

## **Practical No 9**

- Program 1 : Implementation of LINKEDLIST. To perform any linked list operations.

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

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

```
// Define the structure for a node in the linked list
```

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

```
void insertAtEnd(struct Node** head, int value) {  
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));  
    struct Node* last = *head;
```

```
    newNode->data = value;  
    newNode->next = NULL;
```

```
    if (*head == NULL) {  
        *head = newNode;  
        return;  
    }
```

```
    while (last->next != NULL) {  
        last = last->next;  
    }
```

```
    last->next = newNode;  
}
```

```
void deleteFromStart(struct Node** head) {  
    if (*head == NULL) {
```

```

        printf("The list is empty. Cannot delete.\n");
        return;
    }

    struct Node* temp = *head;
    *head = (*head)->next;
    free(temp);
}

void display(struct Node* head) {
    if (head == NULL) {
        printf("The list is empty.\n");
        return;
    }

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

int main() {
    struct Node* head = NULL;
    int choice, value;

    while (1) {
        printf("\nLinked List Operations Menu:\n");
        printf("1. Insert at End\n");
        printf("2. Delete from Start\n");
        printf("3. Display\n");
        printf("4. Exit\n");
        printf("Enter your choice (1-4): ");
        scanf("%d", &choice);

        switch (choice) {
            case 1:

```

```
        printf("Enter value to insert: ");
        scanf("%d", &value);
        insertAtEnd(&head, value);
        break;
    case 2:
        deleteFromStart(&head);
        break;
    case 3:
        display(head);
        break;
    case 4:
        printf("Exiting program.\n");
        exit(0);
    default:
        printf("Invalid choice! Please select a valid option (1-4).\n");
    }
}

return 0;
}
```

## Output:

```
E:\syco BTECH\linked list.exe

Linked List Operations Menu:
1. Insert at End
2. Delete from Start
3. Display
4. Exit
Enter your choice (1-4): 1
Enter value to insert: 10

Linked List Operations Menu:
1. Insert at End
2. Delete from Start
3. Display
4. Exit
Enter your choice (1-4): 1
Enter value to insert: 20

Linked List Operations Menu:
1. Insert at End
2. Delete from Start
3. Display
4. Exit
Enter your choice (1-4): 3
Linked List: 10 20
```

```
Linked List Operations Menu:
1. Insert at End
2. Delete from Start
3. Display
4. Exit
Enter your choice (1-4): 2

Linked List Operations Menu:
1. Insert at End
2. Delete from Start
3. Display
4. Exit
Enter your choice (1-4): 3
Linked List: 20

Linked List Operations Menu:
1. Insert at End
2. Delete from Start
3. Display
4. Exit
Enter your choice (1-4): 4
Exiting program.
```

```
-----
Process exited after 100.7 seconds with return value 0
Press any key to continue . . .
```