

CENG 305 – Operating Systems – Fall 2020

Project – 3 - (Due 22/01/2021)

Group Id: 11

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Project Summary & Implementation Details:

In this project we fill the ram model according to given inputs of process. So due to implement this case we create a ram model due to visualize the frames of the program. This ram model simulates frames in the ram. The reason of that we have ram size /frame size(4KB) amount of frame at this moment. In this way we separate the frames easily according to frame size of the current process and we applied 3 allocation techniques easily.

First case: First-fit,

This allocation techniques allocate memory as algorithm finds first empty memory block if size of the empty memory block equals or bigger than the process size. However, this algorithm may occur waste of the memory if the empty memory block size too large than the required block size. This algorithm gives faster allocate operation than other allocate algorithms. In our results; since this algorithm fill the first place of the memory which is bigger than our requirement size. However, it is the fastest allocation algorithm among of three.

Second case: Best-fit,

This allocation technique has better disk utilization than the other algorithms. But on the other hand, this algorithm has slowest speed of the allocation. Because if we want to save a file, we need to find a smaller empty space in every allocation operation. The other disadvantage of the this, allocation technique is that when we need to extend the file content than this implementation is not possible because of the insufficient memory space. In our results; it creates the smallest number of holes and external fragmentation.

Third case: Worst-fit,

This algorithm may be useful when the ram requirement of a process is likely to increase. For example, game tasks. However, this algorithm causes high number of small frames which is not convenient for incoming large processes. In our results; it caused more external fragmentation and more holes.

As a conclusion,

First-fit is for speed advantage and Best-fit is for efficient memory space and lastly Worst-fit is useful for processes which may remainder of the block will be useful for servicing a future request by these processes.