

**Bansilal Ramnath Agarwal Charitable Trust's**  
**Vishwakarma Institute of Technology, Pune-37**

*(Anautonomous Institute of Savitribai Phule Pune University)*



**Department of Computer Engineering**

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- **Paging, Segmentation, Address translation**

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

```
#define PAGE_SIZE 4096
#define SEGMENT_SIZE 8192
#define NUM_PAGES 8
#define NUM_SEGMENTS 4
```

```
// Function to perform address translation for paging
```

```
void translatePaging(int virtual_address) {
    int page_number = virtual_address / PAGE_SIZE;
    int offset = virtual_address % PAGE_SIZE;
    printf("Virtual Address: %d\n", virtual_address);
    printf("Page Number: %d\n", page_number);
    printf("Offset: %d\n", offset);
    printf("Physical Address: %d\n", page_number * PAGE_SIZE + offset);
}
```

```
// Function to perform address translation for segmentation
```

```
void translateSegmentation(int virtual_address) {
    int segment_number = virtual_address / SEGMENT_SIZE;
    int offset = virtual_address % SEGMENT_SIZE;
    printf("Virtual Address: %d\n", virtual_address);
    printf("Segment Number: %d\n", segment_number);
    printf("Offset: %d\n", offset);
    printf("Physical Address: %d\n", segment_number * SEGMENT_SIZE +
offset);
}
```

```
int main() {
    int choice, virtual_address;

    printf("Memory Management Techniques\n");
```

```

printf("1. Paging\n");
printf("2. Segmentation\n");
printf("Enter your choice: ");
scanf("%d", &choice);

switch (choice) {
    case 1:
        printf("Enter virtual address for paging: ");
        scanf("%d", &virtual_address);
        translatePaging(virtual_address);
        break;
    case 2:
        printf("Enter virtual address for segmentation: ");
        scanf("%d", &virtual_address);
        translateSegmentation(virtual_address);
        break;
    default:
        printf("Invalid choice\n");
        return 1;
}

return 0;
}

```

```

Memory Management Techniques
1. Paging
2. Segmentation
Enter your choice: 1
Enter virtual address for paging: 16384
Virtual Address: 16384
Page Number: 4
Offset: 0
Physical Address: 16384

```