Reading 12: Memory Locations for Variables

# Exercise 1: Summarize

Activation records manage function calls by storing local variables, parameters, and return addresses, ensuring each function call has its own independent execution context, especially in recursive and nested scenarios.

# Exercise 2: Demonstrate & Explain

fun sum n = if n = 0 then 0 else n + sum (n - 1);

This function calculates the sum of all numbers from 1 to ( n ) by recursively calling itself to add the next smallest number. It fails with statically allocated activation records because static allocation allows only one function instance on the stack at a time, causing all recursive functions to fail in this context.

# Exercise 3: Inquire

How do activation records handle the return addresses and local variables for nested function calls, and what mechanisms are used to ensure that each function call can access the correct data?