ASHNA SHAIKH [DT-22019]

OPERATING SYSTEM LAB [CT-353]

LAB 14

CODE:

SEQUENCE ALLOCATION

```c
#include <stdio.h>
#include <conio.h>

int main() {
    int f[50], i, st, j, len, c, k;

    for (i = 0; i < 50; i++)
        f[i] = 0;

X:
    printf("\nEnter the starting block & length of file: ");
    scanf("%d%d", &st, &len);

    for (j = st; j < (st + len); j++) {
        if (f[j] == 0) {
            f[j] = 1;
            printf("\n%d -> %d", j, f[j]);
        } else {
            printf("\nBlock already allocated");
            break;
        }
    }

    if (j == (st + len))
        printf("\nThe file is allocated to disk");

    printf("\nIf you want to enter more files? (y-1/n-0): ");
    scanf("%d", &c);

    if (c == 1)
        goto X;
    else
        return 0;

    getch();
}
```

```
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:

```c
int main() {
    int f[50], i, k, j, inde[50], n, c, count = 0, p;

    for (i = 0; i < 50; i++)
        f[i] = 0;

x:
    printf("Enter index block: ");
    scanf("%d", &p);

    if (f[p] == 0) {
        f[p] = 1;
        printf("Enter number of files on index: ");
        scanf("%d", &n);
    } else {
        printf("Block already allocated\n");
        goto x;
    }

    for (i = 0; i < n; i++)
        scanf("%d", &inde[i]);

    for (i = 0; i < n; i++) {
        if (f[inde[i]] == 1) {
            printf("Block already allocated");
            goto x;
        }
    }

    for (j = 0; j < n; j++)
        f[inde[j]] = 1;

    printf("\nAllocated");
    printf("\nFile indexed");

    for (k = 0; k < n; k++)
        printf("\n%d -> %d : %d", p, inde[k], f[inde[k]]);

    printf("\nEnter 1 to enter more files and 0 to exit: ");
    scanf("%d", &c);

    if (c == 1)
        goto x;
    else
        return 0;
    getch();
}
```

```
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:

```c
#include <stdio.h>
#include <conio.h>

int main() {
    int f[50], p, i, j, k, a, st, len, n, c;

    for (i = 0; i < 50; i++)
        f[i] = 0;

    printf("Enter how many blocks that are already allocated: ");
    scanf("%d", &p);

    printf("\nEnter the blocks no.s that are already allocated:\n");
    for (i = 0; i < p; i++) {
        scanf("%d", &a);
        f[a] = 1;
    }

x:
    printf("Enter the starting index block & length: ");
    scanf("%d%d", &st, &len);

    k = len;
    for (j = st; j < (k + st); j++) {
        if (f[j] == 0) {
            f[j] = 1;
            printf("\n%d -> %d", j, f[j]);
        } else {
            printf("\n%d -> file is already allocated", j);
            k++;  // increase length to allocate full length of file
        }
    }

    printf("\nIf you want to enter one more file? (yes-1/no-0): ");
    scanf("%d", &c);

    if (c == 1)
        goto x;
    else
        return 0;

    getch();
}
```

```
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 . . .
```