

```
#include <algorithm>
#include <functional>
#include <iostream>
#include <iterator>
using namespace std;
```

```
NODE insert struct node
{
```

```
int data;
```

```
struct node *next;
```

```
};
```

```
typedef struct node *NODE;
```

```
NODE insert_front(int item, NODE head)
{
```

```
    NODE p = getnode(), // Creating a node
```

```
    p->data = item;
```

```
    p->next = NULL;
```

```
    p p->next = XOR(NULL, head);
```

```
    head = p;
```

```
    return head;
```

```
}
```

```
NODE insert_rear(int item, NODE head)
{
```

```
    NODE p = getnode(), q = head;
```

```
    p->data = item; head =
```

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

```
        p->next = XOR(head, NULL); head = p;
```

```
    while (q && q->next != NULL)
```

{

 $q = q \rightarrow next;$ q $q \rightarrow next = XOR(q, p);$

return head;

}