



# **NED UNIVERSITY OF ENGINEERING & TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & IT**  
**Specialization in Data Science**

**CT-353**  
**OPERATING SYSTEMS**

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# LAB 14

## SEQUENTIAL ALLOCATION

LAB 14(sequential).cpp	LAB 14(indexed).cpp	LAB 14 (linked).cpp
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```
1  #include <stdio.h>
2  #include <conio.h>
3
4  int main() {
5      int f[50], i, st, j, len, c, k;
6
7      for (i = 0; i < 50; i++)
8          f[i] = 0;
9
10     x:
11     printf("\nEnter the starting block & length of file: ");
12     scanf("%d%d", &st, &len);
13
14     for (j = st; j < (st + len); j++) {
15         if (f[j] == 0) {
16             f[j] = 1;
17             printf("\n%d -> %d", j, f[j]);
18         } else {
19             printf("\nBlock already allocated");
20             break;
21         }
22     }
23
24     if (j == (st + len))
25         printf("\nThe file is allocated to disk");
26
27     printf("\nIf you want to enter more files? (y-1/n-0): ");
28     scanf("%d", &c);
29
30     if (c == 1)
31         goto x;
32     else
33         return 0;
34
35     getch();
36 }
37
```



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Enter the starting block & length of file: 10 5

10 -> 1

11 -> 1

12 -> 1

13 -> 1

14 -> 1

The file is allocated to disk

If you want to enter more files? (y-1/n-0): 1

Enter the starting block & length of file: 12 3

Block already allocated

If you want to enter more files? (y-1/n-0): 1

Enter the starting block & length of file: 20 4

20 -> 1

21 -> 1

22 -> 1

23 -> 1

The file is allocated to disk

If you want to enter more files? (y-1/n-0): 0

-----

Process exited after 45.76 seconds with return value 0

Press any key to continue . . .

# INDEXED ALLOCATION

LAB 14(sequential).cpp

LAB 14(indexed).cpp

LAB 14 (linked).cpp

```
1  #include <stdio.h>
2  #include <conio.h>
3
4  int main() {
5      int f[50], i, k, j, inde[50], n, c, count = 0, p;
6
7      for (i = 0; i < 50; i++)
8          f[i] = 0;
9
10     x:
11     printf("Enter index block: ");
12     scanf("%d", &p);
13
14     if (f[p] == 0) {
15         f[p] = 1;
16         printf("Enter number of files on index: ");
17         scanf("%d", &n);
18     } else {
19         printf("Block already allocated\n");
20         goto x;
21     }
22
23     for (i = 0; i < n; i++)
24         scanf("%d", &inde[i]);
25
26     for (i = 0; i < n; i++) {
27         if (f[inde[i]] == 1) {
28             printf("Block already allocated");
29             goto x;
30         }
31     }
32
33     for (j = 0; j < n; j++)
34         f[inde[j]] = 1;
35
36     printf("\nAllocated");
37     printf("\nFile indexed");
38
39     for (k = 0; k < n; k++)
40         printf("\n%d -> %d : %d", p, inde[k], f[inde[k]]);
41
42     printf("\nEnter 1 to enter more files and 0 to exit: ");
43     scanf("%d", &c);
44
45     if (c == 1)
46         goto x;
47     else
48         return 0;
49     getch();
50 }
```

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+ v

Enter index block: 5

Enter number of files on index: 3

10

12

14

Allocated

File indexed

5 -> 10 : 1

5 -> 12 : 1

5 -> 14 : 1

Enter 1 to enter more files and 0 to exit: 1

Enter index block: 20

Enter number of files on index: 2

21

22

Allocated

File indexed

20 -> 21 : 1

20 -> 22 : 1

Enter 1 to enter more files and 0 to exit: 0

-----

Process exited after 37.47 seconds with return value 0

Press any key to continue . . . |

# LINKED ALLOCATION

LAB 14(sequential).cpp

LAB 14(indexed).cpp

LAB 14 (linked).cpp

```
1  #include <stdio.h>
2  #include <conio.h>
3
4  int main() {
5      int f[50], p, i, j, k, a, st, len, n, c;
6
7      for (i = 0; i < 50; i++)
8          f[i] = 0;
9
10     printf("Enter how many blocks that are already allocated: ");
11     scanf("%d", &p);
12
13     printf("\nEnter the blocks no.s that are already allocated:\n");
14     for (i = 0; i < p; i++) {
15         scanf("%d", &a);
16         f[a] = 1;
17     }
18
19     X:
20     printf("Enter the starting index block & length: ");
21     scanf("%d%d", &st, &len);
22
23     k = len;
24     for (j = st; j < (k + st); j++) {
25         if (f[j] == 0) {
26             f[j] = 1;
27             printf("\n%d -> %d", j, f[j]);
28         } else {
29             printf("\n%d -> file is already allocated", j);
30             k++; // increase length to allocate full length of file
31         }
32     }
33
34     printf("\nIf you want to enter one more file? (yes-1/no-0): ");
35     scanf("%d", &c);
36
37     if (c == 1)
38         goto X;
39     else
40         return 0;
41
42     getch();
43 }
44
```

```
C:\Users\marya\Downloads\O x + v
Enter how many blocks that are already allocated: 5
Enter the blocks no.s that are already allocated:
23
45
62
34
54
Enter the starting index block & length: 2
3
2 -> 1
3 -> 1
4 -> 1
If you want to enter one more file? (yes-1/no-0): 0
-----
Process exited after 20.48 seconds with return value 3221225477
Press any key to continue . . . |
```