1. Embedded software is computer software, written to control machines or devices that are not typically thought of as computers. It is typically specialized for the particular hardware that it runs on and has time and memory constraints.

Examples:

1. Washing Machines
2. Cars
3. Robots
4. A linker combines many object files and library routines in to one single binary executable file.  Linker or link editor is a [computer program](https://en.wikipedia.org/wiki/Computer_program) that takes one or more [object files](https://en.wikipedia.org/wiki/Object_file) generated by a [compiler](https://en.wikipedia.org/wiki/Compiler) and combines them into a single [executable](https://en.wikipedia.org/wiki/Executable) file, [library](https://en.wikipedia.org/wiki/Library_(computing)) file, or another object file.

A simpler version that writes its output directly to memory is called the loader, though [loading](https://en.wikipedia.org/wiki/Loader_(computing)) is typically considered a separate process

1. Outer Layer – Hardware. For example I/O disks, Magnetic Tapes

Middle Layer – System Software. For example Debugger, Compiler

Inner Layer – Application Software. For example Word Processor, Adobe PDF

1. a. Compiler

b. Interpreter

1) Compiled. Interpreted

2) Complied, Interpreted

3) Interpreted, Compiled

4) Compiled, Interpreted, Interpreter

1. Requirement - Business Requirement Document, SRS

Design – High Level and Low Level design documents

Implementation- Source code documents

Test - Test Plans and other test documents

Installation- Installation and configuration documents

Maintenance – Maintenance documents

1. SD Methodology – A set of principles

SD Models – Selected Methodologies or Processes

SD Framework – Overall Structure

SD Process – A set of Steps

1. 1-Quality Focus The degree to which software specifies the stated requirements

2- Process Model – Process modeling is a mechanism for describing and communicating the current or intended future state of a business process

3 – Method - Set of principles which guides towards achieving a target

4 – Tools- Tools required to carry out a particular task

1. Used in the In the Scrum method of Agile software development. 2. The sprint backlog is a list of tasks identified by the Scrum team to be completed during the Scrum sprint. A sprint is a repeatable work cycle, known as a sprint or iteration.
2. Coding
3. Agile Methodology Speed up or bypass one or more life cycle phases. Usually less formal and reduced scope. Used for time-critical applications. Used in organizations that employ disciplined methodology.
4. Software project management is the art and science of planning and leading software projects. It is a sub-discipline of [project management](https://en.wikipedia.org/wiki/Project_management) in which [software](https://en.wikipedia.org/wiki/Software) projects are planned, implemented, monitored and controlled. It is an engineering process it includes methodologies, models, frameworks and other tools
5. Incremental Model – Construct a partial implementation of a total system • Then slowly add increased functionality .The incremental model prioritizes requirements of the system and then implements them in groups. Each subsequent release of the system adds function to the previous release, until all designed functionality has been implemented.

Strengths:

Develop high-risk or major functions first

Each release delivers an operational product

Customer can respond to each build

Weakness:

Requires good planning and design

Requires early definition of a complete and fully functional system to allow for the definition of increments

Adaptive SDLC(Presented by Niharika)- Combines RAD with software engineering best practices Project initiation .

Adaptive cycle planning.

Concurrent component engineering

Quality review

Final QA and release

Dynamic System Development(Presented by Nitish) Method Applies a framework for RAD and short time frames Paradigm is the 80/20 rule – majority of the requirements can be delivered in a relatively short amount of time.

1. Repository: the database where your changes are tracked

Working set: your local files with potential changes not yet in the repository

Branching - make a copy of your entire repository and work on this in a private sandbox. Then you can add your changes back into the main portion of your source code.

1. Centralized

One True Source repository; Checkout from that source, and then add (commit) their changes to the centralized repository.

Advantages:

1. No need for synchronization. Time saving

Disadvantages

1. Load can be more if multiple users are accesing

Distributed

One repository is as good as any other

Merges from one repository to another

Which repository should be trusted is imposed from the outside by process, not by the software itself.

Advantages:

1. Load evenly distributed

Disadvantages

1. Has to be in synch with other repositories
3. Software configuration management (SCM or SWCM) is the task of tracking and controlling changes in the software, part of the larger cross-disciplinary field of configuration management. SCM practices include revision control and the establishment of baselines. It also includes details about the hardware and software used. It is useful during migration of a system or when a system crash or disaster occurs.
4. Permissive License- It allows modification of the source code and then that modification can be redistributed under new license terms

Copy Left- It allows modification of the source code and then that modification can be redistributed under original license terms

1. Copy right
2. Unified Modeling Language. No it is not modelling language.

Merits of UML:

A picture is worth a thousand words

A general purpose modeling language which all modelers can use.

It can be used to guide the progress gradually θ You know exactly what you are getting

You will have lower development costs

Your software will behave as you expect it to. Fewer surprises

1. MySQL
2. Web Server - A computer program that accepts HTTP requests and return HTTP responses with optional data content. For example Apache, Tomcat

A web application or web app is a client-server software application in which the client (or user interface) runs in a web browser. For example Splitwise, Rentpay

1. httpd is a web server whereas http is a protocol to transfer the data.

httpd is typically used to host static content and dynamic content written in perl, php amongst others. http uses get and post method to talk to the servers, deliver and get data. D stands for daemon

1. In server-side processing, the Web server: – Receives the dynamic Web page request –

Performs all of the processing necessary to create the dynamic Web page

Sends the finished Web page to the client for display in the client’s browser for example Nodejs php, asp

Client-side processing – Some processing needs to be “executed” by the browser, either to form the request for the dynamic Web page or to create or display the dynamic Web page.

For expmple HTML, CSS, Microsoft Silverlight

1. Static Web Pages

Static Web pages display the exact same information whenever anyone visits it. Static Web pages do not have to be simple plain text. They can feature detailed multimedia design and even videos. However, every visitor to that page will be greeted by the exact same text, multimedia design or video every time he visits the page until you alter that page's source code.

Dynamic Web Pages

Dynamic Web pages are capable of producing different content for different visitors from the same source code file. The website can display different content based on what operating system or browser the visitor is using, whether using is using a PC or a mobile device, or even the source that referred the visitor. A dynamic Web page is not necessarily better than a static Web page.

Not HTML cannot build dynamic web page.

1. A server stack is the collection of software that forms the operational infrastructure on a given machine. In a computing context, a stack is an ordered pile. A server stack is one type of solution stack -- an ordered selection of software that makes it possible to complete a particular task. For example XAMPP

Optional Question

1. Binary number
2. High Level language – Human Readable. For example C, C++

Machine – Only Readable by machine

1. 5 generations:

a. Machine level

b. Assembly level

c. High level

d. Very high level

e. Natural level

1. LEAN Model LEAN model was first used by Toyota.

  It is a systematic method for removal of unnecessary things that exist in a

1. CMM stands for Capability Maturity Model. Its purpose is to provide a benchmark for measuring Software process optimization. It is NOT a SW project management model.manufacturing system.
2. Yes a server stack can run without a client stack because, it is independent of the client stack as client stack will interact using HTTP protocol with the server.
3. CSS file is used for styling and layout of the web page. Html file can have multiple css file. Its advantage is to provide separation of concerns between the content of the page and its styling.
4. Stateless means the server does not contain any information regarding the clients of the system.It is decoupled from the clients. In stateful session between multiple HTTP requests of client-server, the server maintains information about the clients state.