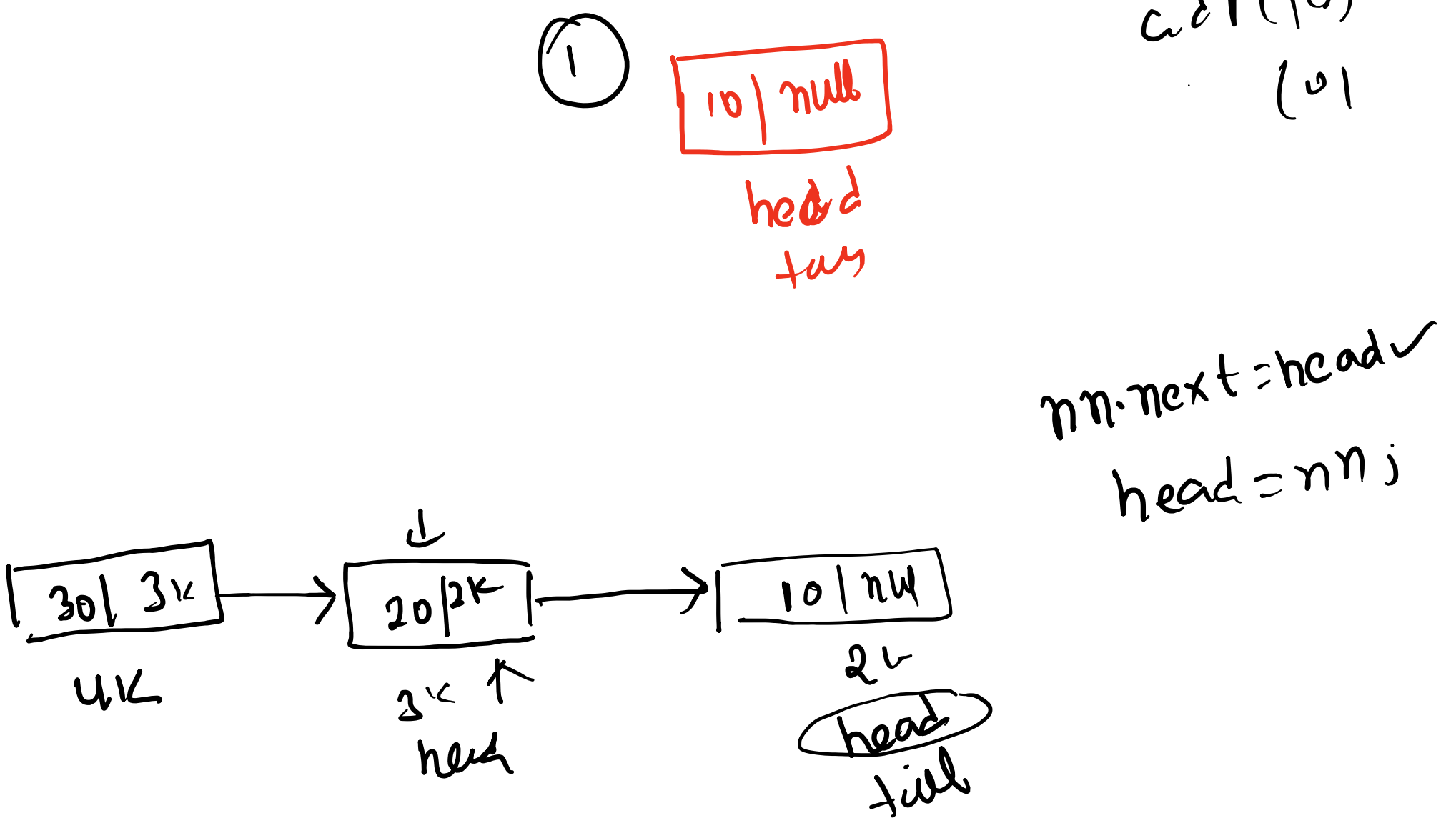
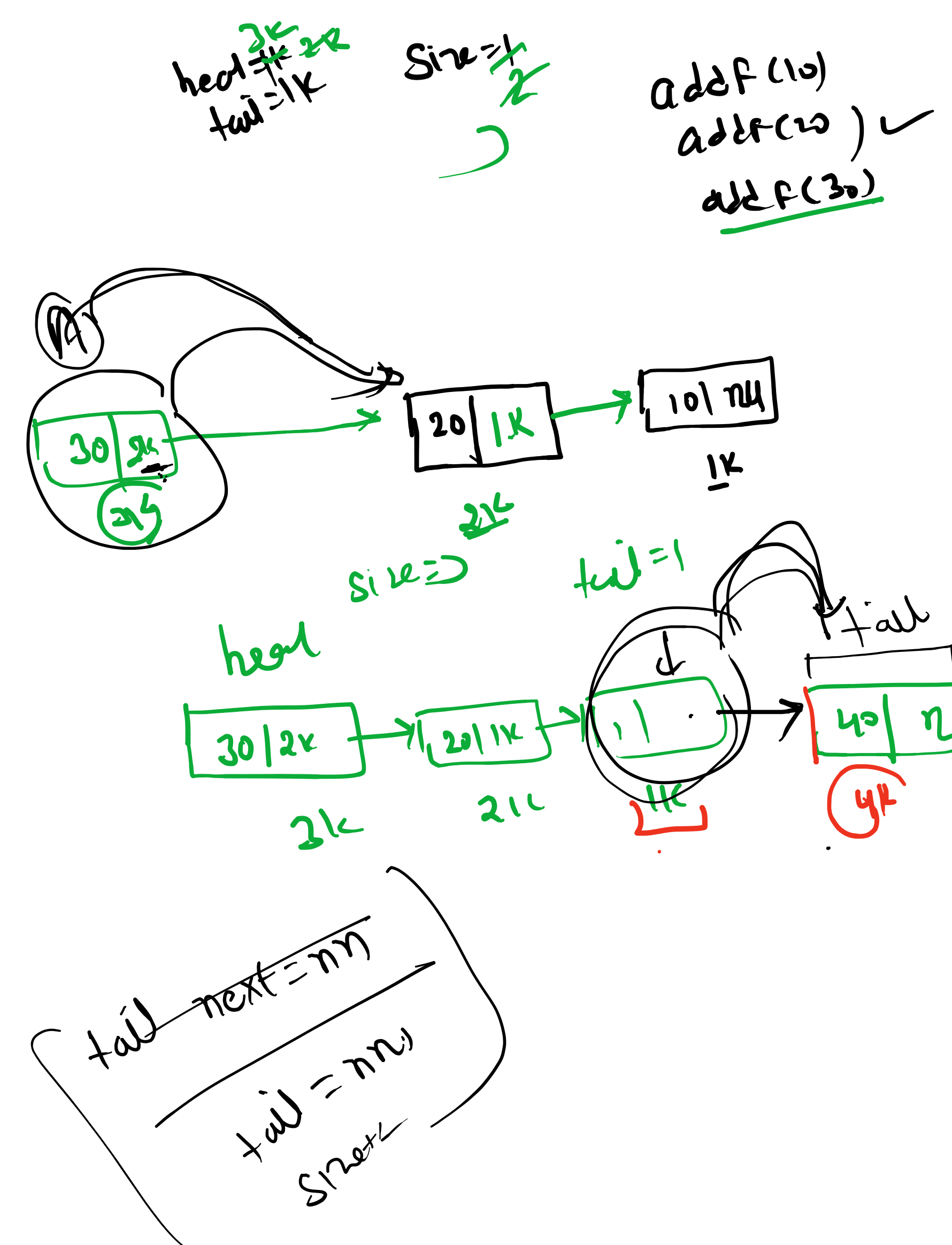


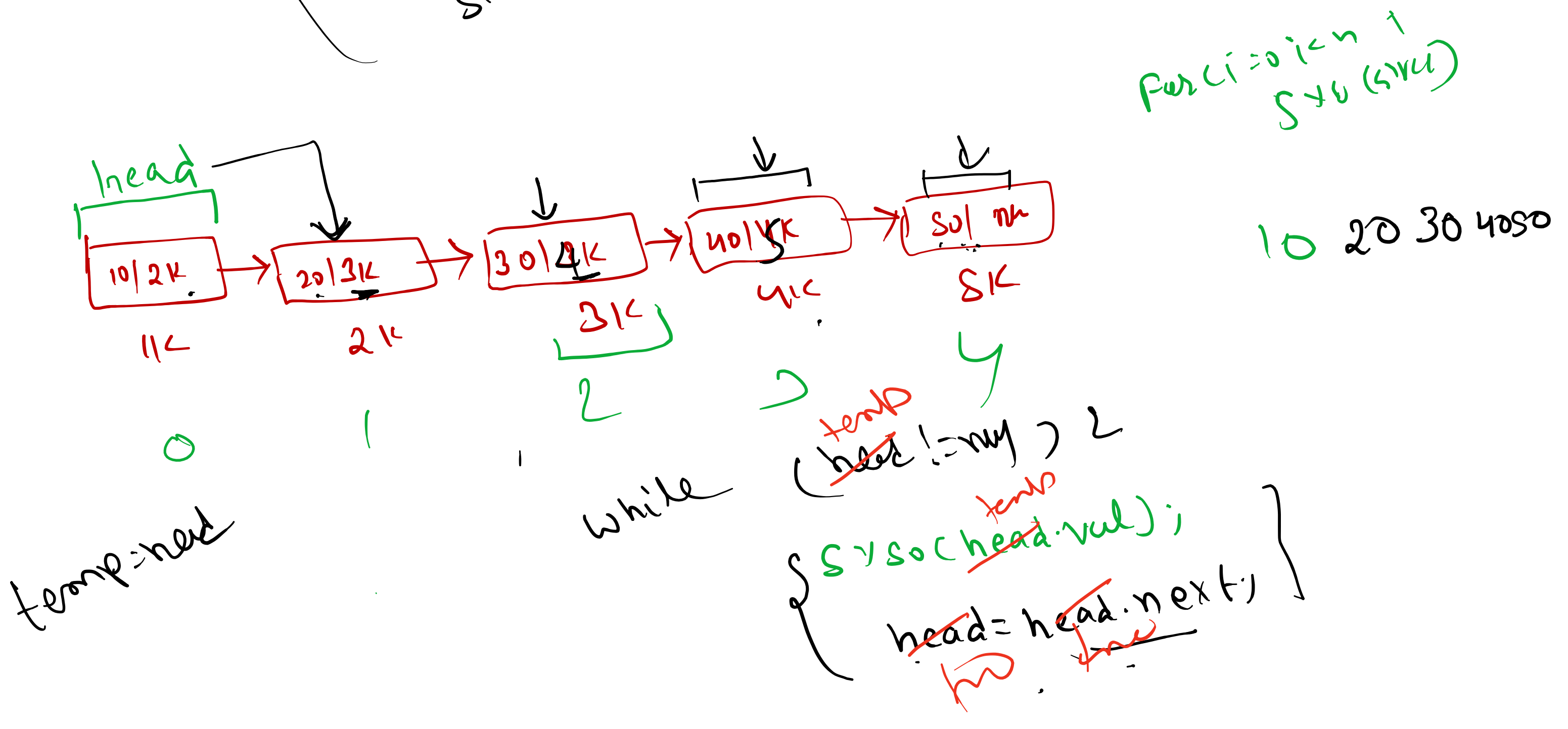
```
public void addfirst(int item) {  
    Node nn = new Node();  
    nn.val = item;  
    if (size == 0) {  
        head = nn;  
        tail = nn;  
        size++;  
    } else {  
        nn.next = head;  
        head = nn;  
        size++;  
    }  
}
```



```
public void addfirst(int item) {  
    Node nn = new Node();  
    nn.val = item;  
    if (size == 0) {  
        head = nn;  
        tail = nn;  
        size++;  
    } else {  
        nn.next = head;  
        head = nn;  
        size++;  
    }  
}
```

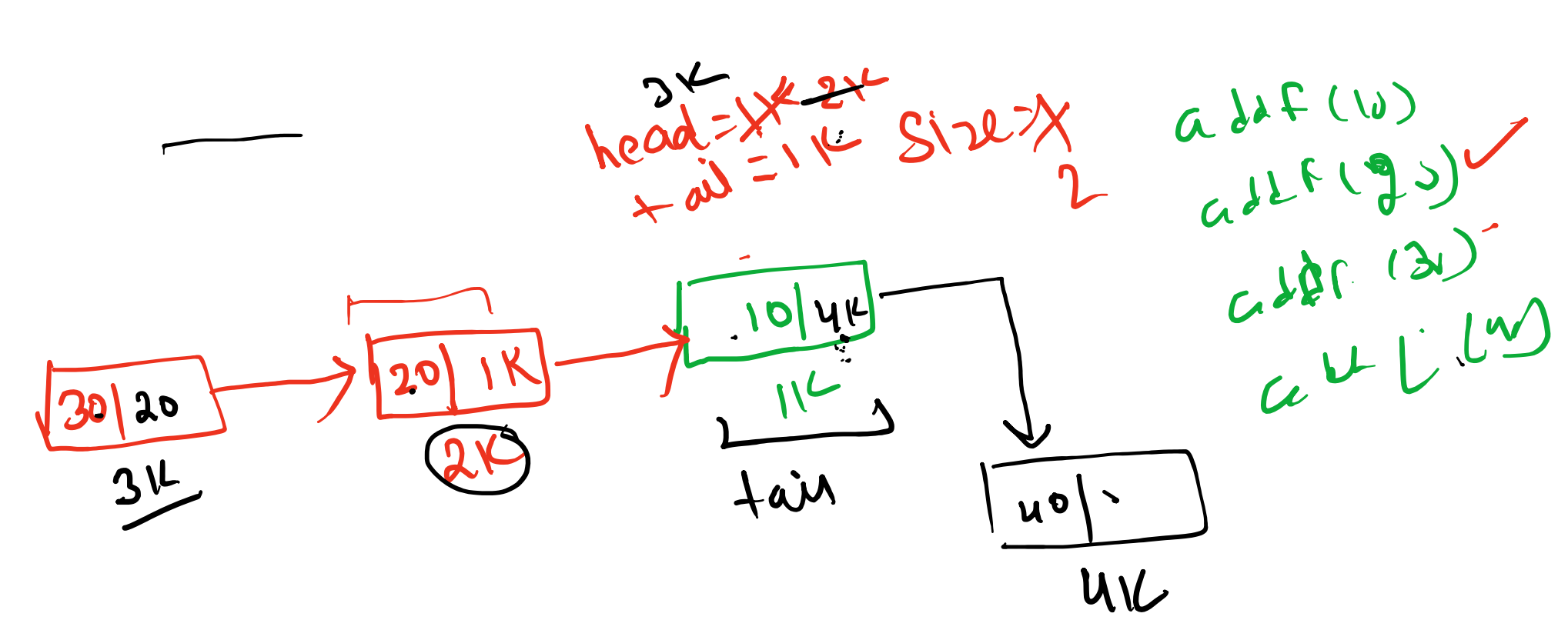


```
public void addlast(int item) {  
    if (size == 0) {  
        addfirst(item);  
    } else {  
        Node nn = new Node();  
        nn.val = item;  
        nn.next = null;  
        tail.next = nn;  
        tail = nn;  
        size++;  
    }  
}
```

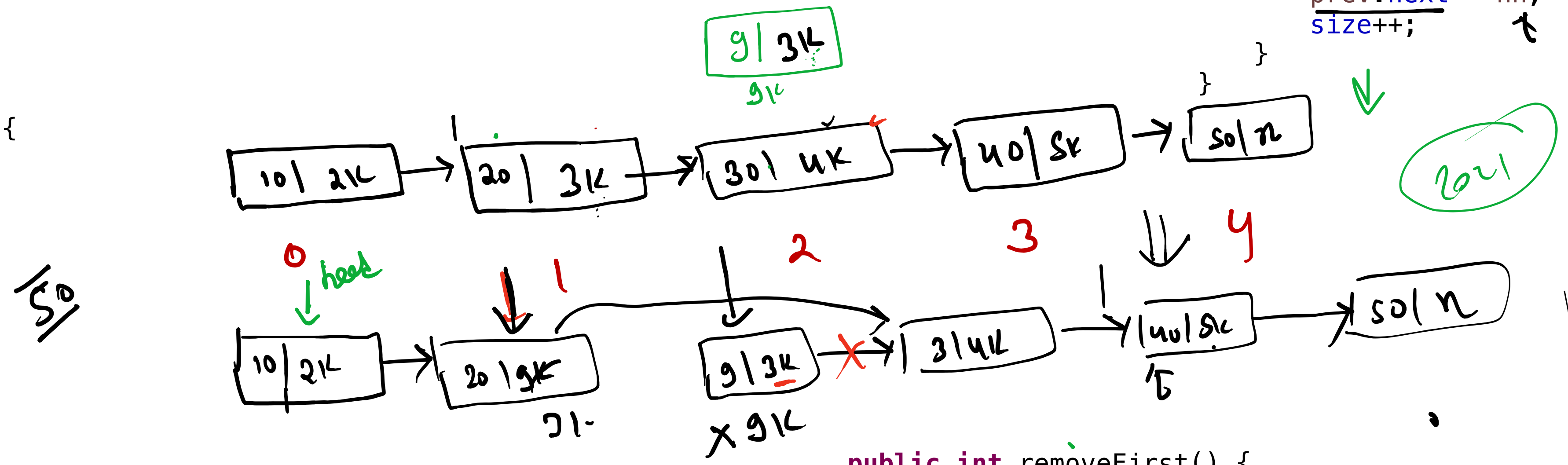


```
public void addfirst(int item) {  
    Node nn = new Node();  
    nn.val = item;  
    if (size == 0) {  
        head = nn;  
        tail = nn;  
        size++;  
    } else {  
        nn.next = head;  
        head = nn;  
        size++;  
    }  
}
```

```
public void addlast(int item) {  
    if (size == 0) {  
        addfirst(item);  
    } else {  
        Node nn = new Node();  
        nn.val = item;  
        nn.next = null;  
        tail.next = nn;  
        tail = nn;  
        size++;  
    }  
}
```



```
public void addatindex(int item, int k) {  
    if (k == 0) {  
        addfirst(item);  
    } else if (k == size) {  
        addlast(item);  
    } else {  
        Node prev = GetNode(k - 1);  
        Node nn = new Node();  
        nn.val = item;  
        nn.next = prev.next;  
        prev.next = nn;  
        size++;  
    }  
}
```



```
Node prev = GetNode(size - 2);  
int v = tail.val;  
tail = prev;  
tail.next = null;  
size--;  
return v;
```

```
public int removeFirst() {  
    int val = head.val;  
    if (size == 1) {  
        head = null;  
        tail = null;  
        size--;  
    } else {  
        head = head.next;  
        size--;  
    }  
    return val;  
}
```