**Linked List and Polynomial**

We can represent polynomial equations like AXn+ BXn-1 + CXn-2 +……..DX+E having single variable with the help of linked list. In this representation, each node consists of three elements, namely coefficient, power and a link to the next term.

|  |  |  |
| --- | --- | --- |
| Coefficient | power | Link |

However if there are multiple variables like X, Y , Z then we need additional field for storing the power for each variable.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Power X | Power Y | Power Z | coefficient | Link |

Question:

1. Represent the following polynomial equation using singly linked list.

P(X) = 3X4 + 8X2 + 6X - 8

The above polynomial P(X) can be represent in linked list as

-8 0 Null

6 1

8 2

3 4

Start

2. Represent the following polynomial equation using singly linked list

P(X,Y,Z) = 3X2 + 2XY2+ 5Y3 + 7YZ

The above polynomial P(X,Y,Z) can be represented in linked list as

0 1 1 7 Null

0 3 0 5

1 2 0 2

2 0 0 3

Start