential method	2. It works in Evolutionary method
3) In waterfall method Errors or risks are identified after Completion of stages	3. Here, Errors or risks are identified Earlier
4) It is adapted by Customers	4. It is adapted by developer
5) It is Used for Small project	5. It is for large projects
6) requirements and Early Stage planning is necessary	6. requirements and Early stage planning is necessary if required
7) Flexibility to change is difficult	7. Flexibility to change is not difficult
8. High risk	8. Low risk
9. It is inexpensive	9. It is very Expensive
10. Here, Customer involvement is minimum	10. Here, Customer involvement is High.

8) Explain Spiral modeling and prototyping with advantages and disadvantages

Ans) Spiral model

→ Spiral model is one of the most important Software development life cy... models, which provides support for risk handling

→ In diagramatic representation, it looks like spiral with many loops.

→ Exact number of loops of the spiral is unknown and can vary f... project to project

→ Each loop of spiral is called phase of Software development proc... Each phase of spiral model is divided into 4 Quadrants

1. Identify alternative Solutions:

Requirements are gathered from customers and objects are identified and anal... at start of every phase. Then alternative solutions possible for phase are proposed in this Quadrant

2. Identify and resolve risk

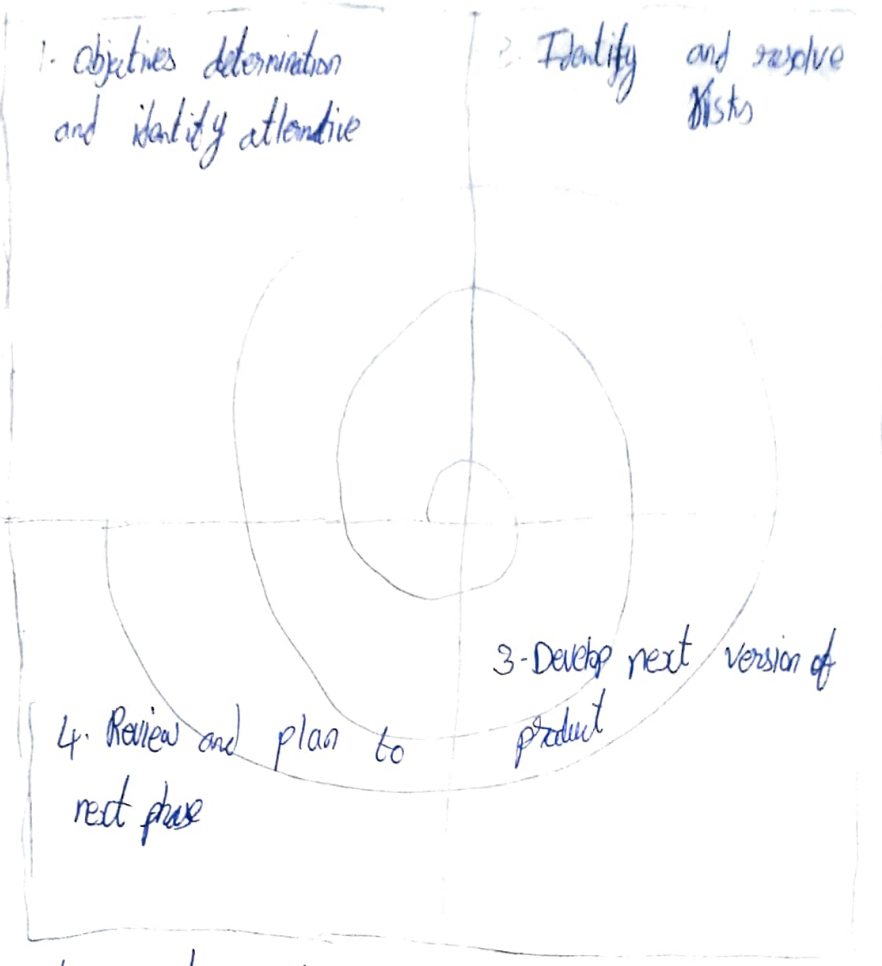
During second Quadrant all possible solutions are evaluated to select the best possible solution At the end of this Quadrant, the prototype is built for best possible solution.

3. Develop next version of product:

During 3rd Quadrant the identified features are developed and verified t... testing. At end of this Quadrant, the next version is available.

4. Review and plan for next phase.

In 4th Quadrant Customers evaluate the so far developed version of software. In the end, planning for next phase is started.



Advantages of Spiral model

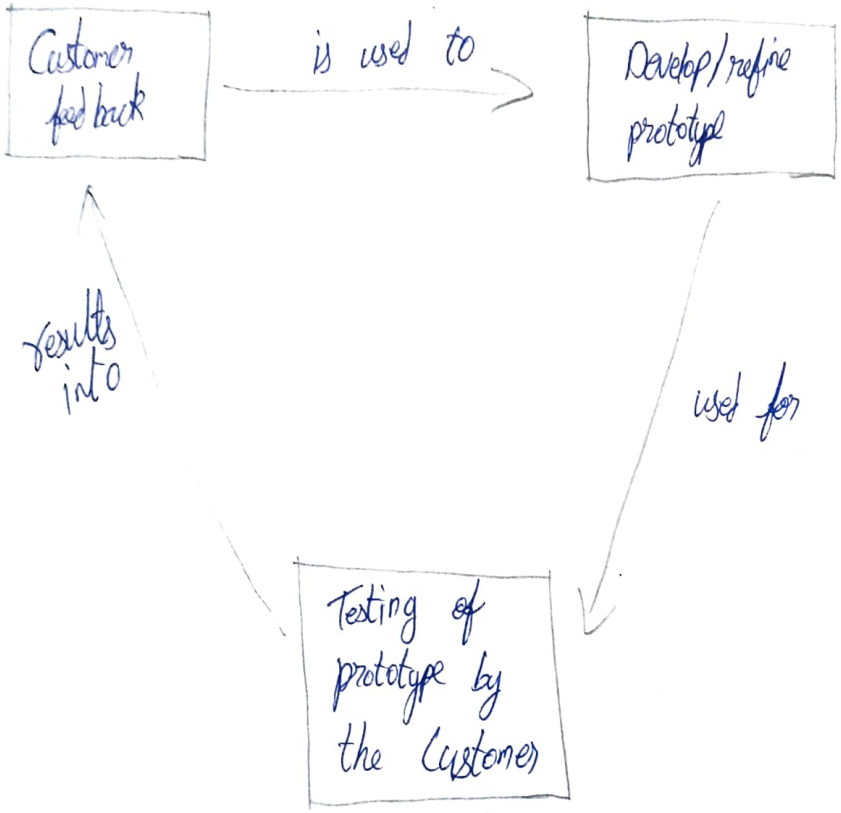
1) It is the best development model for risk handling
2) It is useful for large and complex project.
3) It is easy to modify changes in requirements

Disadvantages

1) It is very complex
2) It is very expensive
3) without experts it is probably going to be a failure
4) Time mangement is difficult

prototyping Model :-

prototyping is defined as process of developing a working replication of a product or system. that has to be engineered. it offers a small scale facsimile of the end product and is used for obtaining customer feedback as described below



There are four types of models available

A) Rapid throwaway prototyping

In this method, a developed prototype need not necessarily be part of ultimately accepted prototype. Customer feedback helps in preventing design faults and hence, final prototype developed is of better quality

B) Evolutionary prototyping:

In this method, the prototype developed initially refined on basis of Customer feedback till it finally gets accepted.

c) Incremental prototyping:

In this method, the final expected product is broken into different small pieces of prototypes and being developed individually in the end, when all pieces are properly developed, then different prototypes are merged into a single final product.

d) Extreme prototyping :

This method is mainly used for web development. This prototype method makes project cycling and delivery robust and fast

Advantages

→ The customer get to see partial product early in life cycle.
→ Missing functionalities can be easily figured out
→ New requirements can be easily accommodated as there is scope for refinement
→ flexibility in design

Disadvantages

→ Costly wrt time as well as money
→ There may be too much variation in requirements each time prototype is evaluated by customer
→ poor documentation due to continuously changing customer requirements

3) write a short note on reverse Engineering.

Ans) Reverse Engineering is a process of recovering design, requirement specifications and functions of product from an analysis of its code.

It builds a program database and generates information from this.

The purpose of this is to facilitate the maintaince work by improving the understandability of a System and to produce the necessary documents for a legacy System.

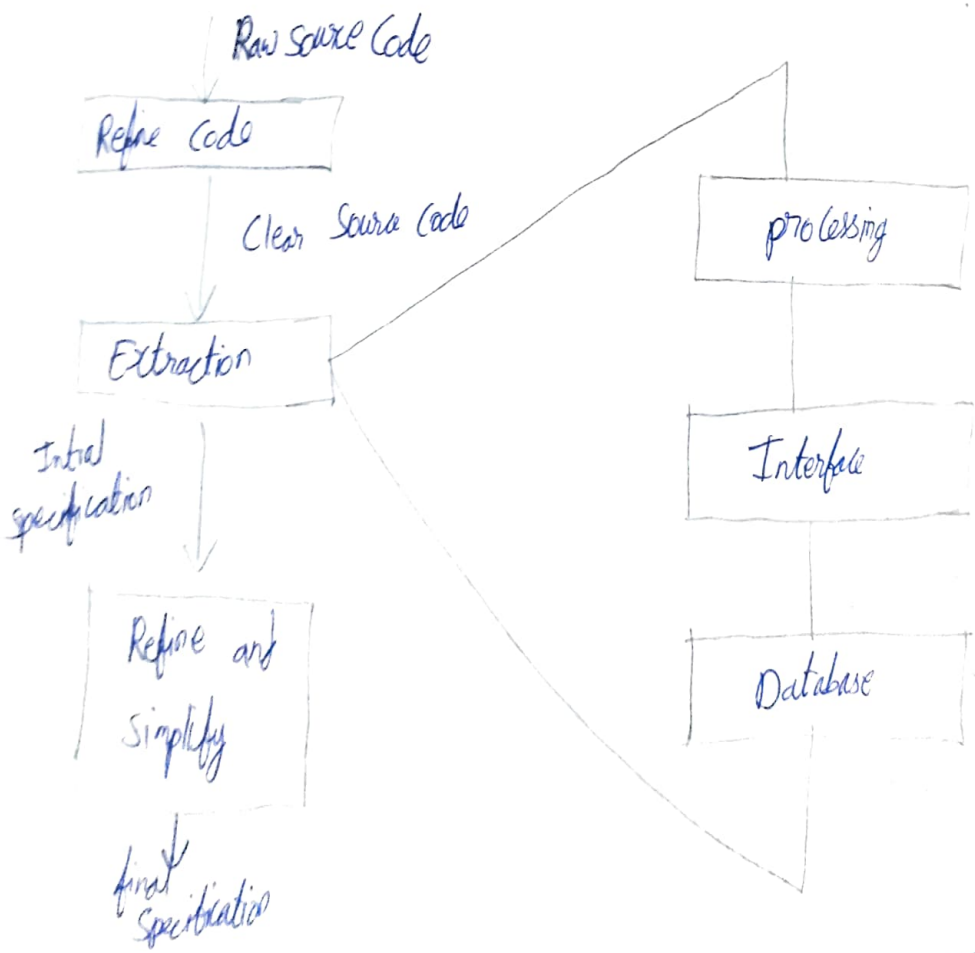
Reverse Engineering Goals:

→ Cope with Complexity

→ facilitate reuse

→ Detect side effects

→ Recover lost information



Steps of Software Reverse Engineering

1. Collection information:

This step focuses on collecting all possible information

2. Examining information

The information collected in step1 as studied so as to get familiar with the System

3) Extracting the structure

This step concers with identifying program structure in form of structure chart where each node collespands to some routine.

4) Recording the functionality

During this step processing details of each module of structure, charts are recorded using structured language like decision tables, etc.

5) Recording the flow

from, information extracted in step-3 and step-4, set of data flow diagrams are derived to show the flow of data among the processes

6) Recording Control flow:

High level control structure of Software is recorded

7) Review extracted design

Design document extracted is reviewed several times to ensure consistency and correctness. It also ensures that design represents the program.

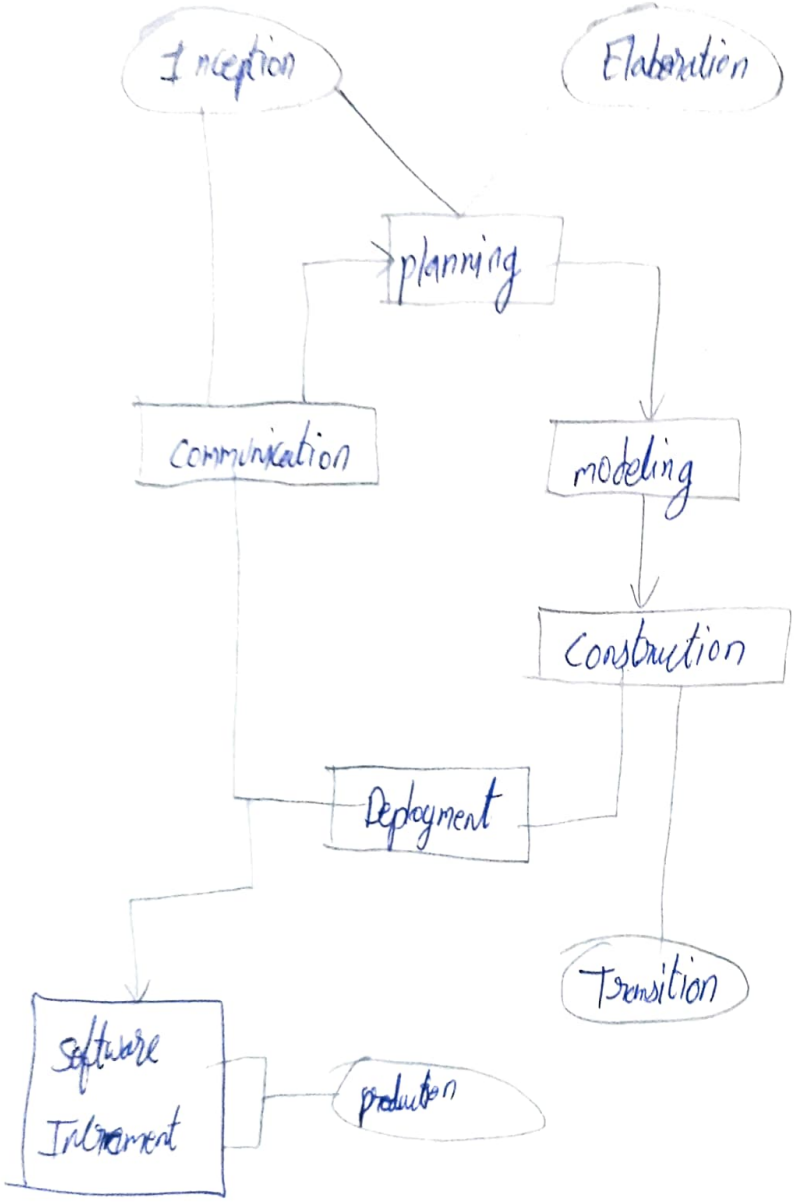
8 General documentation

Finally the complete documentation along with SRS, history, version etc are recorded for future use

4. write note on United process model along with advantages and disadvantages

United process is a software development process for object-oriented models

It is created by using UML



phase of United process

1) Inception

Communication and planning are main ones is. The project is checked against milestone criteria and it couldn't pass these criteria then the project can be either cancelled or redesigned

2) Elaboration

planning and modeling are the main ones A detailed evaluation and development plan is ~~~~ carried out and diminishes the risks.

3) Construction

→ The project is developed and completed coding takes places
→ ~~Coding~~

4) Transition

→ The final project is released to public
→ Update project documentation
→ Defects are removed from project based on feedback from public

5) production

→ The final phase of project or model
→ The project is maintained and updated accordingly

Advantages

1. It provides good documentation, it completes the process in itself
2. It provides risks management support
3. It reuses the components, and hence total time duration is less
4. Good online support is available for training

Disadvantages

1. Team of expert professional is required, as process is complex
2. Complex and not properly organized process.
3. More dependedy on risk management
4. Hard to integrate again and again