9.Develop a C program to simulate the Linked file allocation strategies.

PROGRAM

```c
#include<stdio.h>
#include<stdlib.h> // For exit()

#define MAX_BLOCKS 50

int main() {
    int f[MAX_BLOCKS], i, j, k, a, st, len, n, c;
    // Initialize the file allocation table
    for(i = 0; i < MAX_BLOCKS; i++) f[i] = 0;

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

    printf("\nEnter the blocks no.s that are already allocated: ");
    for(i = 0; i < n; i++) {
        scanf("%d", &a);
        if(a >= 0 && a < MAX_BLOCKS) {
            f[a] = 1;
        } else {
            printf("Block number out of range. Please enter a number between 0 and %d.\n",
MAX_BLOCKS - 1);
            i--; // Ask for the block number again
        }
    }

    do {
        printf("\nEnter the starting index block & length: ");
        scanf("%d%d", &st, &len);

        if(st < 0 || st >= MAX_BLOCKS) {
            printf("Starting block is out of valid range (0 to %d). Please try again.\n",
MAX_BLOCKS - 1);
            continue; // Skip the rest of the loop and ask for input again
        }

        k = len;
        for(j = st; j < (k + st) && j < MAX_BLOCKS; 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++;
                if(k + st >= MAX_BLOCKS) break; // Avoid infinite loop
            }
        }
```

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

    return 0;
}
```

OUTPUT:

Enter how many blocks that are already allocated 3 Enter the blocks no.s
that are already allocated 4 7 Enter the starting index block & length 3 7 9
3->1
4->1 file is already allocated
5->1
6->1
7->1 file is already allocated
8->1
9->1file is already allocated
10->1
11->1
12->1

VIVA Questions:

1. What is linked file allocation? How does it work?
2. What are the advantages of linked allocation over contiguous allocation?