Basics of Programming in JavaScript

- Hello world program
- Declare variable using var
- More about variable
- Let
- Const
- String Indexing
- Useful string methods
- Template Strings
- Null, undefined, BigInt, typeof
- Booleans and Comparison Operator
- Truthy and Falsy Values
- If else statement
- Ternary Operator
- && || operator
- Nested if else
- If elseif else
- Switch statement
- While loop
- While loop examples
- For loop
- For loop examples
- Break and continue keyword
- Do while loop

use for clonning of array

The slice() method returns selected elements in an array, as a new array.

slice() method selects from a given start, up to a (not inclusive) given end.

array.slice(start, end) <-- syntax

slice() method does not change the original array.

Arrays in JavaScript

- Intro to arrays
- Push pop shift unshift
- Primitive vs reference data types
- Clone array & spread operator
- For loop
- use const for creating arrays

- While loop in array
- For of loop
- For in loop
- Array destructuring

Objects in JavaScript

- Intro to objects
- Dot vs Bracket Notation
- Iterate objects
- Computed properties
- Spread operator in objects
- Object Destructuring
- Objects inside Array
- Nested Destructuring

Functions in JavaScript

- Function declaration
- Function Expression
- Arrow Functions
- Function declarations are hoisted (covered in great detail , later in this course)
- Function inside function
- Lexical Scope
- Block Scope Vs Function Scope
- Default Parameters
- Rest Parameters
- Parameter Destructuring
- Very brief intro to callback functions(covered in great detail , later in the course)
- Functions returning Functions

Very Important Array Methods

- Foreach method accessing each element
- Map method To [create a new array] by applying a function to each element of the original array.

- Filter To [create a new array] containing elements that meet a specific condition.
- Reduce To reduce an array to a ***single value,**** often for calculating sums, averages, or other aggregates.
- Sort To sort the elements of an array... provide comparison function.. abcd ASCII code s bnta h ye
- Find To find the first element in the array that matches a condition.
- Every To check if ******at least one element***** in the array satisfies a specific condition.
- Some To check if ****all elements****** in the array satisfy a specific condition.
- Fill method To fill an array with a specified value.
- Splice method To change the contents of an array by removing or replacing existing elements.

reduce mtlb chota

a-b / b-a --> ascending/descending order

and \ or jaise h dono

slice returns a piece of the array but it doesn't affect the original array. splice changes the original array by removing, replacing, or adding values and returns the affected values

More useful things

- Iterables means accessing each element
- Sets
- Maps ye data structure wala map h object ka wo array wala method ni h
- Object.assign
- Optional chaining ?.

ye bhi iterable hai

// store data
// sets also have its own methods
// No index-based access
// Order is not guaranteed
// unique items only (no duplicates allowed)

isse clone krte h object.assign s--> ye cloning heep memory m hota h real value waisi ki waisi rhti h

question mark and dot → error ni aati undefined aata h

ye bhi iterable h
isme data ordered function m store hota h...mtlb store key value pair (like object) m and duplicate keys are not allowed like objects

*******different between maps and objects*****
objects can only (hmeshaaaaaaa) have string or symbol as key but in maps you can use anything as key like array, number, string

Object Oriented JavaScript / Prototypal Inheritance

- Methods function which is inside object called method
- This keyword, Window object
- Call , apply and bind method
- Some warnings
- This inside arrow functions
- Short syntax for methods
- Factory functions & discuss some memory related problems
- First solution to that problem
- Why that solution isn't that great
- What is __proto__ , [[prototype]]
- What is prototype
- Use prototype
- New keyword
- Constructor function with new keyword
- More discussion about proto and prototype
- Class keyword

this ko hme bind method s binding krna hota h wrna wo this window hi dikhata rhta h

// The call(), apply(), and bind() methods are all used to call a function
// and set the this value inside that function.

// The call() method is used to call a function and
// specify the this value for the function.

// The apply() method is used to call a function and specify the this value for the function,
// ****but***-->>> it allows you to pass a list of arguments as an array.

// The bind() method is used to bind the this value to a function,
// ***but*** ---> it ***returns a new function*** instead of calling the function immediately.

factory function in JavaScript is a function that returns an object.

khali jagah... empty object milta h Object.create s

// in simple language (diff between proto vs prototype)
// prototype simple ek object h
// proto ek refrence h .... kiska.... jo bhi chain create kri h uska refrecnce

Object.create ko constructor function bhi khte h bcz ye hmare liye object construct kr rha h

// new keyword (ye interview m puchte hi h chahe kuch bhi ho)

// iske 3 kaam h
// 1st create empty object or us empty object ki value h this.. mtlb empty object ko this k assign kr deta h
// 2nd ye kuch na kuch return krega
// 3rd ye khud s hi link bna dega joki prototype k equal hogi.... mtlb jo kaam hm manually (Object.create) se kr rhe the wo ye new keyword khud krega
// mtlb chain bnane wala kaam... ki agr kuch cheez khud m na mile to javascript andr prototype tk jayega or dhundhega (isi kaam ki bat ho rhi h) ye kaam new keyword khud kr leta h

- Example using class keyword
- Super keyword parent class ki properties ko access kr skte h..., child class m likhe bina
- Method overriding
- Getters and setters
- Static methods and properties function ko normal properties jaise use kr skte h new lga k hm access kr skte h

How JavaScript Works

- Global Execution context
- This and window in global execution context
- Hoisting
- Are let and const are hoisted ? What is a reference Error ?
- Function execution context
- Scope chain and lexical environment
- Intro to closures
- Closure example 1
- Closure Example 2
- Closure Example 3

DOM Tutorial

- HTML and CSS Crash course (Around 30-40 minutes)
- Async vs defer
- Select elements using id
- querySelector
- textContent & innerText
- Change the styles of elements using js
- Get and set attributes
- Select multiple elements and loop through them
- innerHTML
- Deeply understand dom tree, root node , element nodes, text nodes
- classList
- Add new elements to page
- Create elements
- Insert adjacent elements
- Clone nodes
- More methods to add elements on page
- How to get the dimensions of the element

- Intro to events
- This keyword inside eventListener callback
- Add events on multiple elements
- Event object
- How event listener works
- Practice with events
- Create demo project
- More events
- Event bubbling
- Event Capturing
- Event delegation
- Create Project using event delegation

Asynchronous JavaScript

12-oct start

- Is Javascript a synchronous or asynchronous programming language ?
- SetTimeout()
- SetTimeout() with 0 millisecond
- Callback Queue
- SetInterval and create little project with setInterval
- Understand callbacks in general
- Callbacks in asynchronous programming
- Callback Hell and Pyramid of doom
- Intro to promises
- Microtask Queue
- Function that returns promise
- Promise and settimeout
- Promise.resolve and more about then method
- Convert nested Callbacks to flat code using promises
- Intro to Ajax, HTTP Request
- XHR requests
- Error handling in XHR requests
- XHR request Chaining
- Promisifying XHR requests and chaining using then method
- Fetch API
- Error Handling in Fetch API
- Consume Promises with async and Await
- Split code into multiple files using ES6 modules

end JS 14 oct 5:00 pm