Operating System Project 8

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The goal of the project is to Designing a Virtual Memory Manager
The porject was done by VM VirtualBox 5.2.18
The code are written by C and the library needed will be shown in code

idea

Firstly read the address of virtual memory, use binary operations to transform it to logical address. After that, check whether the address is in TLB or page table, if not, update TLB and page table and pick the value.

code

```c
#include<stdio.h>
#include<stdlib.h>
#include<string.h>


#define NUMBER_OF_PAGES 256
#define PAGE_SIZE 256
#define TLB_SIZE 16

int PageFault=0;
int Hit=0;


int TLB[TLB_SIZE][2];
int PageTable[NUMBER_OF_PAGES];
int TLB_pt;
int PageTable_pt;
char memory[PAGE_SIZE*NUMBER_OF_PAGES];


void init_TLB()
{
    int i;
    for(i=0;i<TLB_SIZE;i++){
        TLB[i][0]=-1;
        TLB[i][1]=-1;
    }
    TLB_pt=0;
}
```

```c
void update_TLB(int log_page,int phy_page)
{
    TLB_pt=TLB_pt%TLB_SIZE;
    TLB[TLB_pt][0]=log_page;
    TLB[TLB_pt][1]=phy_page;
    TLB_pt++;
}


void update_PageTable(int log_page)
{
    PageTable[log_page]=PageTable_pt;
    PageTable_pt++;
}
```