(1) # Multiplication of two polynomial

Prince 5/10/21

Consider the following polynomials

exponents $4x^3 + 3x^2 + 1$ ——— (1)

$5x^3 + 7x + 5$ ——— (2)

term coefficients

Rule :

1) Each term of the polynomial (1) must be multiplied with each term of the polynomial (2)

2) Multiplying each term means multiplying their coefficients and adding their exponents.

→ Resultant Polynomial of above two polynomial after multiplication.

$$(4*5)x^{3-3} + (4*7)x^{3+1} + (4*5)x^{3+0} + (3*5)x^{2+3} + (3*7)x^{2+1}$$
$$+ (3*5)x^{2+0} + (1*5)x^{0+3} + (1*7)x^{0+1}$$
$$+ (1*5)x^{0+0}$$

Algorithm

Pto ↪

Algorithm

Prince 5/10/21

1) Store both Polynomial in two different linked list

2) Traverse both linked one by one & multiply each coefficient and add each exponent.

Example (Previous)

```
int res1, res2;
struct node * head3 = NULL;
while (ptr1 != NULL)
{
    ptr2 = head2;
    while (ptr2 != NULL)
    {
        res1 = ptr1 -> coeff * ptr2 -> coeff;
        res2 = ptr2 -> expo + ptr2 -> expo;
        head3 = insert (head3, res1, res2);
        ptr2 = ptr2 -> link;
    }
    ptr1 = ptr1 -> link;
}
```