Name :- Qazi Azmat Ullah

ID :- 14648

Paper :- Software Engineering

Semster :- 4th

Section :- A

Question # 2 (1)

Testing can detect only the presence of errors, not their absence because the main goal of the testing is to observe the behavior of the particular software and to cheaic whether it meet it's requirement expectation or not.

The testing is a part of broader process of software verification and validation. It consists of a set of activities, where the testers try to make the software behave anomalous in order to detect or anomaly to be later fix. Testing cannot demonstrate the faults other than specified in every circumstance.

Question # 2 (2):

★ Unit Testing:-

In computer programming, unit tests is a software testing method by which individual units of source code, sets of one or more computer program modules together with associated control data, usage procedures and operating procedure are tested.

Unit testing is a level of software testing that invokes individually testing

P.T.O

unit of code to ensure that it work on it's own.

The key purpose of Unit testing is to validate that every single unit of the software perform as perfectly designed.

In procedural programming, a unit may be an individual function, program process etc.

In object-oriented programming, the small unit is a technique, which may belong to a base/super class, abstratact class or child.

★ System testing :->

System testing is a level of testing that validates the complete and fully integrated software product.

The purpose of system testing is to evalute the end-to-end system specifications.

System testing is actually a series of different tests whose sole purpose is to exercise the full computer-based system.

★ Black box testing:-

Black-box testings also known as Behavioral testings.

Black box testings is a method of software testing that examines the functionally of an application without peering into it's internal structures or workings.

These tests can be functional or non-functional, though usually functional.

The method attempts to find errors in the following categories-

=> Incorrect or missing functions.
=> Interface errors.
=> Errors in data structure or external database access.
=> Behavior or performance errors.
=> Initialization and termination errors.

★ White Box Testing:-

White Box testing also known as clear Box testing, open box testing, Glass Box testing.

White Box testing is a method of softwere testing that tests internal structure or workings of an application, as opposed to it's functionality.

In this type of testing, the code is visible to the tester.

It is usually performed by developers.

The term "White Box" was used because of see-through box concept.
The WhiteBox name symbolizes the ability to see through the software's outer shell into it's inner workings.

White box testing involves the testing of the software code for the following-

=> Internal security holes.
=> Broken or poorly structured paths in the coding processes.
=> The flow of specific inputs through the code.
=> Expected output
=> The functionality of conditional loops.
=> Testing of each statement, object and function on an individual basis.

Page#5:-

Question # 3(1):-

"Software maintenance"

★ Fault repairs:

Coding errors are usually relatively cheap to correct; design errors are more expensive as they may involve rewriting several program components. Requirements errors are the most expensive to repair because of the expensive system redesign which be necessary.

★ Environmental adaptations:

This type of maintenance is required when some aspect of the system's environment such as the hardware, the platform operating system, or other support software changes the application system must be modified to adapt it to cope with these environmental changes.

★ Functionality addition:

This type of maintenance is necessary when the system requirements change in response to organizational or business change the scale of the changes required to the software is often much greater than for the other types of maintenance.

so that it conforms

Page # 6:-

It is sometimes difficult to distinguish between the different types of maintenance because they are often given different names and also because there is not a clear-cut distinction between these types of maintenance when the system adapt to new environment then add functionality to take advantage of new environmental features. Software faults are often exposed because users' use the system in unanticipated ways.

Question No 3(2):-

The Principal of Reengineering when applied to the software development process is called software re-engineering. It affects positively at software cost, quality, service to the customer and speed of delivery. In Software Re-engineering, we are improving the software to make it more efficient and

P.T.O

effective.

* Re-Engineering cost factors:

The quality of the software to be re-engineered.
The tool support availability for engineering
Extent of the data conversion which is required.
The availability of expert staff for Re-engineering.

* Software Re-engineering Activities:

(1) Inventory Analysis:

=) Every software organistation should have an inventory of all the application.
=) Inventory can be nothing more than a spreadsheet model containing information that provides a ~~deta~~ detailed description of every active application

(2) Document reconstructing:

=) Documentation of a system either explains how it operate or how to use it
=) Documentation must be updated.
It may not be necessary to fully document an application.

3) Reverse Engineering:-

Reverse Engineering is a process of design recovery - Reverse engineering tools extracts data, architectural and Proccedural design information from an existing Program.

4) Code Reconstructing:-

To accomplish code reconstructing, the source code is analysed using a reconstructing tool - Violations of structured Programming construct are noted and code is then reconstruct.

5) Data Restructuring:-

Data restructuring beings with the reverse engineering activity.
Current data architecture is dissected, and necessary data models are defined.

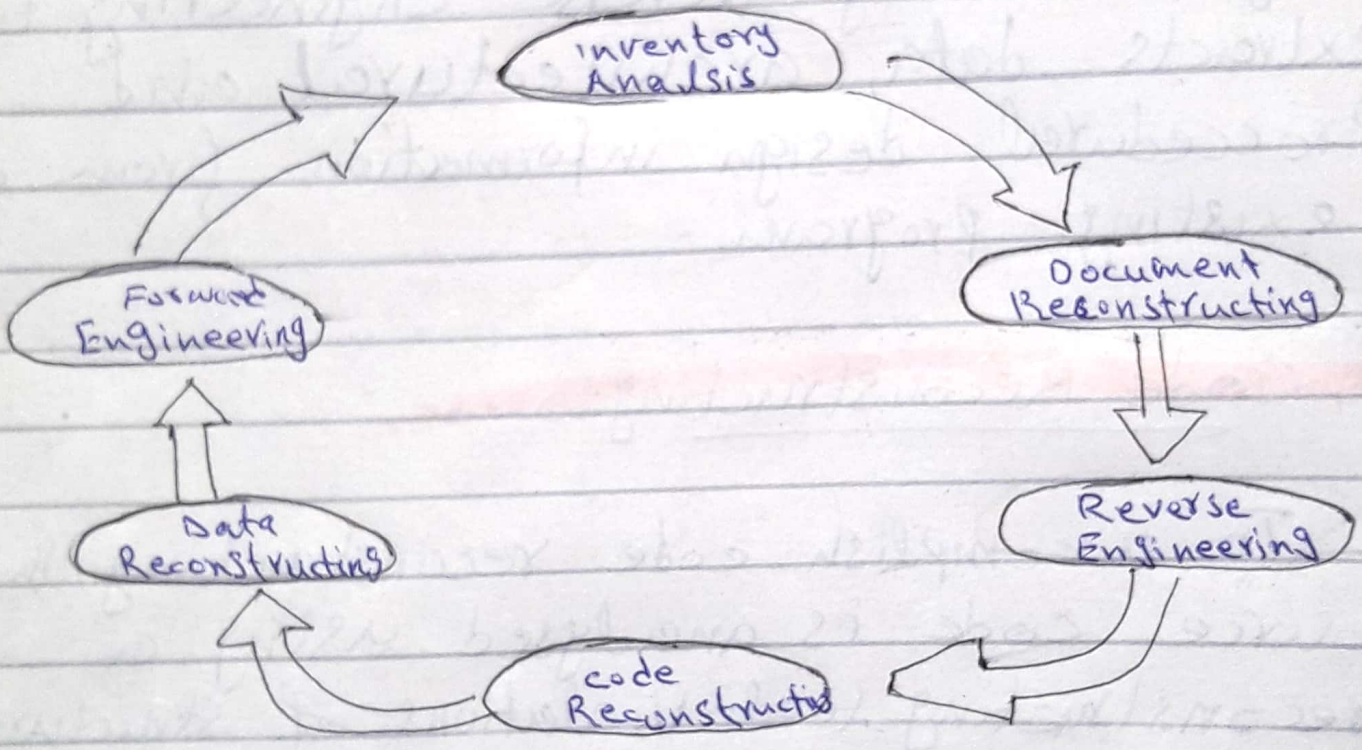
(6) Forward Engineering:-

Forward Engineering also called as renovation or reclamation not only for @ recovers design information from existing software but uses this informati to alter or reconstitute the existing system in an effort to improve its overall quality.

P.T.O

Page #9:-

Diagrams



Description

1. Context diagram
2. Level 1 DFD
3. Level 2 DFD.

- INU Printing Press, Printing jobs from departme
- Press take Printing related orders
- Placed order cannot be cancelled.
- Financial Transaction done Through Univ office.
- University office maintains the accounts.
- Press inventory From outside suppliers.
- Accepting the quotation from suppliers.
- They maintain information of suppliers for Raw Mat
- Supplier Can Supply more Than one item.
- An item can supply more Than one Suppliers.
- The supplier supply The item in Parts.
- Stock acquire more than once in a year.
- Suppliers Send Two copies of invoice.
- One is forward to university office.
- Payment make after approval from office.

3—

- Department Place order, depend on inventory,
- Press give Response whether Fullfill immediate or near
- Department assigned budget beginning of year.
- order accepted, Then Completed various Proces
  - Composing - Pasting - Plate making
  - Printing - Binding.

Q1.1 Context Diagram