

Revision class Answers for instructors

1. What is a Programming language, what is JavaScript, and why do we need to learn JavaScript in web development?

Ans: A programming language is a set of rules to instruct a computer, JavaScript is a programming language that adds interactivity to your website, we need JavaScript to take advantage for making our website interactive in addition to that, it will allow us to use frameworks which makes our task easy both in the front, backend, and testing after finishing our site. **here for frontend, you can mention React.js, for backend usage you can mention node or express and for testing you can mention a testing tool for a website called Cypress (website testing tool which uses JavaScript)**

2) What is the data structure in JavaScript and what are the types of data structures in JavaScript?

Ans: data structure is a method of organizing and storing data in a computer for efficient accessing and modification. the type of data structure is majorly divided into **Primitive (number, string, Boolean, null, undefined, symbol)** and **non-Primitive (object)** and the major difference between primitive and non-primitive data structures is, in **primitive data type** we refer to a **single value in an address** on the memory but in **non-primitive data type** we refer to the **address in the memory**.

Example if asked: **undefined:** anything until its defined its undefined (let a; console.log(a) will give undefined.

Symbole : a primitive datatype for giving immutability (const value1 = symbol('hello') , const value2 = symbol('hello') , console.log(value1===value2) will give you false implying uniqueness

3) What is variable declaration and assignment in JavaScript and how do we declare or assign a variable in javaScript?

Ans: is the process of introducing or naming a variable in a programming language. assignment in javaScript is binding a variable with a value. We declare or assign a variable in JavaScript we use **var,let,or const** but its recommended to avoid using var.

4) What is the difference between var, let, and const?

Ans: the difference between **var** is globally scoped and **can be changed at any point in your code**, **let can't be changed unless we reassign the name without let key word**, and **in the case of const we cannot change it in any way**.

5) What is weak typing in JavaScript?

Ans: weak typing refers to javaScripts **flexibility for automatically converting** data during operations or assignments.

Example if needed : let a ="revision", let b =2 , let result = a+b, console.log(result) will give you revision2

6) What are the different types of operators in JavaScript?

Ans: some of the major operators include

1.Arithmetic operators(+, -, *, /, %),

2.Relational/Comparison operators (>,<,>=,<=,==,===,!=,!==)

3. Logical Operators (&&,||,!) ..here if you are asked why double why not single like (&,|) it will be a bitwise operation which will convert to bit and compare the bit value.

4. Increment and decrement operators (++,-)

5. Assignment operator(=)

7) What is a function and why do we need a function?

Ans: A function is a reusable block of code that performs a specific task or **set of instructions**, we **need a function majorly for code organization** and reusability to use a specific written task again and again.

8) What is a parameter and what is the argument?

Ans: A parameter is a variable in the function acting as **a placeholder**, argument is the actual value that is passed into the function.

9) How do we initialize or use a function?

Ans: By **calling the function** name with parentheses at the place needed which can be name alone or name with its required argument.

10) What is hoisting in JavaScript?

Ans: hoisting a javascript behavior that allows variables and function declarations to be **moved to the top of their containing scope during the completion** phase before the code is actually Executed.

11) What is the arrow function?

Ans: also known as **fat arrow function**, is a **concise syntax** for defining a function in JavaScript.

concise syntax: meaning a shorter and more compact form

its lexical: meaning it does not own "this" value but inherits the 'this value from the surrounding context.

implicit return: meaning the return key word is not needed for single expression.

Example : `const add = (a,b) => a*b` , `console.log(add)` will result 20 without the 'return' key word.

12) What is a conditional statement in JavaScript? list the type of conditional statements.

Ans: conditional statements allow us to control the flow of our code based on certain conditions, the type of conditional statements include : if, if-else, else-if, switch, and ternary operator.

13) What is an array and an object, what is the difference between an array and an object?

Ans: array is a data structure that allows us to store multiple values of different data types in a single variable, object is a complex data type that represents a collection of related data and functions. The array will give you its indexing system but the object will allow you to decide your indexing by providing key-value pairs.

14) What is a decision loop? What is the type of decision loop?

Ans: A decision loop is running a piece of code multiple times in a control flow, the type of decision loop majorly includes For loop, while loop, do while loop, etc..

If asked for the difference,

- For loop is used when the number of iterations to be conducted is already known whereas in while loop the number of iterations is not known.
- For loop only contains a single condition whereas while loop may contain a set of commands to be executed together.
- In the For loop if the condition is absent, the loop will iterate infinitely.
- In For loop the initialization of the command is done only once but in the while loop initialization of the command is needed each time

15) What is algorithmic thinking?

Ans: a stepwise approach for solving problems which can be in IT or other disciplines.

16) What is the difference between algorithm and pseudocode?

Ans: Algorithm: Systematic logical approach which is a well-defined, step-by-step procedure that allows a computer to solve a problem. **Pseudocode:** It is a simpler version of a programming code in plain English that uses short phrases to write code for a program before it is implemented in a specific programming language.

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