

Report of Assignment 5

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Course: CS433 Operating Systems

Assignment: 5 Memory

Description:

This assignment has two parts. For part 1, the purpose is to find the page number and offset of a virtual address. For part 2, the purpose is to simulate different page replacement algorithms like FIFO, LRU and optimal.

For part 1, I calculated the size of each page first, then use given address / page size to find the page number. Then I used “and” to get the offset of the address.

For part 2,

The algorithm of FIFO:

1. while reference list is not empty:
2. if the reference is in the frame, go to next reference;
3. else
4. if there are free frames, add page reference in;
5. else replace the oldest frame with new reference;
6. check the next reference

The algorithm of LRU:

1. while reference list is not empty:
2. if the reference is in the frame, set its frame counter to 0 and increase the counter of other used frames;
3. else
4. if there are free frames, add page reference in and increase the counter of used frames;
5. else find the frame with max counter and replace it, increase the counter of other used frames;
6. check the next reference

The algorithm of Optimal:

1. while reference list is not empty:
2. if the reference is in the frame, go to next reference;

3. else
4. if there are free frames, add the page in;
5. else find the farthest page reference and replace it;
6. check the next reference

Include files:

Part1 folder:

- part1.c // for assignment part1
- Makefile
- * Using “./part1 <virtual address>” to execute the project

Part2 folder:

- part2.cpp // for assignment part2
- Makefile
- * Using “./part2” to execute the program