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XOR Linked List

classmate

Date _____

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

```
class Node
{
public:
    int data;
    Node* npx;
};
```

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

```
void Insert(Node **head_ref, int data)
{
```

```
    Node *new_node = new Node();
```

```
    new_node->data = data;
```

```
    new_node->npx = *head_ref;
```

```
    if (*head_ref != NULL)
    {
```

```
        (*head_ref->npx) = XOR(new_node, (*head_ref->npx));
    }
```

```
    *head_ref = new_node;
}
```

```
void printList(Node *head)
```

```
{
    Node *curr = head;
```

```
    Node *prev = NULL;
```

```
    Node *next;
```

```
    cout << "Following are the nodes of Linked List : \n";
```

```
    while (curr != NULL)
```

```
    {
        cout << curr->data << " ";
```

```
        next = XOR(prev, curr->npx);
```

```
prev = curr;  
curr = next;  
}  
}  
  
int main()  
{  
    Node * head = NULL;  
    insert (&head, 10);  
    insert (&head, 20);  
    insert (&head, 30);  
    insert (&head, 40);  
    printList (head);  
    return (0);  
}
```