

LAB 14

CODE:

A) SEQUENTIAL

```
#include <stdio.h>

int main() {

    int f[50] = {0}; // Block status: 0 = free, 1 = allocated

    int i, st, len, j, c;

    do {

        printf("\nEnter the starting block and length of the file: ");

        scanf("%d %d", &st, &len);

        int allocated = 1;

        for (j = st; j < st + len; j++) {

            if (f[j] == 1) {

                printf("Block %d is already allocated.\n", j);

                allocated = 0;

                break;

            }

        }

        if (allocated) {

            for (j = st; j < st + len; j++) {

                f[j] = 1;

                printf("%d -> Allocated\n", j);

            }

            printf("The file has been allocated.\n");

        }

    } while (1);

}
```

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```
}
```

```
printf("Do you want to enter more files? (1 for Yes / 0 for No): ");
```

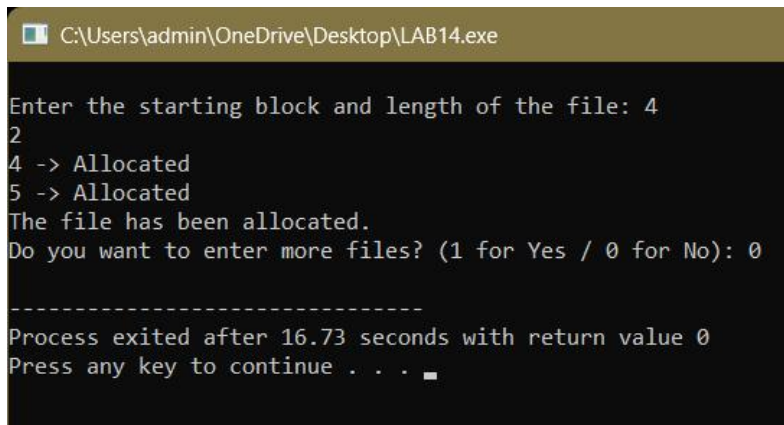
```
scanf("%d", &c);
```

```
} while (c == 1);
```

```
return 0;
```

```
}
```

OUTPUT:



```
C:\Users\admin\OneDrive\Desktop\LAB14.exe

Enter the starting block and length of the file: 4
2
4 -> Allocated
5 -> Allocated
The file has been allocated.
Do you want to enter more files? (1 for Yes / 0 for No): 0

-----
Process exited after 16.73 seconds with return value 0
Press any key to continue . . .
```

B) Indexed

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

```
int main() {
```

```
    int f[50] = {0};
```

```
    int inde[50];
```

```
    int i, n, p, c;
```

```
    do {
```

```
        printf("Enter index block: ");
```

```
        scanf("%d", &p);
```

```
if (f[p] == 1) {
    printf("Block already allocated.\n");
    continue;
}

f[p] = 1;
printf("Enter number of blocks needed: ");
scanf("%d", &n);

printf("Enter the block numbers:\n");
int valid = 1;
for (i = 0; i < n; i++) {
    scanf("%d", &inde[i]);
    if (f[inde[i]] == 1) {
        printf("Block %d already allocated.\n", inde[i]);
        valid = 0;
    }
}

if (!valid) continue;

for (i = 0; i < n; i++) {
    f[inde[i]] = 1;
}

printf("File indexed.\n");
for (i = 0; i < n; i++) {
    printf("%d -> %d: Allocated\n", p, inde[i]);
}
```

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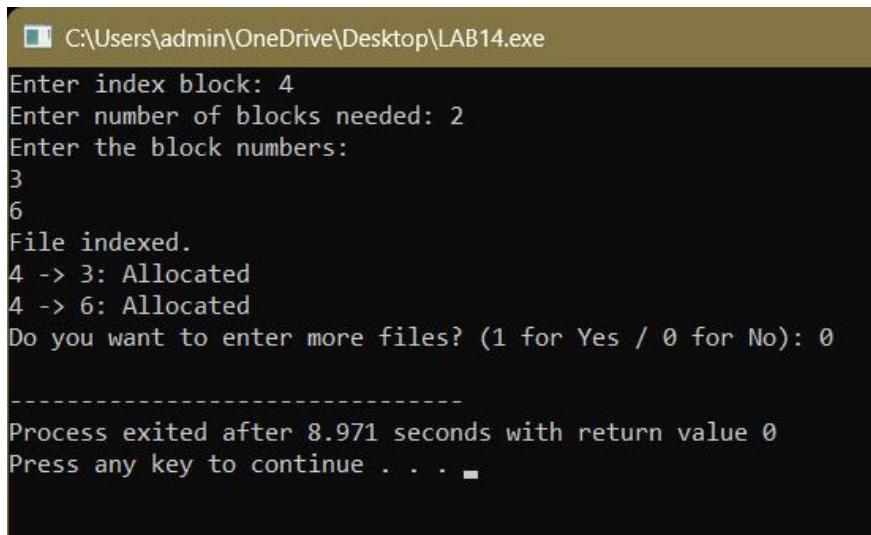
```
    }

    printf("Do you want to enter more files? (1 for Yes / 0 for No): ");
    scanf("%d", &c);

} while (c == 1);

return 0;
}
```

Output



```
C:\Users\admin\OneDrive\Desktop\LAB14.exe
Enter index block: 4
Enter number of blocks needed: 2
Enter the block numbers:
3
6
File indexed.
4 -> 3: Allocated
4 -> 6: Allocated
Do you want to enter more files? (1 for Yes / 0 for No): 0
-----
Process exited after 8.971 seconds with return value 0
Press any key to continue . . .
```

C) Linked

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

```
int main() {
    int f[50] = {0};
    int i, j, p, a, st, len, c;

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

```
printf("Enter the block numbers that are already allocated:\n");
for (i = 0; i < p; i++) {
    scanf("%d", &a);
    f[a] = 1;
}

do {
    printf("Enter the starting index block and length of the file: ");
    scanf("%d %d", &st, &len);

    int k = len;
    for (j = st; j < st + k; j++) {
        if (f[j] == 0) {
            f[j] = 1;
            printf("%d -> Allocated\n", j);
        } else {
            printf("%d -> Block already allocated. Searching next...\n", j);
            k++; // Extend search to compensate
        }
    }
}

printf("Do you want to enter another file? (1 for Yes / 0 for No): ");
scanf("%d", &c);

} while (c == 1);

return 0;
}
```

Output:

```
C:\Users\admin\OneDrive\Desktop\LAB14.exe
Enter how many blocks are already allocated: 3
Enter the block numbers that are already allocated:
5
4
2
Enter the starting index block and length of the file: 2
1
2 -> Block already allocated. Searching next...
3 -> Allocated
Do you want to enter another file? (1 for Yes / 0 for No): 0

-----
Process exited after 18.38 seconds with return value 0
Press any key to continue . . .
```