

```

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

typedef struct Node {
    int data;
    struct Node *link;
} Node;

Node *head = NULL;
Node* createNODE(int data) {
    Node *nn = (Node *)malloc(sizeof(Node));
    if (!nn) {
        printf("Memory cant allocation");
        exit(0);
    }
    nn->data = data;
    nn->link = NULL;
    return nn;
}

void createList(int data) {
    Node *nn = createNODE(data);

    if (head == NULL) {
        head = nn;
        return;
    }

    Node *temp = head;
    while (temp->link != NULL)
        temp = temp->link;

    temp->link = nn;
}

void insertAtFirst(int data) {
    Node *nn = createNODE(data);
    nn->link = head;
    head = nn;
}

void insertAtEnd(int data) {
    createList(data);
}

void insertAtPosition(int data, int pos) {
    if (pos == 1) {

```

```
    insertAtFirst(data);  
    return;  
}
```

```
Node *nn = createNODE(data);  
Node *temp = head;
```

```
for (int i = 1; i < pos - 1; i++) {  
    if (temp == NULL) {  
        printf("Position are out of range");  
        return;  
    }  
    temp = temp->link;  
}
```

```
nn->link = temp->link;  
temp->link = nn;  
}
```

```
void deleteAtFirst() {  
    if (head == NULL) {  
        printf("List is empty");  
        return;  
    }  
}
```

```
Node *temp = head;  
head = head->link;  
free(temp);  
}
```

```
void deleteAtEnd() {  
    if (head == NULL) {  
        printf("List is empty.");  
        return;  
    }  
}
```

```
if (head->link == NULL) {  
    free(head);  
    head = NULL;  
    return;  
}
```

```
Node *temp = head;
```

```
while (temp->link->link != NULL)  
    temp = temp->link;
```

```
Node *last = temp->link;
```

```
temp->link = NULL;
free(last);
}
```

```
void deleteAtPosition(int pos) {
    if (head == NULL) {
        printf("List is empty.");
        return;
    }
```

```
    if (pos == 1) {
        deleteAtFirst();
        return;
    }
```

```
    Node *temp = head;
```

```
    for (int i = 1; i < pos - 1; i++) {
        if (temp == NULL) {
            printf("Position out of range.");
            return;
        }
        temp = temp->link;
    }
```

```
    if (temp->link == NULL) {
        printf("Position out of range.");
        return;
    }
```

```
    Node *del = temp->link;
    temp->link = del->link;
    free(del);
}
```

```
void display() {
    if (head == NULL) {
        printf("List is empty");
        return;
    }
```

```
    Node *temp = head;
```

```
    while (temp != NULL) {
        printf("%d -> ", temp->data);
        temp = temp->link;
    }
```

```

    printf("NULL");
}

int main() {
    FILE *fp = fopen("input.txt", "r");

    if (fp == NULL) {
        printf(" file cant open please check :");
        return 0;
    }

    int choice, data, pos;

    while (fscanf(fp, "%d", &choice) != EOF) {

        switch (choice) {
            case 1:
                fscanf(fp, "%d", &data);
                createList(data);
                break;

            case 2:
                fscanf(fp, "%d", &data);
                insertAtFirst(data);
                break;

            case 3:
                fscanf(fp, "%d", &data);
                insertAtEnd(data);
                break;

            case 4:
                fscanf(fp, "%d %d", &data, &pos);
                insertAtPosition(data, pos);
                break;

            case 5:
                deleteAtFirst();
                break;

            case 6:
                deleteAtEnd();
                break;

            case 7:
                fscanf(fp, "%d", &pos);
                deleteAtPosition(pos);
                break;

```

```

    case 8:
        display();
        break;

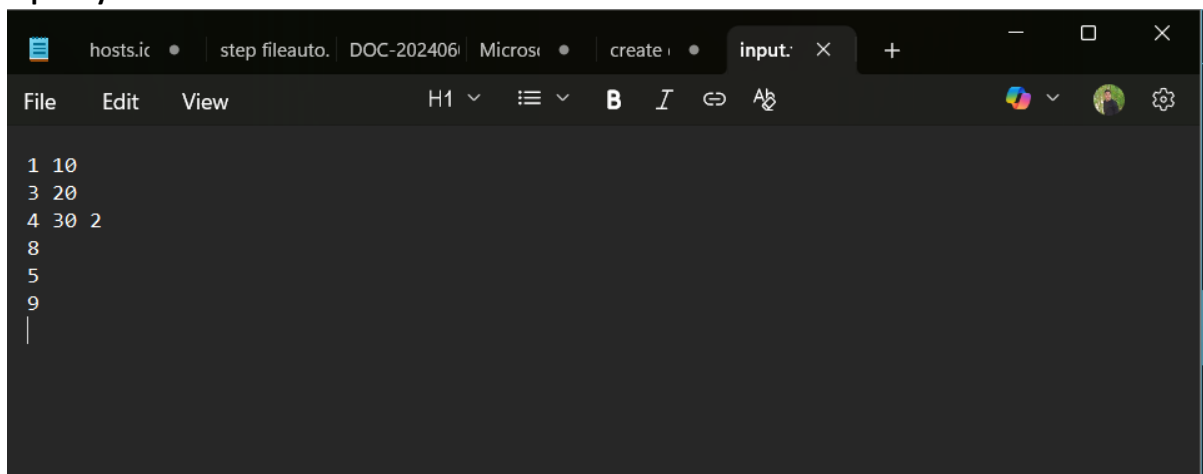
    case 9:
        fclose(fp);
        exit(0);

    default:
        printf("Invalid choice. Please correct the input file");
    }
}

fclose(fp);
return 0;
}

```

Input by file:-



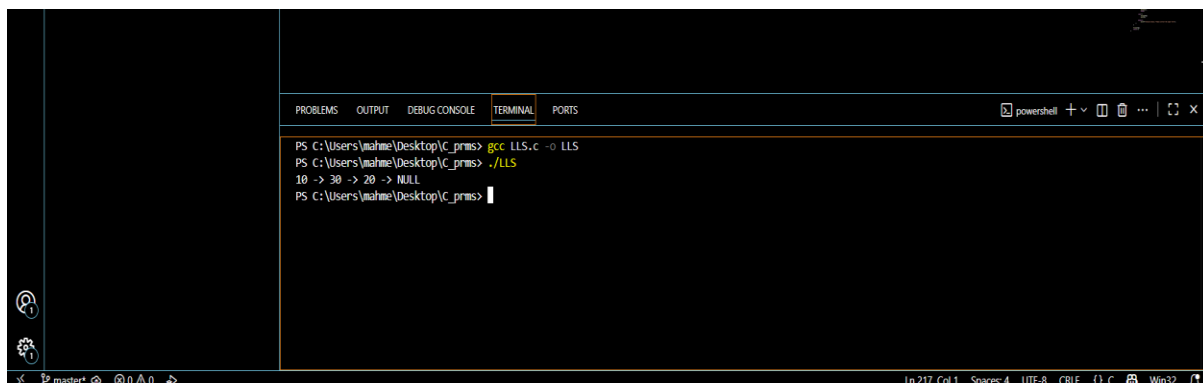
The screenshot shows a code editor window with a dark theme. The file name is 'input.'. The editor contains the following text:

```

1 10
3 20
4 30 2
8
5
9
|

```

OUTPUT:-



The screenshot shows a terminal window with a dark theme. The terminal displays the following commands and output:

```

PS C:\Users\mahm\Desktop\C_pms> gcc LLS.c -o LLS
PS C:\Users\mahm\Desktop\C_pms> ./LLS
10 -> 30 -> 20 -> NULL
PS C:\Users\mahm\Desktop\C_pms>

```