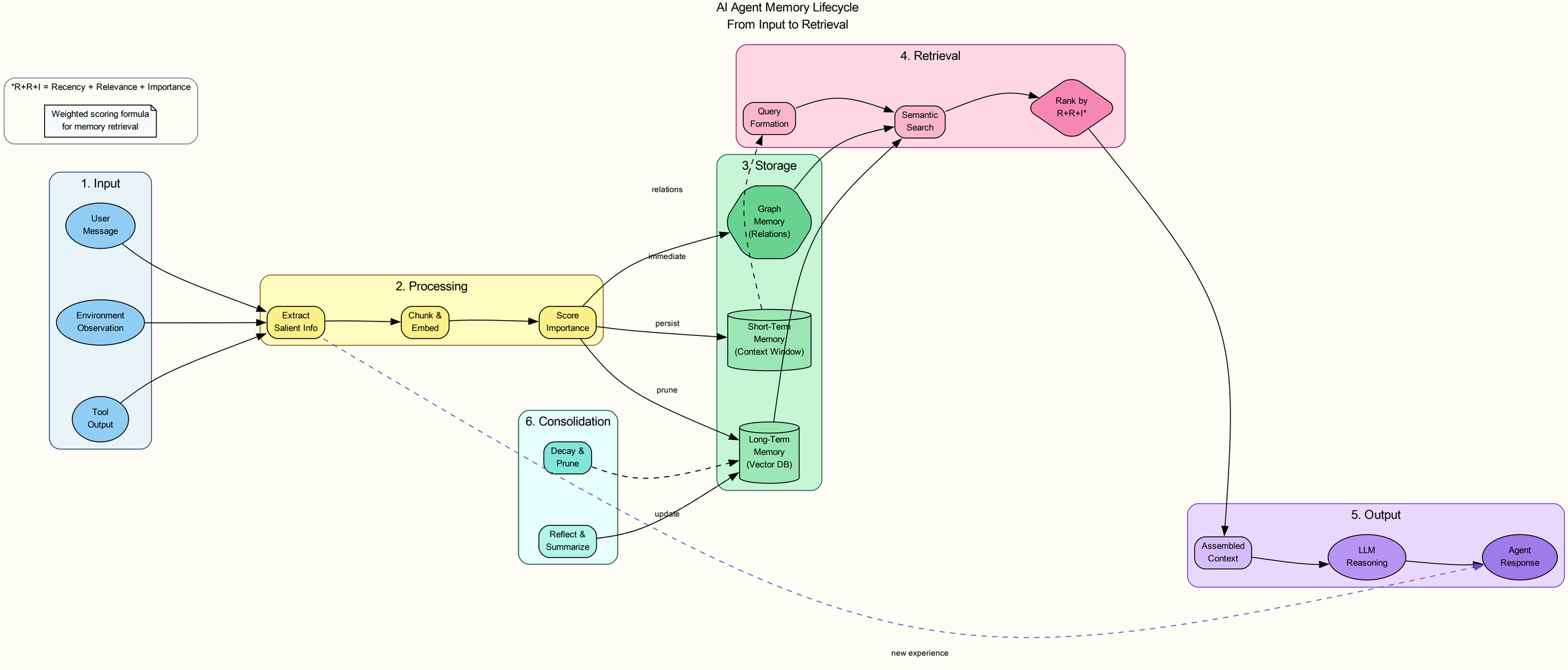
AI Agent Memory Lifecycle
From Input to Retrieval
*R+R+I = Recency + Relevance + Importance
Weighted scoring formula for memory retrieval
1. Input
User Message
Environment Observation
Tool Output
2. Processing
Extract Salient Info
Chunk & Embed
Score Importance
3. Storage
Graph Memory (Relations)
Short-Term Memory (Context Window)
Long-Term Memory (Vector DB)
relations
immediate
persist
prune
4. Retrieval
Query Formation
Semantic Search
Rank by R+R+I*
5. Output
Assembled Context
LLM Reasoning
Agent Response
6. Consolidation
Decay & Prune
Reflect & Summarize
update
new experience