

PROGRAM:

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

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

struct Node *createNode(int data) {
    struct Node *node = (struct Node *)malloc(sizeof(struct Node));
    node->data = data;
    node->next = NULL;
    return node;
}

struct Node *createList(int data) {
    struct Node *head = createNode(data);
    return head;
}

void printList(struct Node *head) {
    struct Node *current = head;
    while (current != NULL) {
        if (current->next == NULL)
            printf("%d", current->data);
        else
            printf("%d->", current->data);
        current = current->next;
    }
    printf("\n");
}

void insertAtHead(struct Node **head, int data) {
    struct Node *newNode = createNode(data);
    newNode->next = *head;
    *head = newNode;
}

void insertAtTail(struct Node *head, int data) {
    struct Node *newNode = createNode(data);
    struct Node *current = head;
    while (current->next != NULL) {
        current = current->next;
    }
    current->next = newNode;
}

void insertAtPosition(struct Node *head, int data, int position) {
    struct Node *newNode = createNode(data);
    struct Node *current = head;
    int i = 0;
    while (i < position - 1) {
```

OUTPUT:

```
PS C:\DevParapalli\Projects\RTMNU-SEM-4> & 'c:\Users\parap\.vscode\extensions\ms-vscode.cpptools-1.14.5-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-p100ne  
we.cep' '--stdout=Microsoft-MIEngine-Out-ek01rc54.vq1' '--stderr=Microsoft-MIEngine-Error-rllywcq4  
.c34' '--pid=Microsoft-MIEngine-Pid-yfzq0jb4.j2b' '--dbgExe=C:\msys64\mingw64\bin\gdb.exe' '--inte  
rpreter=mi'  
0->3->1->2  
3  
PS C:\DevParapalli\Projects\RTMNU-SEM-4> █
```

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        current = current->next;
        i++;
    }
    newNode->next = current->next;
    current->next = newNode;
}

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

void deleteAtTail(struct Node *head) {
    struct Node *current = head;
    while (current->next->next != NULL) {
        current = current->next;
    }
    struct Node *temp = current->next;
    current->next = NULL;
    free(temp);
}

void deleteAtPosition(struct Node *head, int position) {
    struct Node *current = head;
    int i = 0;
    while (i < position - 1) {
        current = current->next;
        i++;
    }
    struct Node *temp = current->next;
    current->next = current->next->next;
    free(temp);
}

int main(int argc, char *argv[]) {
    struct Node *head = createList(1);
    insertAtHead(&head, 0);
    insertAtTail(head, 2);
    insertAtPosition(head, 3, 1);
    printList(head);
    deleteAtHead(&head);
    deleteAtTail(head);
    deleteAtPosition(head, 1);
    printList(head);
    return 0;
}

```