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23-9-20 Lab 1:- WAP to implement a memory efficient doubly linked list

```
#include <bits/stdc++.h>
using namespace std;
```

```
class node
{ public:
    int data;
    node *np1;
};
```

```
node *XOR (node *a, node *b)
{ return (node*) ((uintptr_t) a) ^ ((uintptr_t) b); }
```

```
void insert (node *head, int data)
{
```

```
    node *new_node = new node();
    new_node->data = data;
    new_node->np1 = head;
```

```
    if (head != NULL)
        head->np1 = XOR(new_node, head->np1);
```

```
    head = new_node;
}
void print (node head)
```

```
{
    node *curr = head;
    node *prev = NULL;
    node *next;
```

```
void insertend (node *head, int data)
{
    node *new_node = new node();
    new_node->data = data;
    node *temp = new node();
    temp = head;
    while (temp->next != NULL)
        temp->next = XOR(new_node, temp->next);
}
```

```
while (curr != NULL)
{
    cout << curr->data;
    next = XOR(prev, curr->np1);
    prev = curr;
    curr = next;
}
```