

1. Define Structured Programming & Modular Programming?

Structured Programming: Structured Programming refers to a collection of techniques those are meant to increase programmer productivity by reducing the time required to write, test, debug, and maintain programs. The pioneer of structured programming – **Edsger Dijkstra**.

Modular Programming: It is the early stage in the development of structured programming. It is a programming approach that helps improving programmer productivity through better planning. In this approach the program is broken down into modules, each of which performs a single and independent limited function to reduce the possibility of errors.

2. What are the advantages of High-Level languages?

- a. Relatively easy to write, debug and maintain;
- b. Less error prone, easy to find and debug the errors;
- c. Machine independent language;
- d. Programs written for one computer can easily be used on another computer with a minor modification;
- e. Programmer friendly as easy to understand and modify.
- f. High level programming results in better programming productivity.

3. What are the differences between flow-chart and structure-chart?

- a. A Flow-Chart is used to highlight the sequences of events in a module where a Structure-chart highlights the relationship between modules;
- b. In Structure-chart only rectangles symbol is used in diagrammatic representation where in Flow-Chart rectangles, parallelograms and diamonds are used;
- c. Flow-Chart is easily understandable for the beginners where Structure-chart is difficult to understand as the solution is displayed in hierarchical orders.
- d. Flow-Chart is a symbolic representation of algorithm and Structure-chart is a planning tool of top-down structured program.

4. What do you mean by testing & debugging?

Ans: If a program doesn't perform its predefined output correctly, that means there are errors in the program known as bug. The source of bug must be identified and corrected to ensure the proper output of the program. The process of identifying or detecting bugs is known as testing and the process of correcting bugs or errors is known as debugging. Testing can be done manually or automatically by the testers but debugging can only be done manually by the developers.

5. What are the differences between internal and external subroutines?

- a. Internal Subroutines is part of the program where External Subroutines is not a part of the program rather is considered as a separate program;
- b. Internal Subroutines is represented by horizontally striped process outline where External Subroutines uses predefined process outline to represent program;
- c. In Internal Subroutines the instruction is stored in a register but in External Subroutines the instruction is stored in a library;
- d. Internal Subroutines begins and ends with a terminal outline but in External Subroutines there is no such outline;
- e. Internal Subroutines is used for data processing where External Subroutines is used for complex processing.

6. What is computer program? Define the steps of programming process?

Computer program: A computer program consists of a group of instructions for a computer that cause it to perform a desired task. The computer program is a means to an end, which will normally be defined as information that is needed to solve a problem.

A programming process is problem solving process which consists of the following steps:

- a. Defining the problem;
- b. Preparing an algorithm;
- c. Preparing a program flowchart;
- d. Coding;
- e. Debugging and testing;
- f. Documenting

7. Describe the types of list in HTML?

Ans: In HTML there are 3 types of lists. They are:

- a. Definition List (dl): Definition lists are useful when you have a group of terms that need descriptions. Definition lists are typically formatted with the term on the left with the definition following on the next line. The definition text is typically indented with respect to the term.
- b. Ordered List (ol): An ordered list typically is a numbered list of items that is used to define a list of items for which the sequence is important to the meaning of the content. Any step-by-step process is best presented as an ordered list. Ex: a ranking of something.
- c. Unordered List (ul): An unordered list typically is a bulleted list of items that is used to define a generic list for which the sequence of items is not important. It is the most commonly used elements on the web.

8. What are the purposes and Features of using HTML?

Purpose: The main purpose of HTML is to create web pages for websites. HTML gives the user to add graphical interface just as video, audio, pictures, rich text format and many more. In total, it is a language that is a standard for describing the structure and presentation of information in a website and which can help users to customize their webpage as desired.

Features:

- a. Canvas to draw graphics;
- b. Cross-document messaging;
- c. Drag & drop;
- d. Embedding of Scalable Vector Graphics (SVG) directly;
- e. Geolocation;
- f. Microdata;
- g. History management;
- h. Offline web applications;
- i. Web storage;
- j. Web workers

9. Describe the uses of the following tags: <canvas>; <map>; ; <ins>?

Ans:

<canvas>: This tag usually works as a container for graphics which is used to draw dynamic bitmap graphics using JavaScript.

<map>: Defines a client-side image-map that is used in conjunction with the <area> tag and tag to define hyperlink regions of an image map.

<blockquote>: It is used to indicate the quotation of a large section of text from another source.

** & <ins>**: <ins> tag represents a range of text that has been inserted to a document while tag represents a removal of text from a document. Browsers usually underline inserted text and strike a line through deleted text.

10. What are the differences between HTML4 & HTML5?

- a. The syntax in HTML5 is extremely clear & simple as compared to HTML4. In HTML4 the DOCTYPE declaration was too messy & lengthy while in HTML5 a mere <!DOCTYPE html> is enough to specify the document type;
- b. HTML4 has a very loose syntax - for example closing tags are often optional. On the other hand, in HTML5 closing of some tags is a must while some isn't;

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- c. HTML5 contains built in support for integrated multimedia files into web page via video & audio tags where in HTML4 it needs a third-party plugin to get that support;
- d. In HTML4 it was an extremely cumbersome task to get the geographical locations of the visitors but in HTML5 it is awfully easy to get the users geographical location;
- e. HTML4 is compatible with almost all the web-browsers. On the contrary, HTML5 is still in the process of evolution which is why it lags behind HTML4 in terms of compatibility with the browsers;
- f. Moreover, in HTML5 some tags are removed, some are modified and some new tags are introduced to cop-up with the changing needs & demands in web industry.

11. What is the difference between system analyst and programmer?

- a. A computer programmer is the person who writes a program and a system analyst is someone who plans the collection of equipment, programs, people and procedures that make up a system.
- b. To be a computer programmer, a person only needs to have a profound knowledge on the field of programming but to be a system analyst, one needs to have a variety of skills like; networking, graphical user interfaces, database programming and design, software and application development, Internet manipulation, Provide technical support etc.
- c. To be a system analyst, communication skill with the stakeholder is a must but to be a computer programmer, it is not mandatory.

12. Explain documenting & documentation and its importance?

Documenting is the process of keeping a written record of everything that is done in creating a program which begins with the definition of the problem & documentation is the document where the record is written down. Documentation can be done on paper, online or any digital media. It is very much important for the time being when it comes to change or modify the program because it may be virtually impossible to change or modify the program unless very careful and detailed documentation exists.

13. What is algorithm and program flowchart?

Algorithm: It is a description of the sequence of steps to solve a problem. An algorithm includes calculations, reasoning and data processing.

Program Flowchart: A flowchart is the graphical, pictorial or symbolic representation of an algorithm with the help of different symbols, and shapes in order to demonstrate a process or a program. The main purpose of a flowchart is to analyse different processes.

14. Define counter and desk checking?

Counter: A counter is a device for keeping track of the number of times something occurs.

Desk-checking: It is an informal non-computerized or manual process for verifying the programming and logic of an algorithm before the program is launched. A desk check helps programmers to find bugs and errors of the program.

15. What is table and array?

Ans: Table is a tool that provides a way to the programmer to organise a collection of homogenous data items that facilitates processing. It is the most powerful tool used in programming. In other language table is known as **array**.

16. Define paired table, lookup table and search argument?

Paired Table: Two tables with the same number of elements and some logical relationship between them are called paired tables.

Lookup Table: Searching a table is known as lookup table. The table may be manually populated when the program is written, and when the values are needed later, the program can look them up.

Search Argument: The value that is compared with argument table entries. It consists of search parameters and one or more search terms.

17. Explain binary search and sequential search?

Binary search: It is a technique for searching an ordered argument table that is efficient for large tables.

Sequential search: It is the most commonly used algorithm for searching an argument table. The search starts with the first table argument and takes each succeeding argument in turn until a match is found or in the case of a sequenced discrete table a missing table argument is detected. It works well with relatively small tables.

18. What do you mean by discrete and segmented table?

Discrete table: A discrete table is an argument table in which each entry represents a particular value that is compared to find an exact match.

Segmented table: A segmented table is an argument table in which argument entry is the upper or lower limit of a range of values.

19. What is sub-routine? Give an example.

Subroutines: It is a group of instructions that performs a limited processing tasks and is used to implement modular programming. Printing a portion of a report, reading an output record, or calculating a square root are the examples of subroutines.

20. Define priming read and EOF?

Priming read: Priming read is reading the first record in a file prior to entering a loop that is executed until EOF is detected.

EOF: EOF (End of Files) means that there are no more data records in the file.

21. What is block-level & inline elements?

Block-level: A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can). Ex: <div>, <form>, <h1>-<h6>, <p>, <table>

Inline: An inline element does not start on a new line and only takes up as much width as necessary.

Ex: <tt>, <a>, <map>, ,

22. Pseudocode is presented as a substitute for the algorithm and a possible alternative to the program flowchart.

23. Execution-time error is an error that occurs while a program is being executed.

24. ANSI = American National Standards Institute. **BASIC** = Beginner's All-purpose Symbolic Instruction Code. **COBOL** = Common Business Oriented Language. **FORTRAN** = Formula Translator.

25. A Compiler is a program that translates a source program into an object-oriented program. Ex: compiler, assembler, generator, interpreter.

26. Syntax error – violation of the rules of the particular programming language being used.

27. A loop – a group of processing steps that is used repeatedly.

28. The instructions that transfer control to the subroutine and returns back again are commonly known as **Call and Return instructions**.

29. The top-down approach is a useful technique in planning a modular program. And **a structure chart** is a commonly used planning tool in top-down programming. In a structured program there are three logic patterns: **the sequence structure, the loop structure, and the selection structure**.

30. Boolean Algebra deals with symbols that have values of “true” or “false”. Boolean Algebra uses **AND, OR & NOT** operations.

31. Redundancy exists when there are more rules for an action than necessary. And **contradiction** exists when more than one rule applies in a given situation and the actions under the rules are different.

32. Accessing a function table directly without first searching an argument table is known as **direct table addressing**.