

XOR - Linked List

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IBM18CS014

```
void insert_front(Node** head, int val) {
```

```
    if (*head == NULL) {
```

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

```
        (*head) → data = val;
```

```
        (*head) → next = NULL;
```

```
        return;
```

```
    }
```

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

```
    newnode → data = val;
```

```
    newnode → next = (*head);    // as NULL XOR *head = *head
```

```
    (*head) → next = (Node*) ( (uintptr_t)(a) ^ (uintptr_t)(b) );
```

```
    (*head) = newnode;
```

```
}
```

```
void insert_end(Node** head, int val val) {
```

```
    if (*head == NULL) {
```

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

```
        (*head) → data = val;
```

```
        (*head) → next = NULL;
```

```
        return;
```

```
    }
```

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

```
    newnode → data = val;
```

```
    newnode → next = NULL;
```

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

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

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

```
Node* next = (Node*) ((uintptr_t) (prev) ^ ((uintptr_t) (curr) & 0xFFFFFFFF));
```

```
while (next != NULL) {
```

```
    prev = curr;
```

```
    curr = next;
```

```
    next = (Node*) ((uintptr_t) (prev) ^ ((uintptr_t) (curr->next) & 0xFFFFFFFF));
```

```
}
```

```
newnode->next = curr;
```

```
curr->next = (Node*) ((uintptr_t) (prev) ^ ((uintptr_t) (newnode) & 0xFFFFFFFF));
```

```
}
```