1. What is JavaScript?

Answer:
JavaScript is a high-level, interpreted programming language used to create interactive and dynamic web pages. It runs in the browser as well as on servers using environments like Node.js. JavaScript allows developers to handle user events, update UI dynamically, and communicate with servers. It follows an event-driven and prototype-based model. It is one of the core technologies of the web along with HTML and CSS.

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2. What is the difference between var, let, and const?

Answer:
var is function-scoped and allows redeclaration and hoisting.
let is block-scoped and allows reassignment but not redeclaration.
const is also block-scoped but does not allow reassignment.
Using let and const prevents many bugs caused by accidental variable reuse.

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3. What is hoisting?

Answer:
Hoisting is JavaScript's default behavior of moving variable and function declarations to the top of their scope before execution. Variables declared with var are hoisted but initialized as undefined. Functions are fully hoisted. let and const are hoisted but not initialized, causing a **temporal dead zone**.

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4. What is a closure?

Answer:
A closure is a function that remembers variables from its outer scope even after the outer function has finished executing. Closures allow data privacy and are used in callbacks, event handlers, and module patterns. They help maintain state across function calls. JavaScript closures are created whenever a function is defined inside another function.

14. Count Vowels in String

```
int main(){
   char s[100];
   int i,count=0;
   scanf("%s",s);
   for(i=0;s[i];i++){
      if(s[i]=='a'||s[i]=='e'||s[i]=='i'||s[i]=='o'||s[i]=='u')
         count++;
   }
```

```
    printf("%d",count);
}
```

---

15. Remove Duplicate Characters

```
int main(){
    char s[100];
    int i,j,k;
    scanf("%s",s);
    for(i=0;s[i];i++){
        for(j=i+1;s[j];j++){
            if(s[i]==s[j]){
                for(k=j;s[k];k++)
                    s[k]=s[k+1];
                j--;
            }
        }
    }
    printf("%s",s);
}
```

1. Reverse a String

```
String s = "Hello";
String rev = "";
for (int i = 0; i <= s.length(); i++) {   //  out of bounds
    rev = rev + s.charAt(i);
}
System.out.println(rev);
```

---

2. Check Even or Odd

```
int n = 10;
if (n / 2 == 0)
```

```
    System.out.println("Even");
else
    System.out.println("Odd");
```

---

3. Factorial

```
int n = 5;
int fact = 0;
for (int i = 1; i <= n; i++)
    fact = fact * i;
System.out.println(fact);
```