**Final Hackathon (Generative AI & Chatbot Development)**

**3. Solve these JavaScript questions:**

**Question 1: Write a function countCharacters that takes in a string and returns an object containing the count of each character in the string?**

Ans) function countCharacters(str) {

const charCount = {};

// Loop through each character in the string

for (let char of str) {

if (charCount[char]) {

charCount[char]++;

} else {

charCount[char] = 1;

}

}

return charCount;

}

const result = countCharacters("hello world");

console.log(result); // Output: { h: 1, e: 1, l: 3, o: 2, ' ': 1, w: 1, r: 1, d: 1 }

**Question: Write a function fibonacci that takes an integer n as input and returns the n-th number in the Fibonacci sequence. The Fibonacci sequence starts with 0 and 1, and each subsequent number is the sum of the previous two?**

**Ans)** function fibonacci(n) {

if (n === 0) return 0;

if (n === 1) return 1;

let a = 0;

let b = 1; for (let i = 2; i <= n; i++) {

let temp = a + b;

a = b;

b = temp;

}

return b;

console.log(fibonacci(10)); // Output: 55

**Question 3: Write a function sortNumbers that takes an array of numbers as input and returns a new array with the numbers sorted in ascending order?**

Ans) function sortNumbers(numbers) {

const sortedNumbers = [...numbers];

sortedNumbers.sort((a, b) => a - b);

return sortedNumbers;

}

const numbers = [5, 2, 9, 1, 5, 6];

const sorted = sortNumbers(numbers);

console.log(sorted); // Output: [1, 2, 5, 5, 6, 9]