

OPERATING SYSTEMS

PROGRAMMING EXERCISE -3

NAME: NAGAVENI L G
SRN:PES2UG21CS315
SEC:4F

Write a program to simulate Segmentation. Compute the physical address. Take as input:

1. Segment number
2. Base address
3. Segment limit

CODE:

A screenshot of a code editor window showing a C program. The window has a title bar with 'Open' and a file icon. The code is for a program named 'OS3.c' located at '~/Documents'. The program includes <stdio.h> and has a main function. It prompts the user to enter a segment number, base address, and segment limit. It then prompts for an offset. A check is made to see if the offset is within the segment limit. If not, it prints an error message and returns 0. If yes, it calculates the physical address by adding the base address and the offset, and then prints it. Finally, it returns 0.

```
1 #include <stdio.h>
2
3 int main() {
4     int seg_num, base_addr, seg_limit, offset, phys_addr;
5
6     // Input segment number, base address, and segment limit
7     printf("Enter segment number: ");
8     scanf("%d", &seg_num);
9     printf("Enter base address: ");
10    scanf("%d", &base_addr);
11    printf("Enter segment limit: ");
12    scanf("%d", &seg_limit);
13
14    // Input offset
15    printf("Enter offset: ");
16    scanf("%d", &offset);
17
18    // Check if offset is within segment limit
19    if (offset >= seg_limit) {
20        printf("Offset is out of segment limit\n");
21        return 0;
22    }
23
24    // Compute physical address
25    phys_addr = base_addr + offset;
26
27    // Output physical address
28    printf("Physical address: %d\n", phys_addr);
29
30    return 0;
31 }
```

OPERATING SYSTEMS

PROGRAMMING EXERCISE -3

OUTPUT:

```
nagavenigowda@ubuntu-1: ~/Documents
nagavenigowda@ubuntu-1:~/Documents$ gedit OS3.c
nagavenigowda@ubuntu-1:~/Documents$ gcc OS3.c
nagavenigowda@ubuntu-1:~/Documents$ ./a.out
Enter segment number: 1
Enter base address: 1800
Enter segment limit: 100
Enter offset: 50
Physical address: 1850
nagavenigowda@ubuntu-1:~/Documents$ ./a.out
Enter segment number: 5
Enter base address: 8000
Enter segment limit: 500
Enter offset: 700
Offset is out of segment limit
nagavenigowda@ubuntu-1:~/Documents$
```

THANK YOU 😊