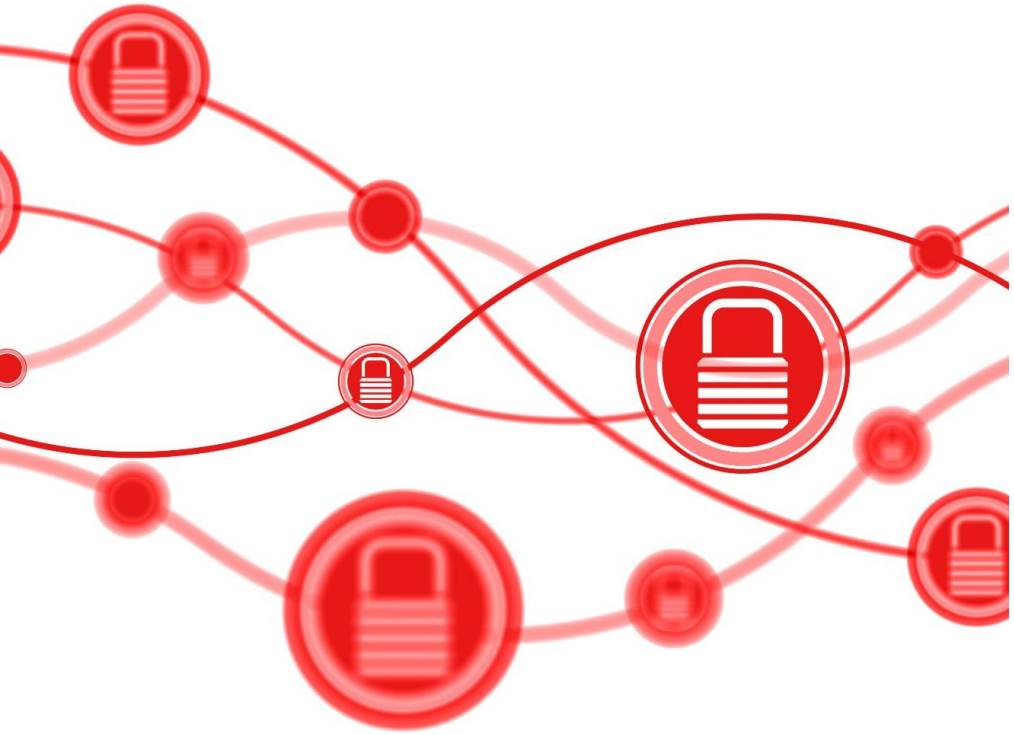
DAY 5: MEMORY & SESSION MANAGEMENT

UNDERSTANDING HOW COMPUTER MEMORY AND SESSIONS OPERATE

INTRODUCTION TO MEMORY & SESSION MANAGEMENT



OVERVIEW AND OBJECTIVES

SessionService and MemoryService Roles

Understand the distinct responsibilities of SessionService and MemoryService in managing application state and resources.

Memory Approaches Comparison

Compare in-memory versus persistent memory approaches to optimize storage and application performance.

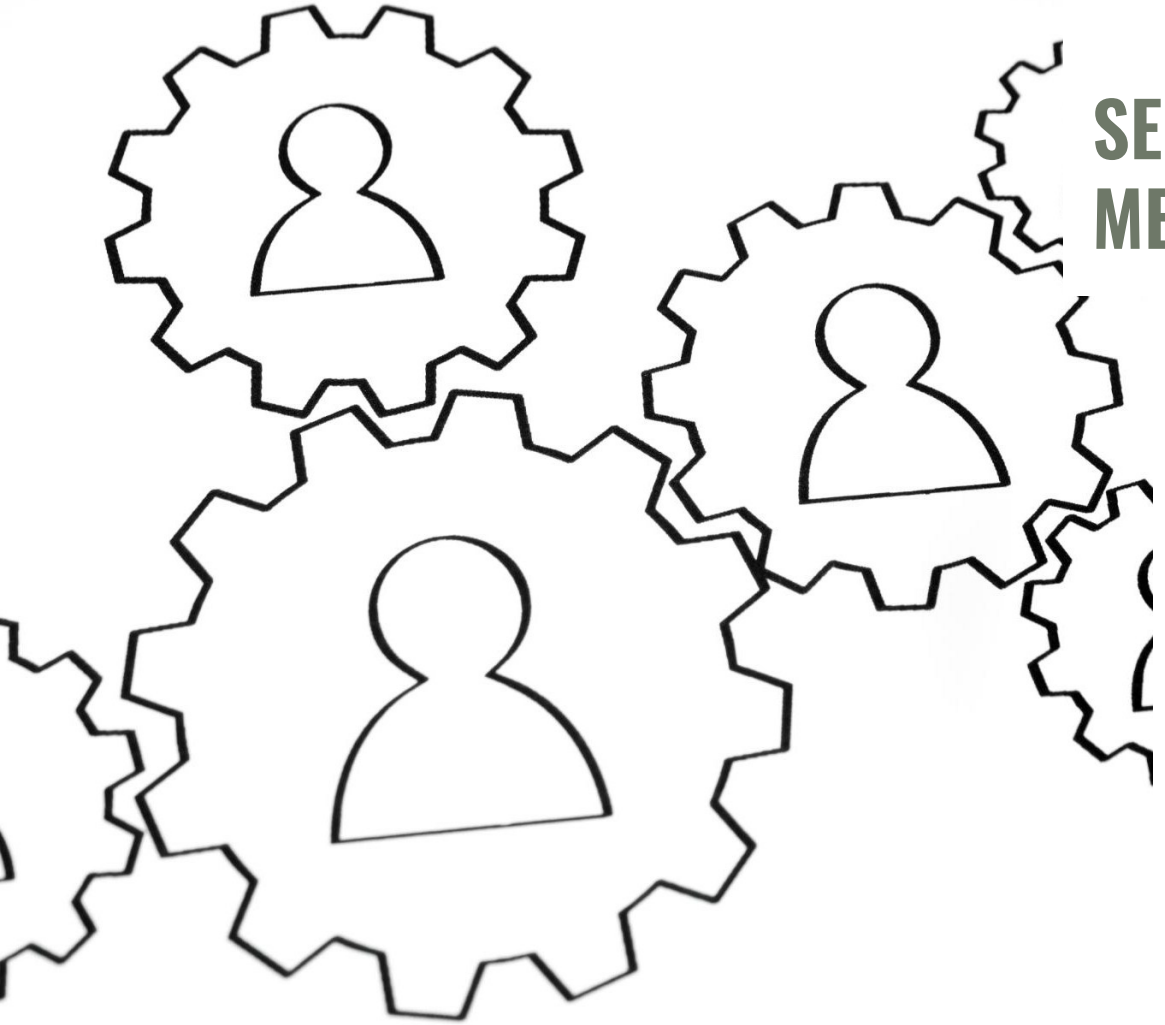
Long-Term Recall Use Cases

Explore scenarios where long-term memory recall enhances user experience and application functionality.

Best Practices for Security

Learn secure and efficient handling techniques for memory and session management to protect user data.

CORE SERVICES



SESSIONSERVICE AND MEMORYSERVICE

SessionService Purpose

Maintains temporary user data during active sessions ensuring continuity until logout or timeout.

MemoryService Storage Types

Supports both in-memory storage for speed and persistent storage for long-term data retention.

Balancing Speed and Durability

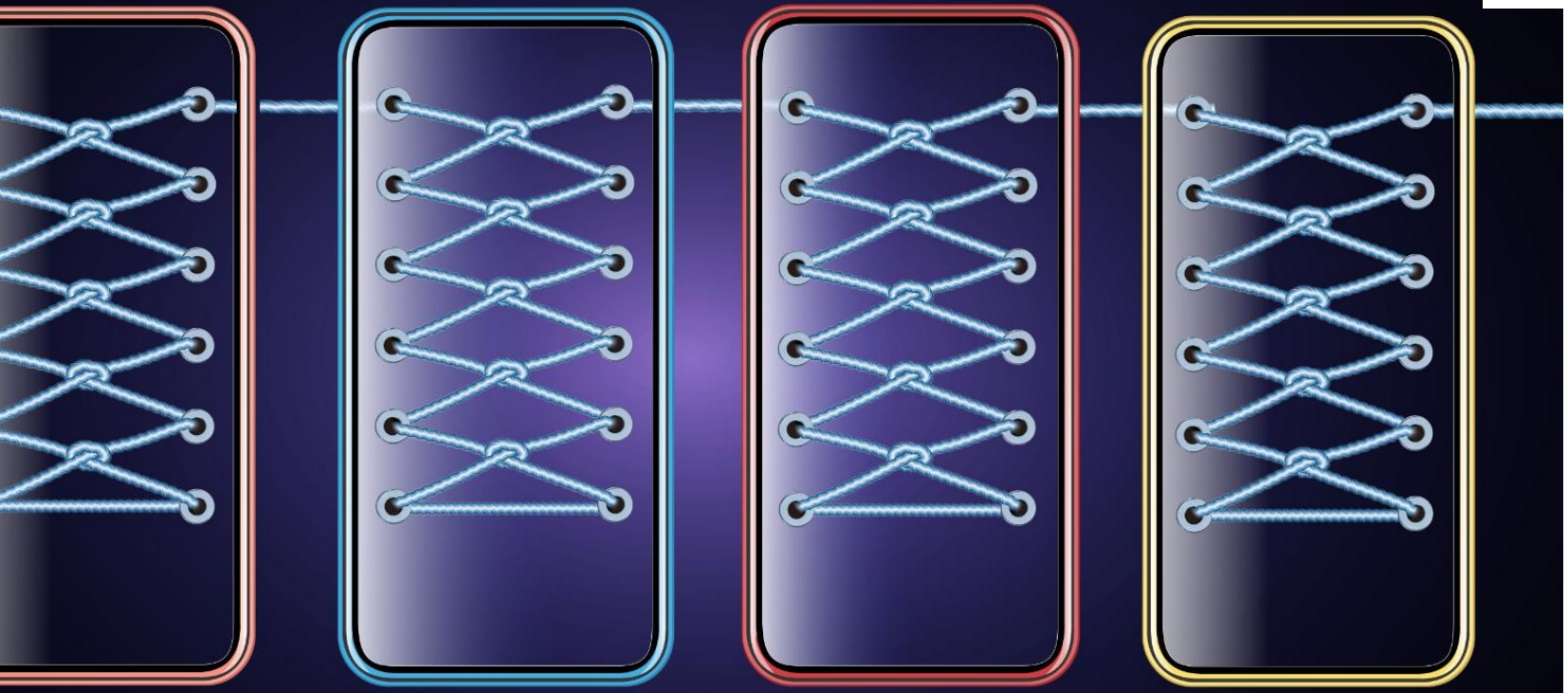
Combines fast temporary storage and durable persistent storage for optimized data management.

MEMORY STORAGE APPROACHES

IN-MEMORY VS PERSISTENT MEMORY

FEATURE	IN-MEMORY	PERSISTENT
Speed	Very fast	Slower (disk I/O)
Lifetime	Ends when app closes	Survives restarts
Use Cases	Session tokens, temporary cache	User profiles, logs, settings

USE CASES AND BEST PRACTICES



LONG-TERM RECALL AND BEST PRACTICES

Memory Types Usage

Persistent memory stores user profiles and settings, while in-memory storage manages session tokens and UI states.

Security Best Practices

Encrypt persistent data and clear sessions on logout to safeguard user information and prevent unauthorized access.

Memory Management

Use WeakReferences to avoid memory leaks and implement caching strategies balancing speed with efficient memory use.