

Software Engineering

(1) what is SWOT Analysis?

SWOT analysis is framework for identifying and Analyzing the internal and external factors that can have an impact on the Feasibility of a project, Product, Place or Person.

(2) what is software refactoring?

Refactoring is the process of changing a software system in such a way that it does not alter the external behavior of the code yet improve its internal structure.

(3) what is embedded system?

An embedded system is a programmed controlling and operating system with a dedicated function within a larger mechanical or electrical system, often with real-time computing constraints.

Q4: what is the diff. b/w
~~cohesion~~ cohesion and coupling?

Cohesion is the indication
of the relationship within
module.

Coupling: is the indication
of the relationship between
modules. cohesion is a
degree (quality) to which
a component/module focuses
on the single thing. coupling
is a degree which a
component/module is connected
to the ~~other~~ other modules.

Q5: Define SQA? Answe

Software quality Assurance
consists of a means of
monitoring the software
engineering processes and
methods used to ensure
quality.

(6) what is Gantt chart?

A Gantt chart is a type
of bar chart that illustrates

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a Project Schedule. This chart lists the tasks to be performed on the vertical axis, and time intervals on the horizontal axis?

Q7: Differentiate b/w iterative model and incremental model?

RUP Rational unified Process

consists of following four phases.

(1) Inception 2 Elaboration

(3) Construction 4 Transition

Q8: what is diff b/w testing and debugging?

Testing activity is carried down by a team

of testers, in order to

find the defect in the

software while Debugging

is the activity which

is carried out by the

development team (or developer)

After getting the test report from the team. In this developer finds out bug and tries to modify it by going through line of codes and after fixing software is sent back to testers.

Q9: Differentiate b/w iterative model and incremental model?

In incremental model we deliver software in small but usable pieces each piece builds on pieces already delivered while in the iterative process starts with a simple implementation of a small set of the software requirements and iteratively enhances the evolving versions until

the complete system is implemented and ready to be deployed.

Q10: what is extreme Programming?

Extreme Programming is a software development methodology which is intended to improve software quality and responsiveness to changing customer requirements?

Q11: what is CMM?

CMM stands for "Capability maturity model" it is used to develop and refine an organization's software development process.

The levels of CMM are:

- (1) Initial
- (2) Repeatable / managed
- (3) Defined
- (4) Quantitatively managed.
- (5) Optimizing

Capability

{
1) Define
2) Implement

Quantitative
1) Reuse
2) Optimize

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Q12: what is system testing?

The purpose of system testing is to identify defects that will only surface when a complete system is assembled.

Q13: Differentiate b/w Project Process and product?

A project is a temporary endeavor that is undertaken to create a unique product. The service and steps used to complete project is known as process.

Q14: Define stakeholders?

A person group or organization that is actively involved in a project is affected by its outcome.

*end user
owner*

Q.15: what is closed system?

An open system is one that interacts with its environment and thus exchanges information, material or energy with the environment including random and undefined inputs however the systems that are ~~real~~ relatively isolated from the environment but not completely closed are termed closed systems.

Q.16: Define Scm?

Software configuration management is a software engineering discipline consisting of standard processes and techniques often used by organizations to manage the changes introduced to its software products.

Q.17: what is throwaway in prototypes?

Throwaway or rapid

Prototyping refers to the creation of a model that will eventually be discarded rather than becoming part of final delivered software.

Q18: What is Requirement elicitation?

Requirement elicitation is the practice of researching and discovering the requirements of a system from users, customers and other stakeholders.

Requirements elicitation is a part of the requirements engineering process, usually followed by analysis and specification of the requirements.

Q19: How we can define Non-functional requirements?

Non-functional requirements are about constraints on the services or functions, time constraints and constraints on the development process.

Q21: Give the name of four elicitation techniques?

- (i) Surveys 2 Questionnaire
- 3 Brainstorming Sessions
- (4) Interviews

Q22: Define Requirement creeping?

Scope creep (also called requirement creep, or Kitchen Sink Syndrome) in Project Management refers to changes continuous project begins scope

creep can be a result of poor change control

Q22: what is data granularity?

The granularity of data refers to the size in which data fields are sub-divided. For example a postal address can be recorded with coarse

granularity as a single field address = 200 2nd Ave

Q23: write down any four characteristics of non-functional requirement?

(1) Availability (2) Reliability

(3) Recoverability (4) Maintainability.

Q24: write fundamental activities that involve in software development process?

(1) Planning (2) Analysis

(3) Design (4) Development

(5) Testing (6) maintenance

1) Availability
2) Reliability
3) Maintainability
4) Recoverability

Q25 what are drawbacks of spiral model?

Following are the disadvantages:

(1) This model is costly to use

(2) Risk analysis requires high experts for the development of the project.

(3) Project's success is highly dependent on risk analysis.

(4) This model cannot work for smaller projects.

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Q26: Differentiate between Proactive and Reactive approaches to handle risks?

Proactive Approach: A proactive approach focuses on eliminating problems before they have a chance to appear.

Reactive Approach: A reactive approach is based on responding to events after they have happened.

Q27. Write are the properties of good requirements?

Software requirements are good if they contain following properties.

- (1) Verifiable
- (2) Clear and Concise
- (3) Complete
- (4) Traceable
- (5) Unambiguous
- (6) Modifiable

Q28: At Define Modularity?

Modularity is the principle

which depicts the idea of splitting up the problem into series of self-contained modules.

According to this principle the software is separated into the components according to the functionalities and responsibilities.

Q29: Define functional requirements?

Statements of services that the system should provide how the system should react to particular inputs and how the system should behave in particular situations are functional requirements.

Q30: what is a Software Architecture Design?

Software Architecture Design represents the structure of data and program

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Components that are required to build a computer based system. It contain following processes.

- (1) Creation of data design.
- (2) Derivation of one or more representation of architectural structures.
- (3) Analysis (4) Elaboration.

Q31: Differentiate between refactoring and refinement?
Refactoring:

The process of changing the software system in improve its internal structure is called refactoring.

Refinement:

The process of deriving the new version of the Specification / programme from old one after deciding the change of data types Sanitation is called Refinement.

Q 32 why we use CMM?

CMM stands for "capability maturity model". It is used to develop and refine an organization's

1) Define software development process

2) Then CMM can be used to

assess an organization

against a scale of five

process maturity levels

based on certain key process areas.

Q 33 Different between verification and validation?

Verification refers to the set of activities that ensure that software correctly implements a specific function.

Validation refers to a different set of activities that ensure that the

software that has been built is traceable to

~~2 HRS~~

to the customer requirements.
Verification are we building
the product right? Validation
are we building the
right product?

Q34: How quality is related
to standards?

Quality is the major
factor in any software
development process. The
quality and standard has
the direct relation. Highest
quality of the software
highest will be the
standard of the organization
where the software is
being developed. So quality
is always related to
the standards.

Q35: what is Software
engineering?

Software engineering is
defined as the application

of systematic, disciplined, quantified approach to the development, operations, and maintenance of software.

Q36: Define component based development?

CBD has many characteristic of spiral model. It is evolutionary by nature and iterative approach to create software CBD model

Creates applications from prepackaged software components (called classes).

Q37 Define legacy software?

A system is considered to be a legacy system if it has been in operation for many years. A legacy system has many components. These include business processes, business rules, application software, application data, support

~~2 Hrs~~

Software, and system hardware.

Q38: What are umbrella activities?

The umbrella activities of a software process are:

*: Software Project tracking and Control.

*: Risk Management

*: Software quality Assurance

*: Formal Technical Reviews.

*: Software Configuration Management

*: Work Product Preparation and Production

*: Reusability, Management, Measurement.

Q39: Define requirements engineering?

Requirement engineering is

the process of establishing the services that the customer

requires from the system

and constraints under which it operates and is developed.

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Q40: what is a process specification?

A process specification is a method used to document analyze and explain the decision making logic and formulas used to create output data from process input data.

Q41: what is purpose of configuration model?

The integration and configuration process model is based on reuse. In this software process model, systems are adapted from existing components as much as possible. The reused components may be configured to adapt their behavior and functionality to the requirements of the new software or system.

Q42: How do associations and dependencies differ from one another?

In general you use an association to represent something like a field in class. The link is always there in that you can always ask an order for its customers. Associations also imply dependency, if there is an association between two classes.

Q43: Define unified process?

In this model a software product is designed and built in a succession of incremental iterations. It incorporates early testing and validation of design ideas and early risk mitigation.

Q44 How the process models differ from one another?

Process model differs from one another due to the following reasons.

- *: Based on flow of Activities
- *: Interdependencies between Activities.
- *: Manner of quality Assurance
- *: Manner of Project tracking
- *: Team organization and Roles.
- *: Work products identify a requirement identifier.

Q45: What are drawbacks of prototyping model?

- * Insufficient Analysis.
- * user confusion
- * Developer misunderstanding of user objectives.
- * Excessive Development Time.

Q46: why formal methods are not widely used?

Formal methods are not widely used due to the following reasons:

- * It is quite time consuming and expensive
- * Extensive expertise is needed for developers to apply formal methods.
- * Difficult to use as they technically sophisticated maintenance may become risk.

Q47: what is SRS?

SRS stands for Software Requirement Specifications:

These include:

- * Correct * Complete
- * Unambiguous * Specific
- * Traceable * Consistent

Q48: what are various phases of SDLC?

These six steps

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include planning, analysis, design, development, implementation, testing, deployment and maintenance.

Q49: How can we drive the size of software product?

Size of software product can be calculated using either of two methods.

- * Counting the lines of delivered code
- * Counting delivered Function Points.

Q50 Define difference between alpha testing and beta testing?

Alpha and Beta testing are the types of acceptance testing.

Alpha Test:

The alpha testing is attesting in which the version of complete software

~~2 types~~

is tested by the customer under the supervision of developer. This testing is performed at developer's site.

Beta Test:

The beta testing is a testing in which the version of the software is tested by the customer without the developer being present. This testing is performed at customer's site.

Q51. What are various types of Software maintenance?

Type of Software maintenance are:

* Corrective Maintenance:

Means the maintenance for correcting the software faults.

* Adaptive Maintenance:

Means maintenance for

adapting the change in environment

*: Perceptive maintenance?

means modifying or enhancing the system to meet the new requirements.

*: Preventive Maintenance?

Means changes made to improve future maintainability.

Q52: How the architecture design can be represented?

Object
Relational
Prototypic
Event

Architectural Design can be represented by one or more different models. They are:

(1) Framework models (2) Dynamic Models (3) Process Model

Q53: Differentiate between structured analysis vs. object oriented analysis:

Structured Analysis: the focus is only on process and procedures. Modelling

~~2 Hrs~~

techniques used in it are DFD, Flowcharts etc. Objects in the oriented analysis. the focus is more on capturing the real world objects in the current scenario that are of importance to the system. It stresses more on data structure. Modeling techniques used in it are UML. UML includes class diagram, state diagram, use case diagram, sequence diagram etc.

Q. What are case tools?

Case tools stands for computer Aided Software Engineering. It is a system software "Process" that provides automated support for software process activities. It includes program used to support software

~~Hitz & Munen~~

Process activities such as requirement Analysis, System Modeling, Debugging and testing.

Q55 what is Software re-engineering?

In Software Re-engineering new feature can be added to existing system and then the system is reconstructed for better use of it in future.

Q56 what is RMMR? RMRR = Risk Mitigation, Monitoring and Management Plan

RMMR stands for Risk Mitigation, Monitoring and Management Plan. It is also called Risk Assessment.

Q57 what is DFDD diagram?

DFDD = Data Flow Diagram
Illustrates how data is processed by a system in terms of inputs and

Hitz & Muner
outputs. As its name indicates its focus is on the flow of information where data comes from where it goes and how it gets stored.

Q53. What is convention in DFD?

Convention used when drawing DFD's. It should be pointed out that a DFD is not a flowchart. A DFD represents that flow of data represent procedural information?