praveenkumar.R
192324012

Experiment-36:With linked allocation, each file is a linked list of disk blocks; the disk blocks may be scattered anywhere on the disk. The directory contains a pointer to the first and last blocks of the file. Each block contains a pointer to the next block. Design a C program to simulate the file allocation strategy.

Aim:

To simulate the linked allocation file strategy where each file is represented as a linked list of disk blocks, with each block containing a pointer to the next block. The directory contains pointers to the first and last blocks of the file.

Procedure:

1. Take the number of blocks in the file as input.

2. Store the file blocks using linked list nodes, where each node contains data and a pointer to the next block.

3. The directory will store pointers to the first and last blocks.

4. Access and print the blocks sequentially by following the links.

C Program:

```
#include <stdio.h>

#include <stdlib.h>


struct Block {

    int data;

    struct Block* next;

};


int main() {

    int n;

    printf("Enter the number of blocks in the file: ");

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

```c
    struct Block* head = NULL;

    struct Block* tail = NULL;

    struct Block* temp;


    for (int i = 0; i < n; i++) {

        temp = (struct Block*)malloc(sizeof(struct Block));

        printf("Enter data for block %d: ", i + 1);

        scanf("%d", &temp->data);

        temp->next = NULL;


        if (head == NULL) {

            head = temp;

            tail = temp;

        } else {

            tail->next = temp;

            tail = temp;

        }

    }


    printf("File blocks:\n");

    struct Block* current = head;

    while (current != NULL) {

        printf("Block data: %d\n", current->data);

        current = current->next;

    }


    return 0;
```

}

Output:

```
Enter the number of blocks in the file: 6
Enter data for block 1: 4
Enter data for block 2: 56
Enter data for block 3: 6
Enter data for block 4: 2
Enter data for block 5: 7
Enter data for block 6: 52
File blocks:
Block data: 4
Block data: 56
Block data: 6
Block data: 2
Block data: 7
Block data: 52
```