## 🧠 DSA MASTER TEMPLATE

### 🔩 1. Name

[Write topic name here]

### 💡 2. Core Idea (1-line Summary)

Explain it like you’re teaching a 10-year-old.  
*Example:* “A moving window that reuses old calculations.”

### 🌟 3. Why It Exists

Why was this concept invented?  
What problem does it solve better than brute force?

*Example:* “To avoid recalculating subarray data repeatedly — saves time (O(n) instead of O(n²)).”

### ⚙️ 4. When to Use

List 2–3 trigger phrases that should remind you of this concept.  
*Example:* “Continuous segment + condition → Sliding Window.”

### 🔍 5. Core Pattern / Template

Write or paste pseudocode (or plain English version).  
Keep it short and clean.

*Example:*

left = 0  
for right in range(len(arr)):  
 # expand  
 while condition\_invalid:  
 left += 1  
 # record result

### 🧠 6. Example (Manual Walkthrough)

Use a **tiny input** and walk step-by-step.

*Example:*  
Input: [2,3,4,5,6], k=3  
→ [2,3,4] → [3,4,5] → [4,5,6]  
→ Max sum = 15

### 🦩 7. Analogy / Story Hook

Turn the concept into something fun, visual, or personal.  
*Example:* “Like gossip — remove old news, take new drama.”

### 🧮 8. Tricks / Traps

✅ What to remember  
❌ What to avoid

*Example:*  
✅ Track what enters/leaves the window  
❌ Don’t reset pointers each time

### 🔁 9. Re-Test Shortcut

Tomorrow or next week, ask:  
> “Can I explain this in 1 minute and write the skeleton?”

If yes → 🔒 Locked.

### 🗓 10. Revision Log (Optional)

| Date | Confidence (1–10) | Notes |
| --- | --- | --- |
| 19 Oct | 7 | Still forget when to shrink window |
| 20 Oct | 9 | Can explain in 1 minute |