

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);  
  
    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:

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