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#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) {

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    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;
}

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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;
    }
}

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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;
        }
    }
}
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case 8:
    display();
    break;

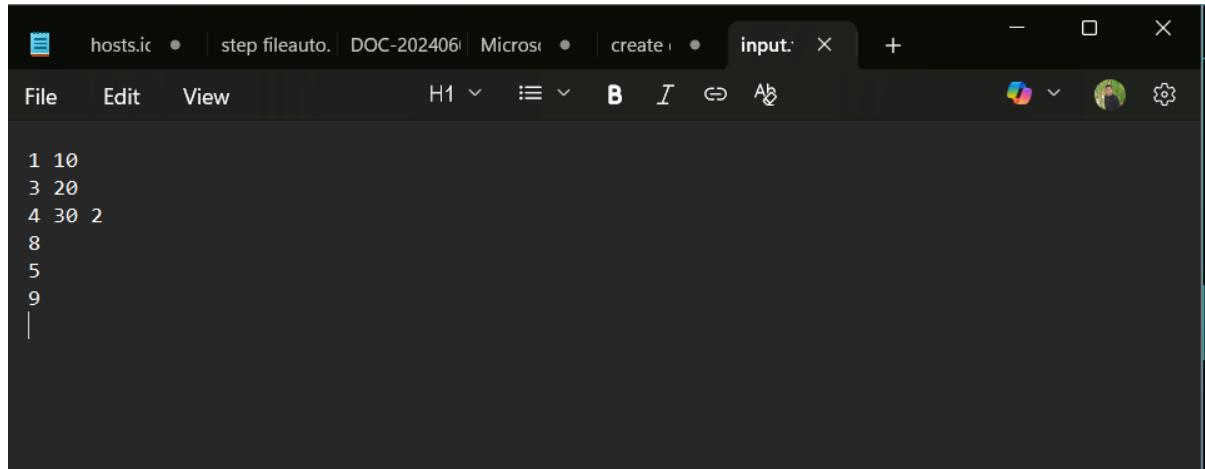
case 9:
    fclose(fp);
    exit(0);

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

fclose(fp);
return 0;
}

```

Input by file:-

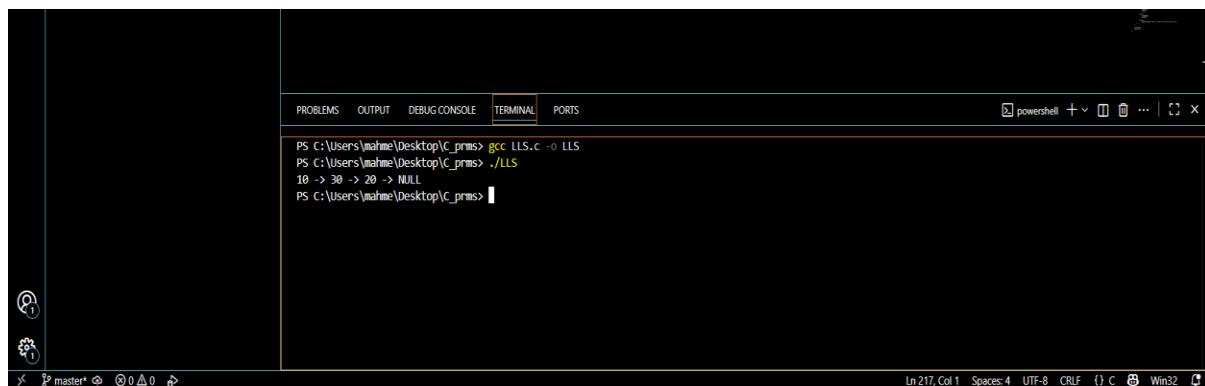


```

1 10
3 20
4 30 2
8
5
9

```

OUTPUT:-



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

```