CSE 321 Operating Systems

Lab Assignment 5

**Total Marks: 20**

**Task 1: [20 Marks]**

In a system, size of the physical memory is 32 bytes and page size is 4 bytes. Page table of a process given below:

| **Page number** | **Frame number** |
| --- | --- |
| 0 | 3 |
| 1 | 6 |
| 2 | 8 |
| 3 | 12 |
| 4 | 2 |

In a certain moment, CPU generates logical addresses 8, 4, 3, 2, 15, 18 and 25 respectively. Define a program in C to map corresponding physical addresses in the main memory of generated logical addresses.

You have to modify the code given below in order to provide the solution.

#include <stdio.h>

#include <stdlib.h>

#include <sys/types.h>

int checkP2(int x);

int \*dTob(int n,int l);

int bTod(int a[],int l);

int main(){

int pgs=4; //page size

int ms=32; //memory size

int nof=ms/pgs; //number of frames

int offset\_bit; //find out # of bits required for offset

int m; //find out address spaces required in main memory

int pg\_num\_bit; ////find out # of bits required for page number

int la[]={8,4,3,2,15,18,25}; //logical addresses generated by the CPU

int pmt[]={3,6,8,12,2}; //page table

/\*

find out corresponding physical addresses of generated logical addresses

using the formula: physical address = (frame # \* page size)+offset

\*/

//Do your code here

return 0;

}

int checkP2(int x){

//Do your code here

return ;

}

int \*dTob(int n,int l){

//Do your code here

static int arr[];

return ;

}

int bTod(int a[],int l){

//Do your code here

return ;

}

**Output:**

**Execution Command in Terminal:** ./p1

Page size: 4

Memory size: 32

Number of frames required: 8

Page number bits: 3

Offset bits: 2

Number of address spaces: 5

Page Table\_\_\_\_\_

0 -> 3

1 -> 6

2 -> 8

3 -> 12

4 -> 2

32 is an invalid physical address

Corresponding physical address of logical address 4: 24

Corresponding physical address of logical address 3: 15

Corresponding physical address of logical address 2: 14

51 is an invalid physical address

Corresponding physical address of logical address 18: 10

6 is an invalid page number