**Practical 14:-Write a C Program to Create Two Polynomials using a Linked List.**

#include <stdio.h>

#include <stdlib.h>

// Node structure containing power and coefficient of variable

struct Node {

int coeff;

int pow;

struct Node\* next;

};

// Function to create a new node

void create\_node(int coeff, int pow, struct Node\*\* temp) {

struct Node\* r, \*z;

z = \*temp;

if (z == NULL) {

r = (struct Node\*)malloc(sizeof(struct Node));

r->coeff = coeff;

r->pow = pow;

\*temp = r;

r->next = (struct Node\*)malloc(sizeof(struct Node));

r = r->next;

r->next = NULL;

} else {

r->coeff = coeff;

r->pow = pow;

r->next = (struct Node\*)malloc(sizeof(struct Node));

r = r->next;

r->next = NULL;

}

}

// Function to display the polynomial

void show(struct Node\* node) {

while (node->next != NULL) {

printf("%dx^%d", node->coeff, node->pow);

node = node->next;

if (node->coeff >= 0) {

if (node->next != NULL)

printf(" + ");

}

}

}

// Driver code

int main() {

struct Node\* poly1 = NULL;

struct Node\* poly2 = NULL;

// Creating first polynomial: 5x^2 + 4x^1 + 2

create\_node(5, 2, &poly1);

create\_node(4, 1, &poly1);

create\_node(2, 0, &poly1);

// Creating second polynomial: -5x^1 - 5

create\_node(-5, 1, &poly2);

create\_node(-5, 0, &poly2);

// Displaying the polynomials

printf("1st Polynomial: ");

show(poly1);

printf("\n2nd Polynomial: ");

show(poly2);

return 0;

}

**Output:-**

**1st Polynomial: 5x^2 + 4x^1 + 2x^0**

**2nd Polynomial: -5x^1-5x^0**