Shayan
DT-22037

OS LAB 14

Question 1: Implement the above code and paste the screen shot of the output.

Solution:

a. **Sequential:**

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

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

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

X:
    printf("\n Enter 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("Block already allocated");
            break;
        }
    }

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

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

    if (c == 1)
        goto X;
    else
```

```
        exit(0);
}
```

```
 Enter the starting block & length of file: 5 3

5 -> 1
6 -> 1
7 -> 1
The file is allocated to disk
Do you want to enter more files? (y-1/n-0): 1

 Enter the starting block & length of file: 6 2
Block already allocated
Do you want to enter more files? (y-1/n-0): 0
```

b. **Indexed:**

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

int f[50], i, k, j, inde[50], n, c, count = 0, p;

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

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

    if (f[p] == 0)
    {
        f[p] = 1;
        printf("Enter number of files on index:\t");
        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++)
```

Shayan
DT-22037

```
    {
        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:\t");
    scanf("%d", &c);

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

```
Enter index block:      5
Enter number of files on index: 3
12
13
14

Allocated
File Indexed
 5 -> 12: 1
 5 -> 13: 1
 5 -> 14: 1
Enter 1 to enter more files and 0 to exit:      1
Enter index block:      5
Block already allocated
Enter index block:      8
Enter number of files on index: 2
14
15
Block already allocatedEnter index block:       9
Enter number of files on index: 2
16
17

Allocated
File Indexed
 9 -> 16: 1
 9 -> 17: 1
Enter 1 to enter more files and 0 to exit:      0
```

Shayan
DT-22037

c. **Linked:**

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

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++;
        }
    }

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

    if (c == 1)
        goto X;
    else
        exit(0);
```

```
    return 0;
}
```

```
3 5 7
Enter the starting index block & length: 4 4

4 -> 1
5 -> file is already allocated
6 -> 1
7 -> file is already allocated
8 -> 1
9 -> 1
Do you want to enter one more file? (yes-1 / no-0): 0
```