

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