Question:
WAP to Implement Singly Linked List with following
operations
a) Createalinkedlist.
b) Insertion of a node at first position, at any position and
at end of list.
Display the contents of the linked list

Input:

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

struct Node {
    int data;
    struct Node* next;
};

struct Node* head = NULL;

void create() {
    int value;
    struct Node *newNode, *temp;

    printf("Enter value to insert: ");
    scanf("%d", &value);

    newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->next = NULL;

    if (head == NULL) {
        head = newNode;
    } else {
        temp = head;
        while (temp->next != NULL) {
            temp = temp->next;
        }
        temp->next = newNode;
    }

    printf("Node created.\n");
}

void insertAtBeginning() {
    int value;
    printf("Enter value to insert at beginning: ");
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    scanf("%d", &value);

    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->next = head;
    head = newNode;

    printf("Node inserted at beginning.\n");
}

void insertAtEnd() {
    int value;
    printf("Enter value to insert at end: ");
    scanf("%d", &value);

    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->next = NULL;

    if (head == NULL) {
        head = newNode;
    } else {
        struct Node* temp = head;
        while (temp->next != NULL) {
            temp = temp->next;
        }
        temp->next = newNode;
    }

    printf("Node inserted at end.\n");
}

void insertAtPosition() {
    int value, pos;
    printf("Enter position to insert at: ");
    scanf("%d", &pos);

    printf("Enter value: ");
    scanf("%d", &value);

    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;

    if (pos == 1) {
        newNode->next = head;
        head = newNode;
        printf("Node inserted at position %d.\n", pos);
```

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        return;
    }

    struct Node* temp = head;
    for (int i = 1; i < pos - 1; i++) {
        if (temp == NULL) {
            printf("Position out of range!\n");
            return;
        }
        temp = temp->next;
    }

    if (temp == NULL) {
        printf("Position out of range!\n");
        return;
    }

    newNode->next = temp->next;
    temp->next = newNode;

    printf("Node inserted at position %d.\n", pos);
}

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

    struct Node* temp = head;
    printf("Linked List: ");
    while (temp != NULL) {
        printf("%d -> ", temp->data);
        temp = temp->next;
    }
    printf("NULL\n");
}

int main() {
    int choice;

    while (1) {
        printf("\n----- Singly Linked List Menu -----\n");
        printf("1. Create a linked list (append node)\n");
        printf("2. Insert at beginning\n");
        printf("3. Insert at any position\n");
        printf("4. Insert at end\n");
```

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        printf("5. Display list\n");
        printf("6. Exit\n");

        printf("Enter your choice: ");
        scanf("%d", &choice);

        switch (choice) {
            case 1: create(); break;
            case 2: insertAtBeginning(); break;
            case 3: insertAtPosition(); break;
            case 4: insertAtEnd(); break;
            case 5: display(); break;
            case 6: exit(0);
            default: printf("Invalid choice! Try again.\n");
        }
    }

    return 0;
}
```

Output


C:\Users\Admin\Desktop\4.exe
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 1
Enter value to insert: 25
Node created.
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 2
Enter value to insert at beginning: 23
Node inserted at beginning.
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 3
Enter position to insert at: 2
Enter value: 76
Node inserted at position 2.
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 4
Enter value to insert at end: 26
Node inserted at end.
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 5
Linked List: 23 -> 76 -> 25 -> 26 -> NULL
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Activate Windows
Go to Settings to activate Windows.


C:\Users\Admin\Desktop\4.exe
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 2
Enter value to insert at beginning: 23
Node inserted at beginning.
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 3
Enter position to insert at: 2
Enter value: 76
Node inserted at position 2.
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 4
Enter value to insert at end: 26
Node inserted at end.
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 5
Linked List: 23 -> 76 -> 25 -> 26 -> NULL
----- Singly Linked List Menu -----
1. Create a linked list (append node)
2. Insert at beginning
3. Insert at any position
4. Insert at end
5. Display list
6. Exit
Enter your choice: 6
Process returned 0 (0x0) execution time : 56.823 s
Press any key to continue.
Activate Windows
Go to Settings to activate Windows.