Unified Tutor Progress System – Final Design Draft

# 🔍 System Components Overview

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| Component | Description | Role in Tutoring Lifecycle |
| Goal Plan Tracker | Stores a structured roadmap of the intended learning goals. Built from manual input or auto-generated from uploads. | Defines what needs to be learned. Tracks completion flags and topic milestones. |
| Progress Summary Engine | Periodically evaluates the learner’s actual performance and understanding based on interactions and quizzes. | Tracks how the student is doing. Offers insights like “needs repeat” or “mastered” for each topic. |
| Instructional Lifecycle Tracker | Tracks progress through all 7 instructional stages (Engage, Explain, Discuss, Practice, Test, Reflect, Repeat) per topic. | Guides how a topic is taught and ensures full pedagogical coverage. |

# 🔄 Combined Lifecycle Flow

# User Uploads File(s) or Manually Defines Goal → System auto-generates a Goal Plan, extracting milestones and topic hierarchies. → Topics initialized as “Not Yet Started” unless validated otherwise.

# Tutor Session Starts → Constructs Session Prompt using:

# Master Prompt

# Goal-specific prompt (if present)

# Parsed topic roadmap

# Last session's summarized progress

# Instruction Begins → Tutor initiates teaching flow using the 7-stage model (Engage → Reflect). → Each topic is advanced only after passing required stages. → Tutor logs repetitions per topic and stage.

# Progress Summary Engine (PSE) runs periodically or on-demand → Summarizes status, insights, and struggles → Updates per-topic flags: Covered, Requires Repeat, etc.

# Goal Plan Tracker cross-checks actual progress with expected plan → Tutor adjusts instruction (slow down, revisit, or skip ahead)

# Session Ends → Tutor prompts user for reflection → PDF session report generated per General Supplementary Prompts protocol → Includes: milestone checklist, per-stage repeat counts, performance summaries

# Next Session → User uploads last report → Tracker reloaded → Tutor resumes with full contextual awareness

# 📦 Data Tables & APIs (this needs to be unpacked in detail still)

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| --- | --- | --- | --- |
| Engine | Tables | Key Fields | Sample API |
| Goal Plan Tracker | goal\_plans, milestones, topic\_hierarchy | topic\_id, title, depth\_level, parent\_topic, expected\_stage | GET /goal-plan/{goal\_id} |
| Progress Summary Engine | progress\_snapshots, insights, session\_logs | session\_id, topic\_id, quiz\_result, status\_flag, repeats | POST /progress/summarize |
| Instruction Tracker | stage\_repeats, topic\_status | topic\_id, engage\_count, test\_passed, requires\_repeat | GET /tracker/{goal\_id} |

# 📘 Instructional Lifecycle Enforcement

Based on `Master Prompt For Tem Tutor3.docx` and `General Supplementary Prompts.docx`, the system tracks 7 tutoring stages per topic:

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| --- | --- |
| Stage | Description |
| Engage | Tutor introduces the topic and relevance |
| Explain | Tutor teaches content in-depth, per grade level |
| Discuss | Tutor checks user understanding with dialogue |
| Practice | Tutor assigns task, quiz, or activity |
| Test | Tutor challenges with comprehensive question |
| Reflect | Student reflects on the topic and their experience |
| Repeat | Triggered if mastery is not achieved |

# ✅ Topics must pass through all required stages before being marked as "Covered". ✅ Repeats are tracked per topic and per stage. ✅ Reports show cumulative progress (e.g., "Discuss: 3", "Practice: 2", etc.)

# 🧠 Tutor Superpowers (Based on Expert Lifecycle)

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| --- | --- |
| Situation | System Reaction |
| Weak quiz score | Mark topic as “Requires Repeat”, return to Explain |
| Student reflects uncertainty | Log insight + schedule reinforcement |
| Strong early answers | Skip to test or advanced topic |
| File uploaded with updated content | Regenerate plan, reset milestone hierarchy |

# 🧾 Report Generation Snapshot

Format per `General Supplementary Prompts.docx`:  
  
- File: StudentName\_Subject\_SessionXX\_YYYYMMDD.pdf  
- Includes:  
 - Topic milestones  
 - Completion flags  
 - Stage progress per topic  
 - Summary insights and next focus areas  
 - Quiz and test performance  
 - Final Test Summary (if session ends curriculum)

# ✅ Summary: Why We Need All 3 Trackers

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| --- | --- | --- |
| Tracker | Purpose | Key Outcome |
| Goal Plan Tracker | Static curriculum structure | Defines what must be learned |
| Progress Summary Engine | Dynamic performance tracking | Reveals what was learned |
| Instructional Lifecycle Tracker | Pedagogical depth tracking | Ensures complete, quality instruction |

These 3 components together allow the tutor to:

* Adapt intelligently
* Retain long-term memory
* Generate accurate reports
* Start sessions with rich context
* Follow structured pedagogy