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CLASS :- TE - 4

ROLL NO:-12 , BATCH :- A

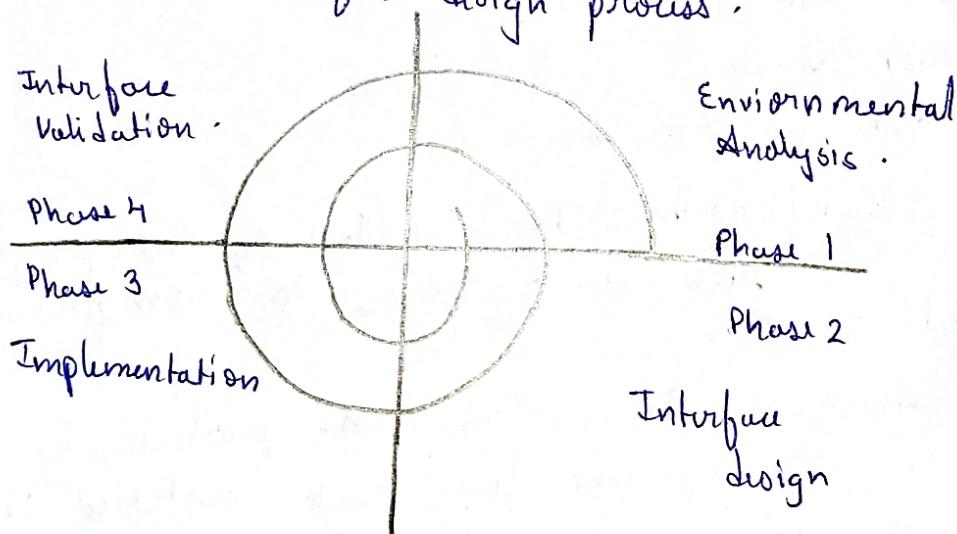
SOFTWARE ENGINEERING ASSIGNMENT - 2

Q.1 a Give design concepts of software design.

Ans - Software design simply means the idea or principle behind the design - It provides a supporting & essential structure or model for developing right software . Some of the design concepts are :-

- ① Abstraction - ~~subdivide the system~~ hide irrelevant data.
- ② Architecture - ~~design a structure of something~~ <sup>subdivide the</sup> system.
- ③ Modularity - design a structure of something
- ④ Refinement - remove impurities .
- ⑤ Pattern - repeated form - repetition of a solution .
- ⑥ Information Hiding - hide the information .
- ⑦ Refactoring - reconstruct something .

Q.1 b Explain user interface design process .



- ① Environmental Analysis Modeling :- In analysis part, the task that the user performs to establish the goals of systems are identified, described and elaborated .
- ② Interface design :- Design issues such as response time, command and action structure, error handling, help facilities are considered as

Design model is refined.

- ③ Interface construction and implementation - The iterative design process continues, a user interface tool kit can be used for completing the construction of an interface.
- ④ Interface validation :- It should be used and easy to learn.

Q.2.a Explain risk assessment for risk management:

Ans The priority of every task every risk is computed as

$$P = R \times S$$

Where, P is the priority with that danger should be handled.

R is that the likelihood of the danger.

In risk assessment mainly following elements are there -

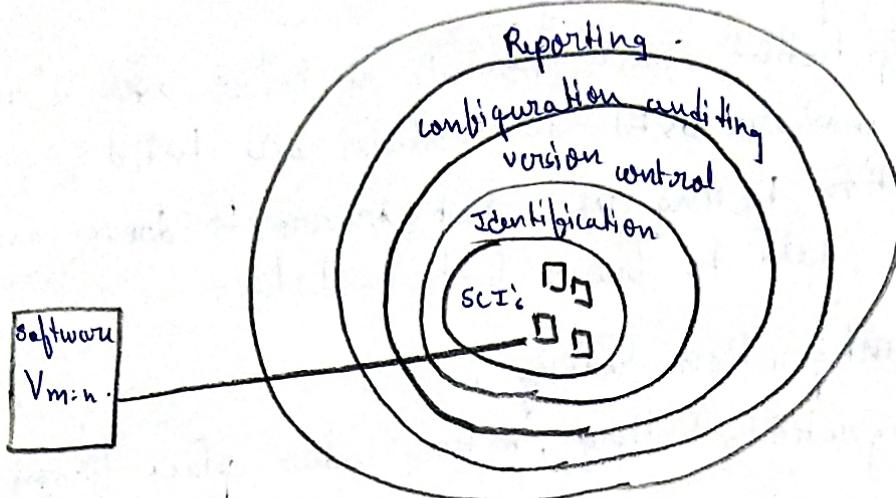
- ① Risk Identification.
- ② Risk Analysis
- ③ Risk prioritisation.

① Risk Identification - Produces list of the project-specific risk items likely to compromise project success.

② Risk Analysis :- Assesses the loss probability and loss magnitude for each identified item and it assesses compound risk.

③ Risk prioritisation - Produces a ranked ordering of the risk items identified and analysis.

Q.2.b. Draw and explain software configuration management.



- (1) Identification - Identifying the configuration items from products that compose baselines at given point of time.
- (2) Version control - Creating versions/specification of the existing product to build new products from the help of same system.
- (3) Change control - Controlling changes to configuration items (CI).
- (4) Configuration auditing - It focuses on the technical correctness of the configuration object that has been modified.
- (5) Reporting - Provides accurate status and current configuration data to developer, tester, user, etc.

Q.3. Explain types of Integration Testing

Ans There are four types of integration testing.

- (1) Big-bang integration testing.

It is the simplest integration testing approach, where all the modules are combining and verifying the functionality after the completion of individual module testing.

## ② Bottom-up integration testing.

In bottom up testing, each module at lower level is tested with higher modules until all modules are tested.

This integration testing uses test drivers to drive and pass appropriate data to lower level modules.

## ③ Top-down integration testing.

In this integration testing, testing takes place from top to bottom.

First, high level modules are tested and then low-level modules and finally integration the low-level modules to a high level.

## ④ Mixed integration testing.

It is also called as sandwiched integration testing.

This mixed approach overcomes the shortcoming of top-down and bottom-up approaches.

Q.4. Solve the following code by making gaps and find cyclomatic complexity.

①  $A = 10$

② If  $B > C$  then

③  $A = B$

④ Else

$A = C$

⑤ Print A

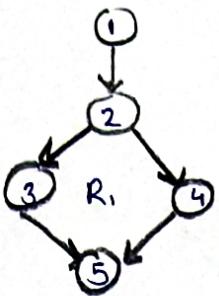
⑥ Print B

⑦ Print C.

Solution:-

Step 1 - Number of lines in code.

Step 2 - drawing control flow graph



Step 3 - Regions ( $R$ ) = 2

No. of nodes = 5

No. of edges = 5

No. of predicate nodes = 1

Now,

$$V(G) = E - N + 2 \\ = 5 - 5 + 2$$

$$\underline{V(G) = 2}$$

$$V(G) = P + 1 \\ = 1 + 1$$

$$\therefore \underline{V(G) = 2}$$

$\therefore$  Cyclomatic complexity  $V(G) = 2$ .