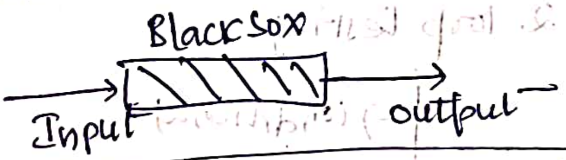
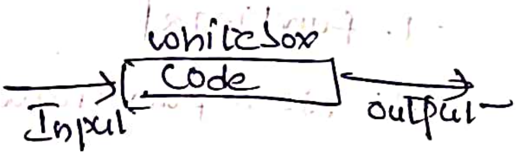
Software testing

unit-1

SK. Sandhani
CSE-ai

1. outline the differences between white box testing and black box testing

~~Sde~~ Black Box	WhiteBox
⇒ It is high level testing It focuses on the behaviour of the working software	⇒ It is a technique which checks the internal functions of the system.
⇒ In this testing, the programming code of the software is hidden and nothing known about it  	⇒ In this testing method, the programmer must have knowledge about the internal code 
⇒ It focuses only on input and output	⇒ It focuses on overall software code, testing.
⇒ It is mostly done by the software testers	⇒ It is mostly done by software developers
⇒ It is referred as outer (or) external software testing	⇒ It is the inner (or) internal software testing
⇒ It is less-time consuming	⇒ It is more time-consuming

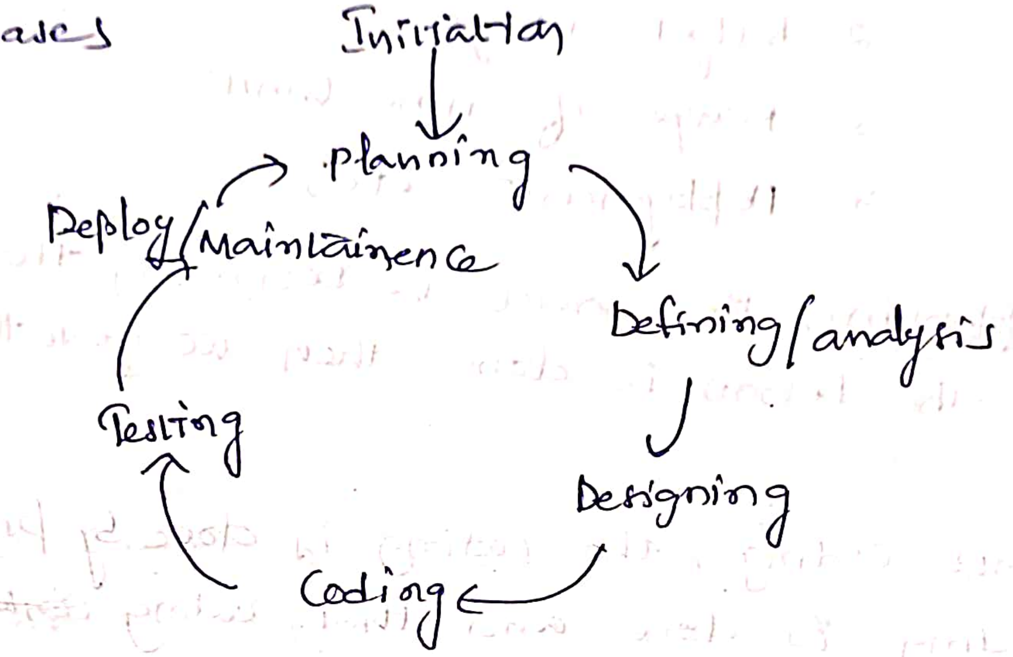
=) It is also called as behavioural testing (or closed testing	=) It is also called as clear box testing (or glass testing
=) No Knowoledge of programming, implementation is Required	=) Manidatory to have the Knowledge of programming, implementation is Required
=) It is not well suitable for algorithm testing	=) It is well suitable for algorithm testing
=). Types :- 1. Functional 2. Non-Functional	=) Types 1. path testing 2. loop testing → conditional → control → Branch

2) Write a short note on software development ~~lyfe~~ life cycle!

A) Software development life cycle :-

It is a process of developing an software (client need) in various phases to get an desired output in a ~~[illegible]~~ cyclic life. The desired output is the actual output it meets the expected output. To Meet the expected output we need to

develop the software from bugs, errors etc.,
The software development life cycle. has sevral phases



procedure:-

→ The software development contains two entities

1. client
2. service provider

→ The client meets the service provider to give an project. It is called Initiation phase. In these initiation the meeting takes place and gives the Requirement, expected output to service provider

⇒ The next phase is planning, the software provide service plans how to Make the product with the customer satisfication like in Range of time, budget, Quality product, desired output

The planning includes

1. Team division
2. Budget usage
3. Range of time limit
4. Deployment etc.,

→ After planning, the service is designing the product. The Design is done then we go-to the coding

⇒ In this coding, the coding is done by programmers the coding is done and that coding ~~contains~~ moves to the testing phase

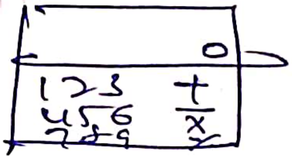
⇒ In testing phase the testers are test the code if there is error the send to the coding department else moves to the deployment

⇒ In deployment, the actual software is released into market with the expectations of client

Eg:- Calculator

Step1:- planning about the Requirements to develop calculator

step2:- After planning design of the Calculator



Step-3:- After design, write a code to perform the activity sy calculator. If code is written in Modules it will easy to understing

```
          Sum
Eg:-  void sum {                 void Mul {
                                  - - -
        - - -                    z = a*b
         x = a+b                  }
          }                      void div{
       void sub {                 - -
         y = a-b                 H = a/b;
          }                       }
```

Step-4:- After coding, move to testing phase if testing is good then the product of calculator software is Ready

Step-5:- In these step, deployment is done with the expected outputs

3 a) Explain briefly about various SDLC Models

A) SDLC:- To develop an product in phases we use SDLC

SDLC Models

1. water fall

- ⇒ Basic Model (or) Simple model
- ⇒ First Model to develop software
- ⇒ used for small product
- ⇒ After completion one phase only it moves to another
- ⇒ No feedback
- ⇒ After completion of one phase there is no change in that model

2. Iterative waterfall Model :-

=> contains feedback

=> simple model

3. V - Model :-

=> Extension of waterfall

=> parallely design and testing takes plac

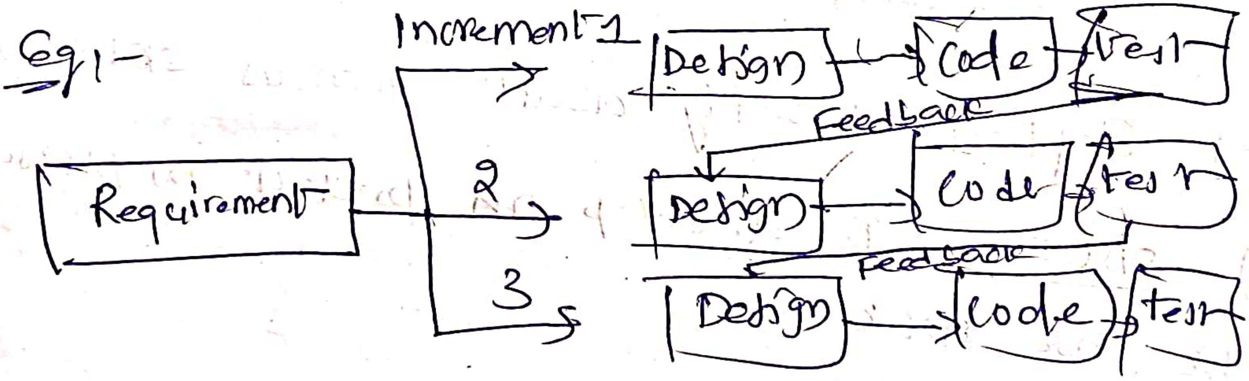
=> verification and validation is done at same time

4. Incremental Model :-

=> To build large and complex system

=> It is "build some, test some, deploy some" mechanism

Eg:-

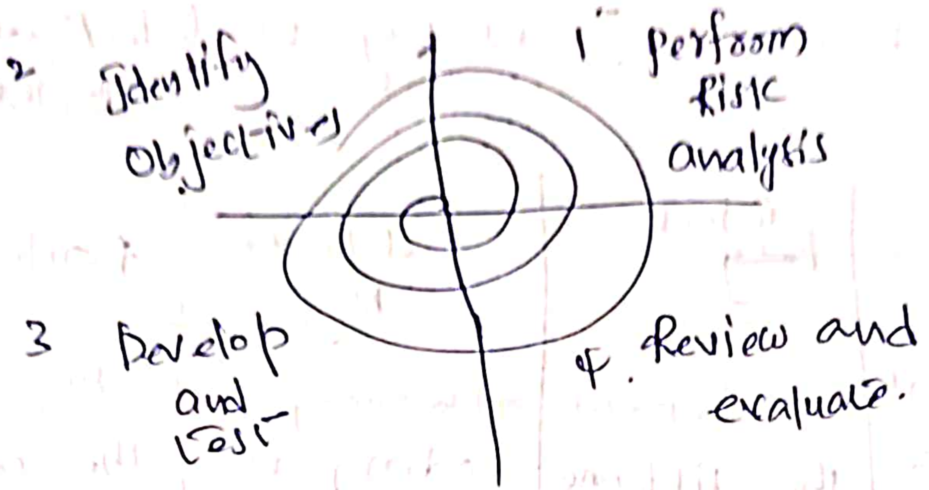


5. Spiral model :-

=> used for Risk Management

=> combination of iterative & waterfall elements

=> used for large projects



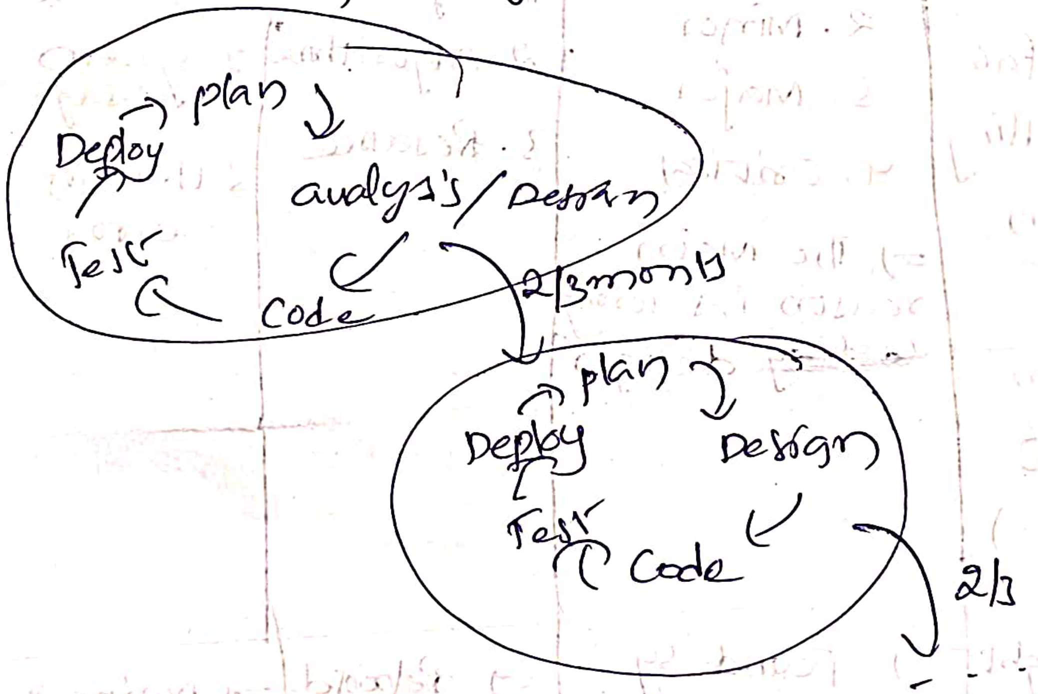
6. Agile Model :-

⇒ Contains pair programmers (one to test and one to code and vice versa)

⇒ Every 2/3 month interaction and new cycle starts

→ Customer collaboration is high

⇒ large projects



7. Rad Model :-

→ used for small project

⇒ follows same syntax

⇒ completes within 90 days

b) difference between Error vs bug vs defect ~~vs~~ ~~failure~~

A)

Error	defect ~~Bug~~	~~defects~~ Bug	Failure
⇒ problem (or) Mistake identified at the time of development Called error ⇒ It is due to unable to compile (or) Run a program sucessfully	⇒ Defect is the difference between the actual outcome and expected outcome defect ~~Bug~~ = actual - expected	⇒ wrong coding is Main reason of bugs	⇒ Bug at the end application User is called Failure ⇒ Found at production called bug
⇒ Types :- 1. syntatic 2. User Interface 3. error Handling 4. calculation 5. logical	Types :- 1. Trivial 2. Minor 3. Major 4. critical ⇒ The Main reason is wrong ~~Coding~~ design	Types :- 1. Logic 2. Algorithmic 3. Resource	Types :- 1. Enviornmental 2. system usage 3. Human error
⇒ Main Reason is improper of syntax (;, ...)			
⇒ It is brought up by developers and automated test Engineers	⇒ Found by testers, Also developer address at the early stage of development	⇒ Reported by test Engineers	⇒ During the Development The Manual test engineers discover

4) Verification and validation

1)

Verification	validation
=> It is process of checking that a software achives its goal without any bugs.	-> validation is the process of checking whether the software product is up to the mark. It means checking the development is Right (or) not
=> It includes checking documents, design, codes and programs	=> It includes testing and validating the actual product
=> static testing	=> Dynamic testing
=> It doesnot includes the execution of code	=> It includes Execution of code
=> Design phase	=> testing phase
=> Methods are -> Review -> walk through -> inspection -> desk-checking	-> Methods are -> BlackBox -> white Box -> Non-functional

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=> It can find the bugs at early stage of development	=> It can only find the bugs which can't find by verification process
-> Goal is => application and software architecture	=> Goal is -> actual product
=> verification is about process, standard and guideline	=> It is about product