🎯 WEEKLY_BATCH_GENERATION_PROMPT_v10.md — MENTAL-MODEL-FIRST BATCH CONTENT GENERATION

Version: 10.0 (Aligned with Template_v10 & SYSTEM_CONFIG_v10)
Status: ☑ OFFICIAL WEEKLY GENERATION PROMPT
Purpose: Generate all **weekly instructional & support files** systematically for DSA Master Curriculum v9.2, using the **mental-model-first**, systems-focused approach.

📋 HOW TO USE THIS PROMPT

Use this prompt inside an AI chat session that already has:

- `SYSTEM_CONFIG_v10_FINAL.md`
- `MASTER_PROMPT_v10_FINAL.md`
- `Template_v10.md` (Instructional & Support Template, Mental-Model-First)
- `COMPLETE_SYLLABUS_v10_FINAL.md`
- `EMOJI_ICON_GUIDE_v8.md`

All **instructional files** MUST:

- Follow `Template_v10.md`
- Comply with `SYSTEM_CONFIG_v10_FINAL.md`
- Use **mental models, mechanical explanations, and visual reasoning**
- Respect the **NO SOLUTIONS PROVIDED** policy in Supplementary Outcomes

All **support files** MUST:

- Follow the support templates in `Template_v10.md`
- Be concise, practical, and visual (checklists, roadmaps, concept maps)

⚠ BATCH GENERATION TO AVOID TOKEN LIMITS

Do **NOT** generate all weekly files in a single response.

Batching Rules:

1. Generate **only 1 file per response** (one markdown file).
2. Wait for the user to acknowledge/save it.
3. Only then move to the next file.
4. If the user says:
    - `"Continue with next file"` → generate the next requested file.
    - `"Pause"` → stop file generation until explicitly resumed.

You MUST never bundle multiple files (instructional or support) in the same response.

🎓 DSA MASTER CURRICULUM v9.2 — WEEKLY BATCH GENERATION REQUEST

📌 CURRENT WEEK TARGET

Generation Request: ☑ file set

- **Week Number:** ☑ (1–16, 4.5, 5.5, 4.75, 13, etc., as per `COMPLETE_SYLLABUS_v10_FINAL.md`)
- **Duration:** ☑ days (usually 5; some weeks 4 or 6–7)
- **Total Files:** Typically 11 instructional + 5 support per week

All instructional files must:

- Follow `Template_v10.md` (**mental-model-first**)
- Use generic **concept/type/variation** wording in Section 2 (not operation-only)
- Use **visuals** (diagrams, tables, flows) to clarify concepts
- Respect **NO SOLUTIONS PROVIDED** for practice & interview questions

---

🎯 DELIVERABLES REQUIRED (v10)

PART 1: INSTRUCTIONAL FILES (PER WEEK)

For Week [X], generate the following **instructional files** (topics from `COMPLETE_SYLLABUS_v10_FINAL.md`):

- `Week_[X]_Day_1_[Topic_Name]_Instructional.md`
- `Week_[X]_Day_2_[Topic_Name]_Instructional.md`
- `Week_[X]_Day_3_[Topic_Name]_Instructional.md`
- `Week_[X]_Day_4_[Topic_Name]_Instructional.md`
- `Week_[X]_Day_5_[Topic_Name]_Instructional.md`
- (+ `Day_6` / `Day_7` instructional files if the week has 6–7 days)

Each instructional file MUST follow the **11-section structure**:

1. 🤯 The Why — Engineering Motivation
2. 📌 The What — Mental Model & Core Concepts
3. ⚙️ The How — Mechanical Walkthrough
4. 🎨 Visualization — Simulation & Examples
5. 📊 Critical Analysis — Performance & Robustness
6. 🏭 Real Systems — Integration in Production
7. 🔗 Concept Crossovers — Connections & Comparisons
8. 📐 Mathematical & Theoretical Perspective
9. 💡 Algorithmic Design Intuition
10. ❓ Knowledge Check — Socratic Reasoning
11. 🎯 Retention Hook — Memory Anchors

Plus:

- 🧩 **Cognitive Lenses Block** (5 lenses):
  - 💻 Computational
  - 🧠 Psychological
  - 🔄 Design Trade-off
  - 🤖 AI/ML Analogy

    - 🔄 Historical

- ⚔️ **Supplementary Outcomes Block**:
    - ⚔️ Practice Problems: 8–10 (with source, difficulty, concepts, constraints) — **NO SOLUTIONS PROVIDED**
    - 🎙️ Interview Questions: 6+ (questions + 2+ follow-ups) — **NO SOLUTIONS PROVIDED**
    - ⚠️ Common Misconceptions: 3–5 (misconception, why plausible, reality, memory aid, impact)
    - 🚀 Advanced Concepts: 3–5 (relation, when to use, why important)
    - 🔗 External Resources: 3–5 (title, type, author, why useful, difficulty, link)

🎨 Visual & Structural Requirements (Instructional Files)

Each instructional file must include:

- At least **1 concept summary or comparison table** (e.g., in Section 2 or Section 7)
- **1 complexity table** (Section 5)
- **2–3 visuals** overall:
    - Diagrams (ASCII or simple Mermaid)
    - Traces in table form
    - Decision/flow charts for algorithm choice

📝 Format & Code

- **Markdown only** (`.md`), UTF-8, LF line endings
- **No LaTeX** syntax or encoding (plain text math only: `O(n log n)`)
- **No code by default**; if absolutely necessary:
    - Use **minimal C#** only
    - No Python/Java/C++ blocks

⏱️ Word Count

- **Target per instructional file:** 7,500–15,000 words total
- No per-section quotas; use length where it adds real understanding.

PART 2: SUPPORT FILES (5 PER WEEK)

For Week [X], generate the following **support files**, aligned with `Template_v10.md` (v6-style content, v10 philosophy):

1. `Week_[X]_Guidelines.md`
   Include:
    - Week overview & theme
    - Weekly learning objectives (6–10)
    - Key concepts overview (per day)
    - Learning approach & methodology (mental-model-first, no-code simulation)
    - Common mistakes & pitfalls
    - Time & practice strategy

- Weekly checklist

2. `Week_[X]_Summary_Key_Concepts.md`
   Include:
   - Week overview (1–2 paragraphs)
   - Per-day key concept summaries (bullets)
   - Concept map (ASCII or bullet)
   - Comparison / relationship table(s)
   - 5–7 key insights
   - 5 common misconceptions fixed
3. `Week_[X]_Interview_QA_Reference.md`
   Include:
   - Brief intro: how to use this file
   - 30–50 interview-style questions (no answers, unless explicitly allowed), grouped by topic/day
   - Each with 1–2 follow-up variations
   - Usage suggestions for mock interviews / self-practice
4. `Week_[X]_Problem_Solving_Roadmap.md`
   Include:
   - Overall problem-solving framework for the week
   - Progressive practice plan (simple → medium → integrated/hard)
   - Common problem-solving pitfalls
   - Pattern templates/skeletons (text form) for major approaches
5. `Week_[X]_Daily_Progress_Checklist.md`
   Include:
   - For each day:
     - Top concepts to understand
     - Concrete activities (trace examples, draw diagrams, attempt problems)
     - Simple checklist
   - Weekly integration/reflection section

All support files:

- Must be **Markdown only**
- Must **not** contain LaTeX or code blocks
- Should be concise, visual, and action-oriented

📋 FORMAT & QUALITY REQUIREMENTS (v10)

Format

- Markdown `.md`, UTF-8, LF line endings
- Use `#`, `##`, `###` heading levels with emojis per `EMOJI_ICON_GUIDE_v8.md`
- Plain-text math (`O(n log n)`) only

- No LaTeX, no HTML heavy formatting

Content Style

- Mental-model-first:
  - Analogies, diagrams, and state traces
  - Mechanical understanding and invariants
  - Trade-off and system thinking
- No code by default; logic-first descriptions
- C# snippets only when absolutely necessary to clarify key mechanics

---

🚚 DELIVERY & BATCHING RULES

File Delivery Method

- ☑ Generate **ONE FILE PER RESPONSE** (instructional or support)
- ☑ Clearly label the file name at the top (e.g., `# Week_1_Day_1_RAM_Model_And_Pointers_Instructional.md`)
- ☑ Include the entire content of that file in Markdown format
- ☑ After generating a file, **stop** and wait for user signal

Delivery Order (Recommended)

1. All instructional files for Week [X], in order:
   - Day 1 → Day 2 → Day 3 → Day 4 → Day 5 (→ Day 6/7 if applicable)
2. Then all 5 support files for Week [X].

Example interaction pattern:

1. User: `Generate Week_1_Day_1_RAM_Model_And_Pointers_Instructional.md`
2. AI: Returns that file only (full Markdown, mental-model-first content).
3. User: `Continue with Day 2`
4. AI: Returns `Week_1_Day_2_Asymptotic_Analysis_Instructional.md` only.
5. User: `Generate Week_1_Guidelines.md` (after all instructional files)
6. AI: Returns that support file only.
7. And so on.

☑ VERIFICATION CHECKLIST (PER INSTRUCTIONAL FILE)

Before accepting an instructional file as complete, verify:

- **Structure & Blocks**
  - ☐ Header present, correct metadata
  - ☐ All 11 sections present, in order
  - ☐ Cognitive Lenses block present (5 lenses)

    - ☐ Supplementary Outcomes present

- **Content & Coverage**
    - ☐ Section 2 lists all relevant concepts/variations/subtypes
    - ☐ At least 3 examples with trace/visualization
    - ☐ 5–10 real systems described in Section 6
    - ☐ Practice problems: 8–10 (no solutions)
    - ☐ Interview questions: 6+ with follow-ups (no solutions)
    - ☐ Misconceptions: 3–5
    - ☐ Advanced concepts: 3–5
    - ☐ External resources: 3–5

- **Visual & Technical**
    - ☐ At least 1 concept summary / comparison table
    - ☐ Complexity table present (Section 5)
    - ☐ 2–3 visuals total (diagrams, traces, flows)
    - ☐ No LaTeX syntax; math written in plain text
    - ☐ No code or only minimal C# if absolutely needed
    - ☐ Markdown formatting valid and readable

- **Word Count**
    - ☐ Estimated total 7,500–15,000 words

☑ VERIFICATION CHECKLIST (PER SUPPORT FILE SET, WEEK X)

- ☐ `Week_X_Guidelines.md` present
- ☐ `Week_X_Summary_Key_Concepts.md` present
- ☐ `Week_X_Interview_QA_Reference.md` present
- ☐ `Week_X_Problem_Solving_Roadmap.md` present
- ☐ `Week_X_Daily_Progress_Checklist.md` present
- ☐ All in Markdown, no LaTeX, no code blocks
- ☐ Content is concise, visual, and action-oriented (not duplicate of instructional files)

Status: ☑ WEEKLY BATCH GENERATION PROMPT v10 — Ready for use with Template_v10 & SYSTEM_CONFIG_v10