UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

DEPARTMENT OF COMPUTER SCIENCE

CSC362: System Programming

Assignment 3

Consider a memory management scenario where a system has a total memory size of 1000 KB and allocates memory in blocks of 100 KB. Initially, the memory is completely free and available for allocation. Students are requested to perform the following tasks:

Allocation Scenario:

Assume the following memory allocation requests are made:

- Process A requests 250 KB of memory.
- Process B requests 300 KB of memory.
- Process C requests 150 KB of memory.
- Process D requests 200 KB of memory.

- ☐ Allocate memory for each process using the "First Fit" and “Best Fit” allocation strategy.
- ☐ After allocation, calculate and display the amount of internal fragmentation for each process, if any.

Deallocation Scenario:

- ☐ Assume that Process B completes its execution and releases the allocated memory.
- ☐ Now deallocate memory previously allocated to Process B.
- ☐ After deallocation, calculate and display the amount of external fragmentation, if any, in the memory system.
- ☐ Which strategy overall was a better choice for the scenario? Explain your answer.

Assignment Guidelines

Submit a detailed explanation of the steps taken for memory allocation and deallocation, including calculations for internal and external fragmentation.