CS6456 (F2015) Operating Systems

Project 5 : Designing a Virtual Memory Manager

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1. Functions

(1)getAdress()

read address from the file"addresses.txt" and save them to the vector addr[];

(2) lookIntoTLB(int address)

look up TBL if the required page is in TLB, if it's there, print the information and use the physical address to get the data, otherwise, print the information, and check it the PageTable.

(3) lookIntoPageTable(int address)

look up if the required page has corresponding physical memory in PageTable, if it has, use the physical address to get the data, otherwise, print the information and use LRU to assign a pair for the required page and corresponding physical address.

(4)load_page(int address)

read from BACKING_STORE.bin with the parameter address and load the page into physical memory.

2.Classes

(1)TLB

a. capacity: the capacity of the TLB table

b. add(int page_num, int frameNum): store the page and its corresponding physical address into TLB.

c. get(int page_num): get the physical address of given page number.

(2)Frame

a. list<pair<int,Frame> > l: memory implemented by linked list.

b. capacity: the capacity of physical memory.

c. unordered_map<int, list<pair<int,Frame> >::iterator> map: used to find the data quickly(in o(1) time).

d. add (int page_num, Frame frame, int *pageNum_erased, int *frameNum): check whether the physical memory is full, if it's full, load the pages that required, erase the pages that being replaced.

e. get(int page_num): get the data from physical memory.