

1. create XOR Linked list

Add new node at front and from back

```
void insert-front (Node head, int data)
{
```

```
    Node new-node = new Node();
```

```
    new-node->data = data;
```

```
    new-node->next-prev = head;
```

```
    if (head != NULL)
```

```
    {
```

```
        head->next-prev = XOR (new-node, head->next-prev);
```

```
    }
```

```
    head = new-node;
```

```
}
```

```
void insert-end (Node head, int data)
```

```
{
```

```
    Node new-nod = new Node();
```

```
    new-node->data = data
```

```
    Node p = head;
```

```
    while (p->next-prev != NULL)
```

```
    {
```

```
        p = p->next-prev;
```

```
    }
```

```
    p->next-prev = XOR (p
```

```
    p->next-prev = XOR (p->next-prev, new-node);
```

```
    new-node->next-prev = NULL;
```

```
}
```

```
void insert_end(Node head, int data)
{
    Node p;
    Node new_node = new Node;
    new_node->data = data;
    Node curr = head;
    Node prev = NULL;
    while (curr != NULL)
    {
        next_prev = XOR (prev, curr->next_prev);
        prev = curr;
        curr = p;
    }
    curr->next_prev = XOR (curr->next_prev, new_node);
    new_node->next_prev = NULL;
}
```