📌 Streams Tech

🔷 Q1: Swap two numbers without using a temporary variable

```
int a = 10;
int b = 20;

// Using arithmetic operations
a = a + b;  // a = 30
b = a - b;  // b = 10
a = a - b;  // a = 20
```

🧠 **Tip**: Also prepare swapping using XOR:

```
a = a ^ b;
b = a ^ b;
a = a ^ b;
```

🔷 Q2: Stack Sorting Logic (Selection Sort-like using Two Stacks)

Given:

```
int stack[7] = {65, 32, 12, 5, 23, 10, 17};
stack<int> mainStack, tempStack;
```

Approach:

1. Pop from `mainStack`
2. While `tempStack` is not empty and `tempStack.top() > tempTop`, push back to `mainStack`
3. Push `tempTop` to `tempStack`
4. Repeat until mainStack is empty

🔁 It mimics **insertion sort using two stacks**.

🧠 **Tip**: Practice similar stack operations:

- Sort using stacks
- Next Greater Element
- Valid Parentheses
- Min Stack

🔷 Q3: Singleton Design Pattern in Java

```
public class Server {
    private static Server instance;

    private Server() {
        // private constructor
    }

    public static Server getInstance() {
        if (instance == null) {
            instance = new Server();
        }
        return instance;
    }
}
```

🧠 **Interview Focus**:

- Explain why Singleton is used (memory efficiency, global access)
- Use cases: Logging, DB connections, etc.

🔷 Q4: Reverse a String using Recursion (No loop)

```
public static String reverse(String str) {
    if (str.length() <= 1) return str;
    return reverse(str.substring(1)) + str.charAt(0);
}
```

🔍 Common Streams Tech Interview Questions

- What is a pointer?
- Difference between stack and queue?
- Explain stack sorting technique.
- What is a singleton pattern?
- Write a recursive function to reverse a string.
- DSA: Stack, Queue, LinkedList, Recursion
- Logic-based puzzles

📌 Samsung Interview Preparation

🔷 Common Questions

1. **Introduce yourself.**
2. **Discuss one project**:
    - Why you chose it?
    - What is its purpose?
    - What algorithms or tools were used?
3. **Why Samsung?**
4. **Why should Samsung choose you?**
5. **What role do you want in Samsung?**

6. **Debate-related question** (prepare logical speaking skill)

🔷 MCQ Test Areas:

- C Programming Output Tracing
- Software Testing:
    - Black-box, White-box, Gray-box Testing
    - SDLC Models: Waterfall, Agile, V-Model, Prototype
- DSA (Array, Stack, Queue)
- Analytical Questions:

Sample Puzzles:

1. **How many triangles?** *(Pattern recognition based image)*
2. **Half of 2 + 2 = ?** → `1 + 2 = 3`
3. **9 - 3 / 3 + 1 = ?** → `9 - 1 + 1 = 9`
4. **Lake problem**:
    - If full coverage on day 48
    - Half coverage on day 47 *(Answer)*

📌 Cefalo Interview Preparation

🔷 1: Coding Test (Online)

- **2 Leetcode Easy Problems**

    - Array & String Manipulation
    - HashMap, Stack, Recursion

🔁 Practice topics:

- Two Sum
- Valid Parentheses
- Merge Two Sorted Arrays
- Find Missing Number
- Reverse Words in String

🔷 2: SQL Query Writing

- Write a **JOIN query** with **conditions**
- Practice:
    - `INNER JOIN`, `LEFT JOIN`, `GROUP BY`, `HAVING`
    - Subqueries and Nested Selects

Sample SQL Practice:

```
SELECT e.name, d.name
FROM employees e
JOIN departments d ON e.dept_id = d.id
WHERE d.location = 'Dhaka';
```

🔷 3: MCQ Test

- 16–17 questions covering:
    - Data Structures (basic)

- Algorithms (sorting, searching)
- OOP Concepts
- SQL and Relational DBMS
- Logical/Analytical Reasoning

📘 Study Checklist (Topic-wise)

Topic	Tools/Practice Areas
C/CPP Basics	Pointer, Function, Array, String Ops
DSA	Stack, Queue, Recursion, Sorting
SQL	JOINs, Aggregate, Conditional Filters
OOP Design	Singleton, Inheritance, Abstraction
Testing	Black-box, White-box, SDLC Models
System Design	Singleton, Layered Architecture
Puzzle & Logic	Pattern Recognition, Math Logic
Project Talk	Algo used, motivation, challenges
Behavioral	Why this company, strength/weakness