```
int linklist_create(student **head);
int linklist_traverse(student *head);
int linklist_destroy(student *head);
```

```
int main()
{
    student *head = NULL;

    if (linklist_create(&head) == OK) {
        linklist_traverse(head);
        linklist_destroy(head);
    }
    else
        cout << "LinkList Create failed." << endl;

    return 0;
}
```

```
int linklist_create(student **head)
{
    student *p = NULL, *q = NULL;
    int i;

    for (i = 0; i < 5; i++) {
        if (i > 0)
            q = p;
        p = new(nothrow) student; //思考：为什么不能用malloc
        if (p == NULL)
            return ERROR;   //注:此处未释放之前的链表节点，就借助操作系统来释放（非标用法）
        if (i == 0)
            *head = p; //head指向第1个结点
        else
            q->next = p;
        cout << "请输入第" << i + 1 << "个人的基本信息" << endl;
        cin >> p->name >> p->num >> p->sex; //键盘输入基本信息
        p->next = NULL;
    }
    return OK;
}
```

1、链表的建立是否正确？
2、为什么遍历不成功？
3、链表的销毁是否成功了？
4、程序是否有内存丢失情况发生？如果有，发生在哪个函数被调用的阶段？
5、只允许修改某个函数的参数类型/该函数的声明，并在该函数内部改动一个地方，main 函数调用处改动一个地方，使程序正确，应该如何改动？（一共修改四处，且不允许用引用，不允许改动函数返回类型）

1. 建立过程是正确的。（除了未释放之前节点那一部分）

2. linklist_create 中head 是形参，单向传值，函数里改动并不会修改 main 中 head 的值，导致没有将头指针信息传给 main，之后的遍历也就失败了。

3. 失败了，因为头指针传的都是NULL进去。

4. 有，linklist_create 那里

5. 改动：见左边截图

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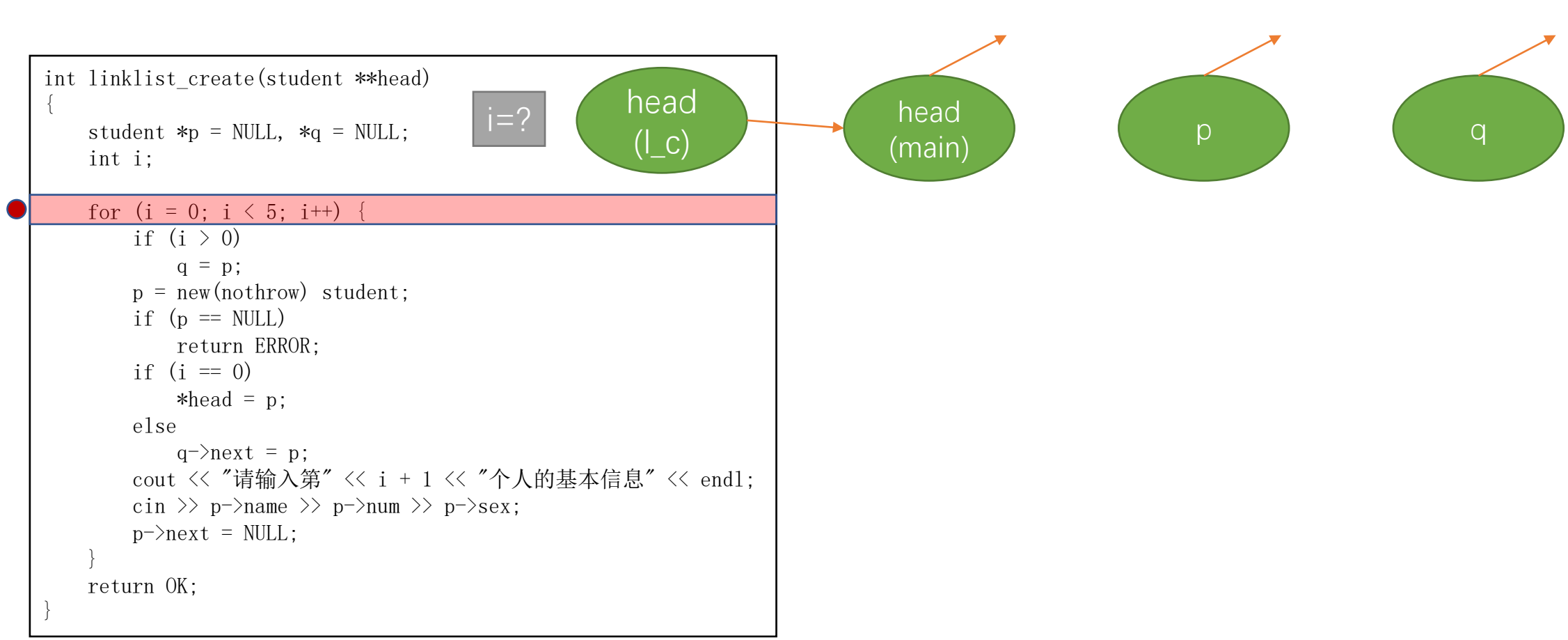
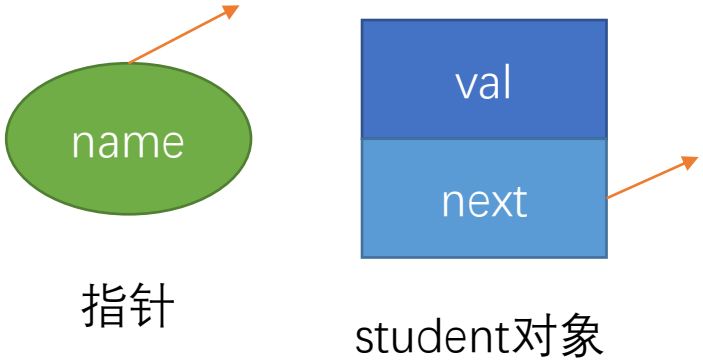
int linklist_create(student **head)
{
    student *p = NULL, *q = NULL;
    int i;

    for (i = 0; i < 5; i++) {
        if (i > 0)
            q = p;
        p = new(nothrow) student;
        if (p == NULL)
            return ERROR;
        if (i == 0)
            *head = p;
        else
            q->next = p;
        cout << "请输入第" << i + 1 << "个人的基本信息" << endl;
        cin >> p->name >> p->num >> p->sex;
        p->next = NULL;
    }
    return OK;
}
```



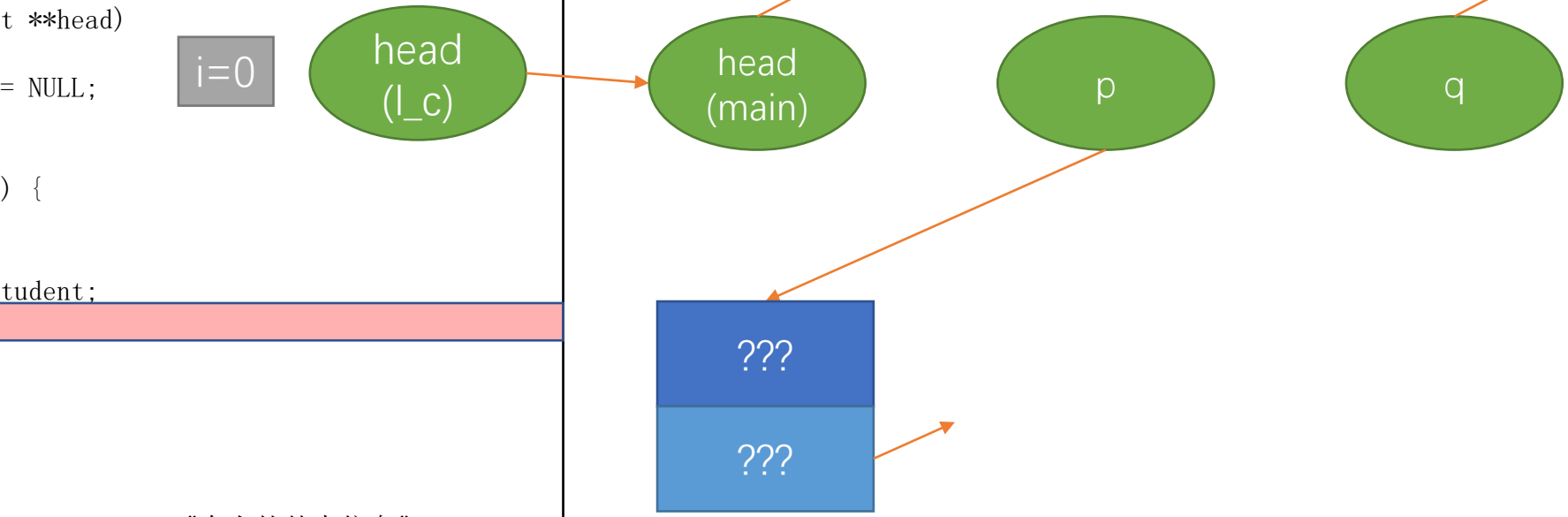


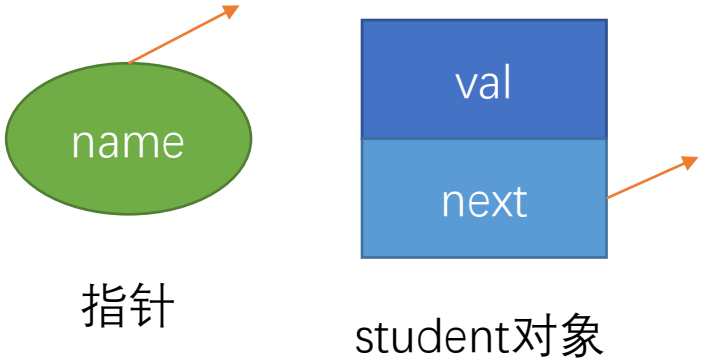
指针

student对象

```
int linklist_create(student **head)
{
    student *p = NULL, *q = NULL;
    int i;

    for (i = 0; i < 5; i++) {
        if (i > 0)
            q = p;
        p = new(nothrow) student;
        if (p == NULL)
            return ERROR;
        if (i == 0)
            *head = p;
        else
            q->next = p;
        cout << "请输入第" << i + 1 << "个人的基本信息" << endl;
        cin >> p->name >> p->num >> p->sex;
        p->next = NULL;
    }
    return OK;
}
```





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            q->next = p;
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        cin >> p->name >> p->num >> p->sex;
        p->next = NULL;
    }
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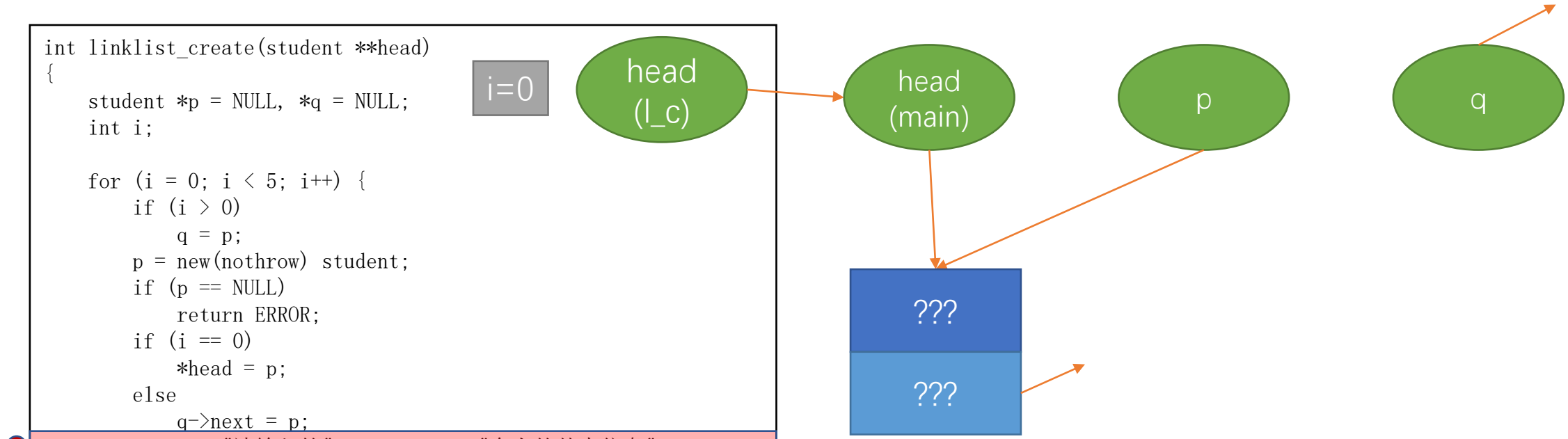

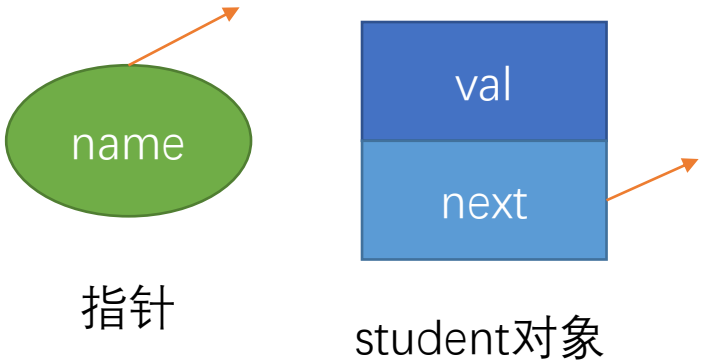

指针

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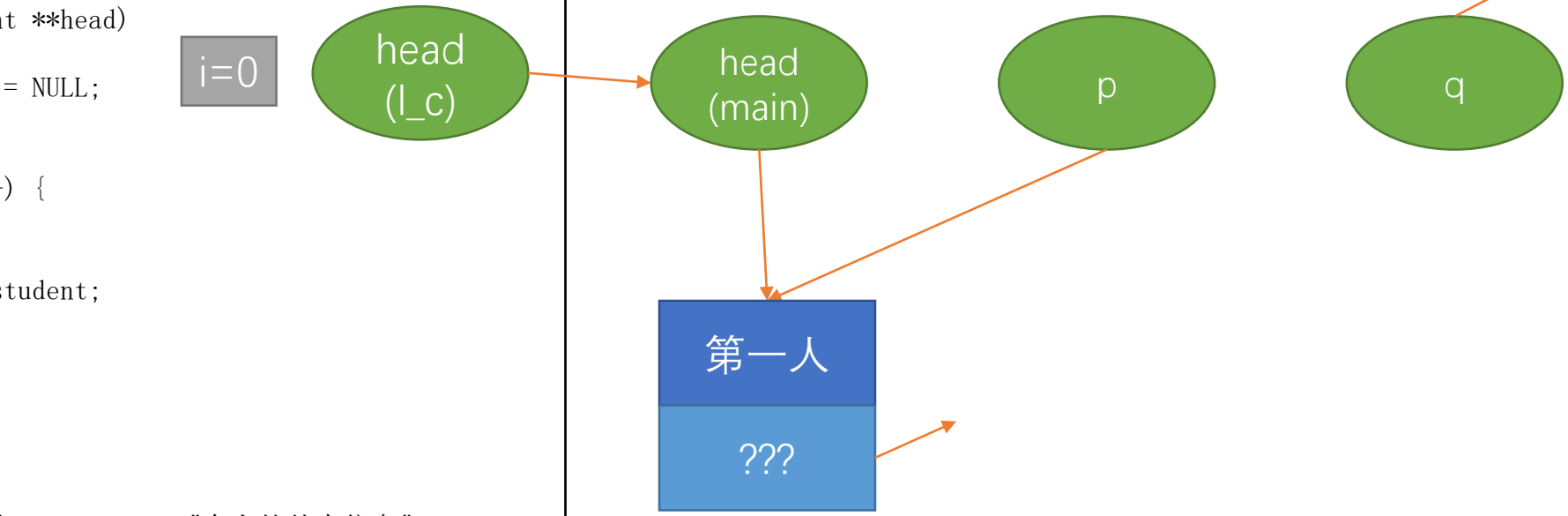
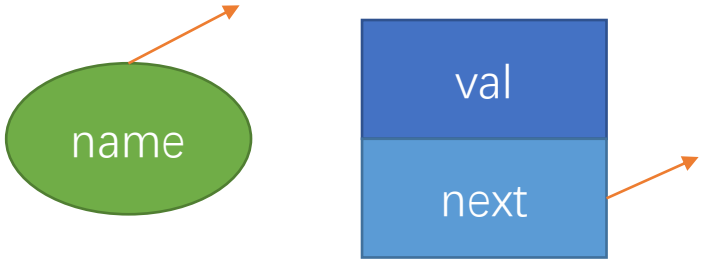
        cout << "请输入第" << i + 1 << "个人的基本信息" << endl;
        cin >> p->name >> p->num >> p->sex;
        p->next = NULL;
    }
    return OK;
}
```





指针

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            q->next = p;
        cout << "请输入第" << i + 1 << "个人的基本信息" << endl;
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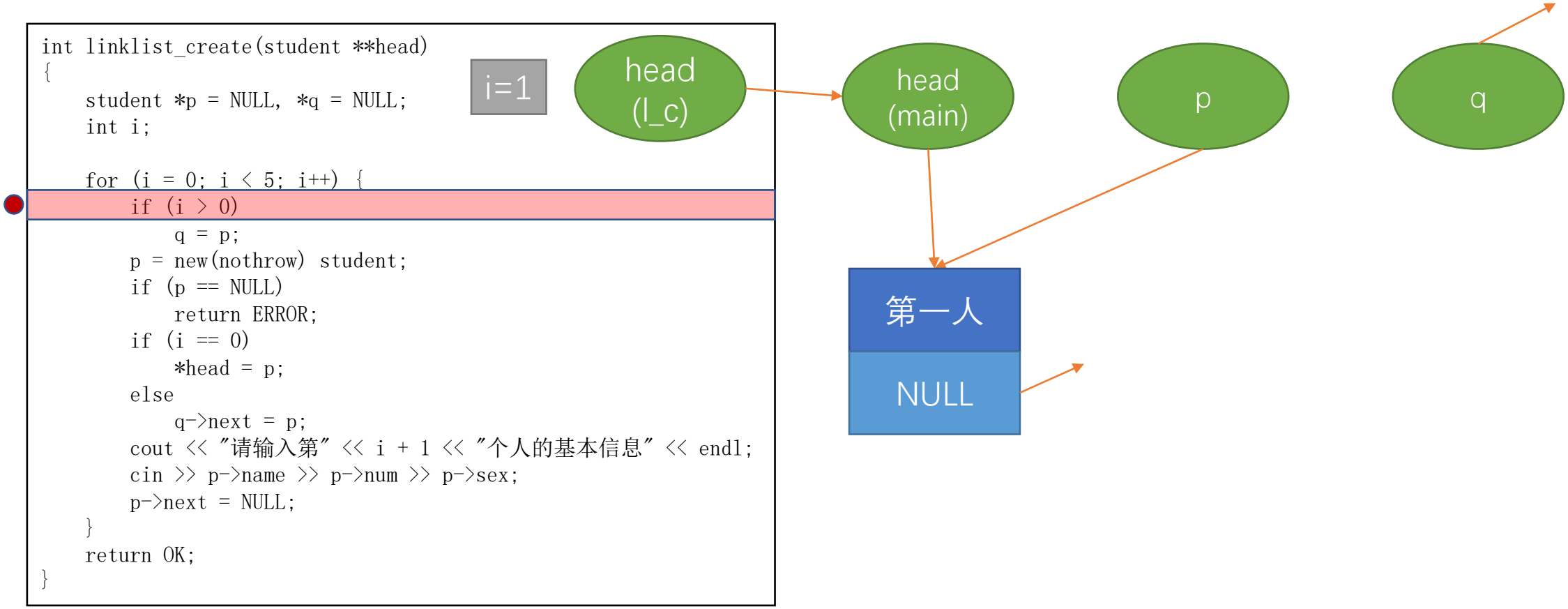
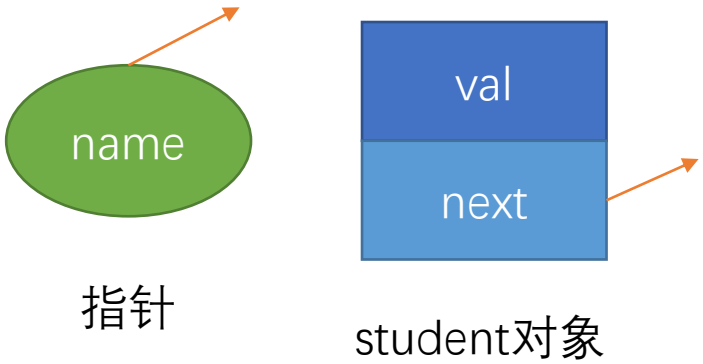
        p->next = NULL;
    }
    return OK;
}
```





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            *head = p;
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            q->next = p;
        cout << "请输入第" << i + 1 << "个人的基本信息" << endl;
        cin >> p->name >> p->num >> p->sex;
        p->next = NULL;
    }
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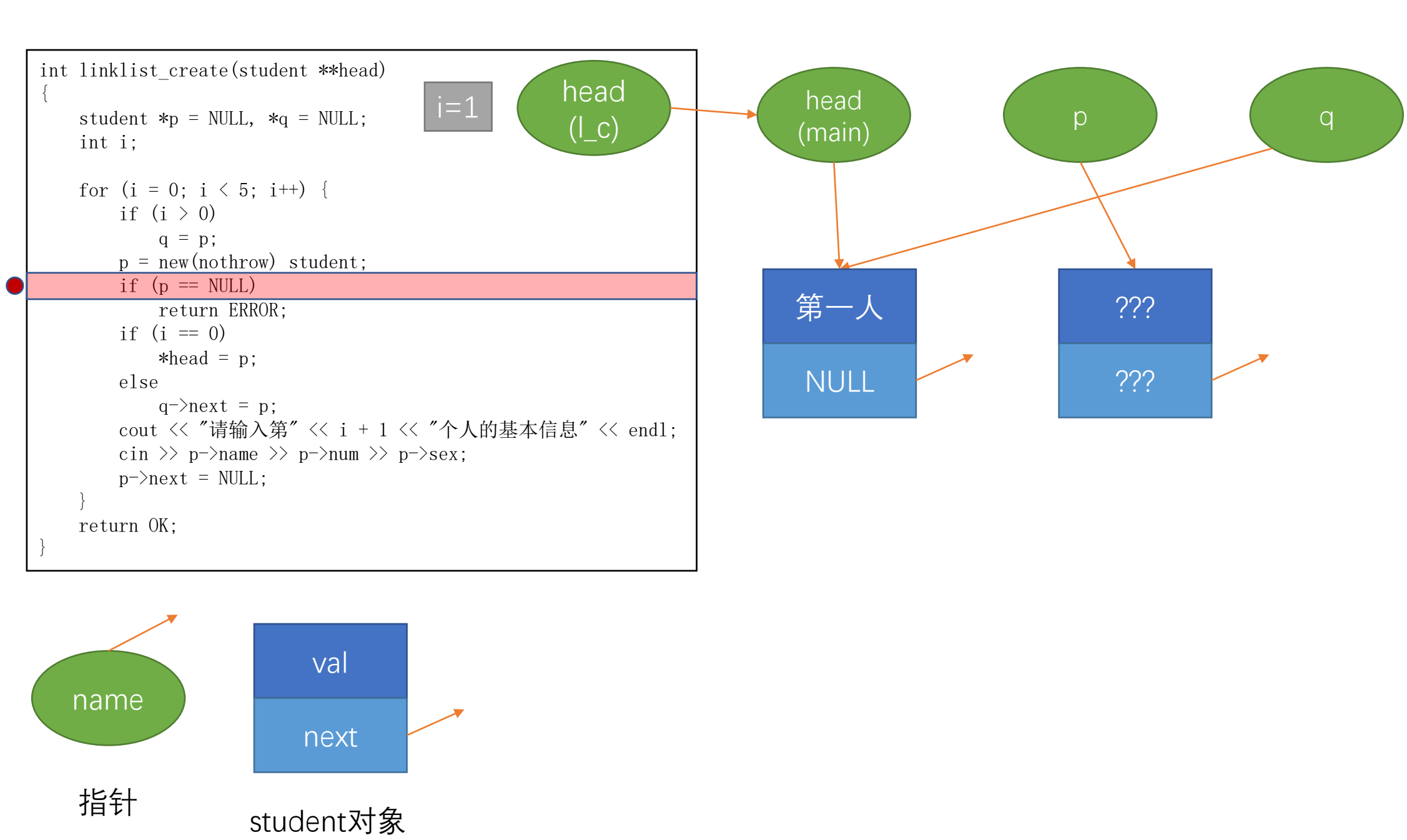
}
```



指针

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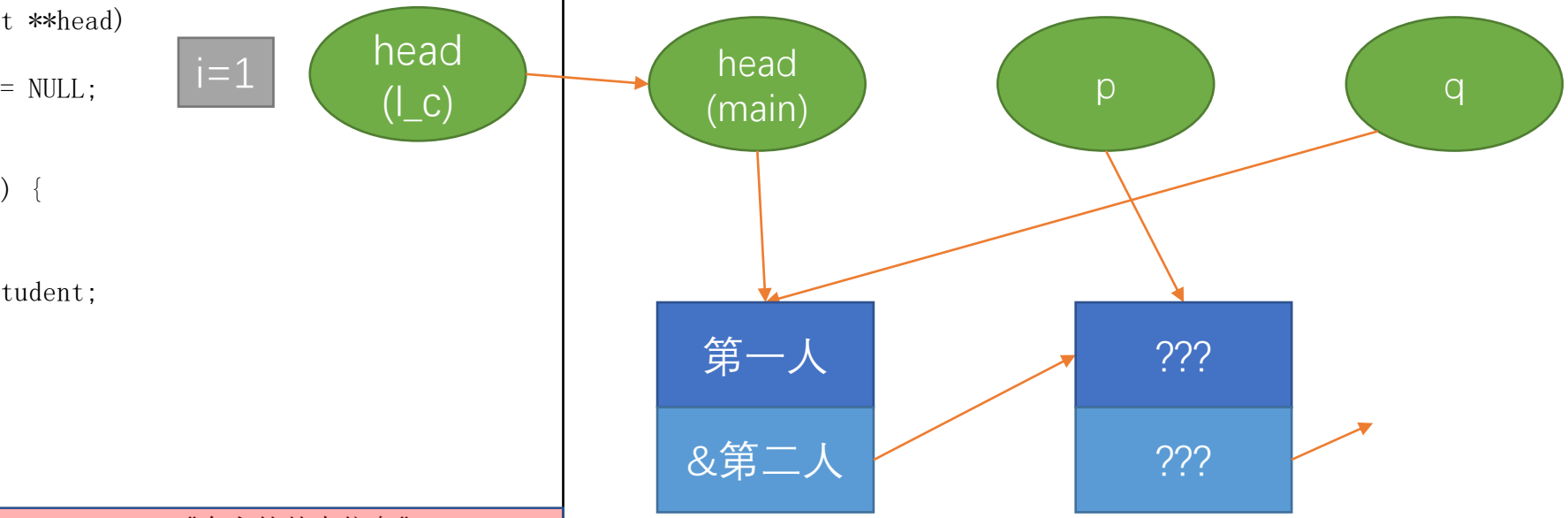
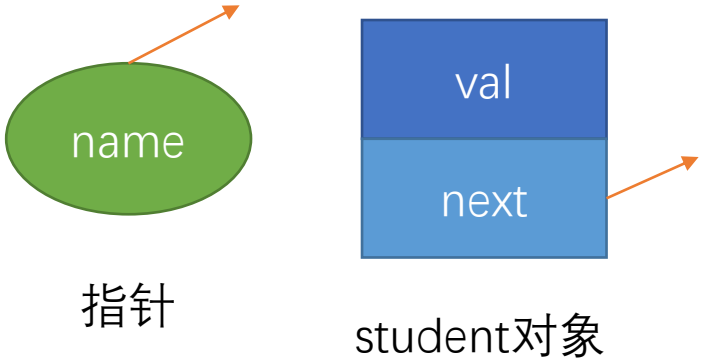
        p->next = NULL;
    }
    return OK;
}
```

i=1





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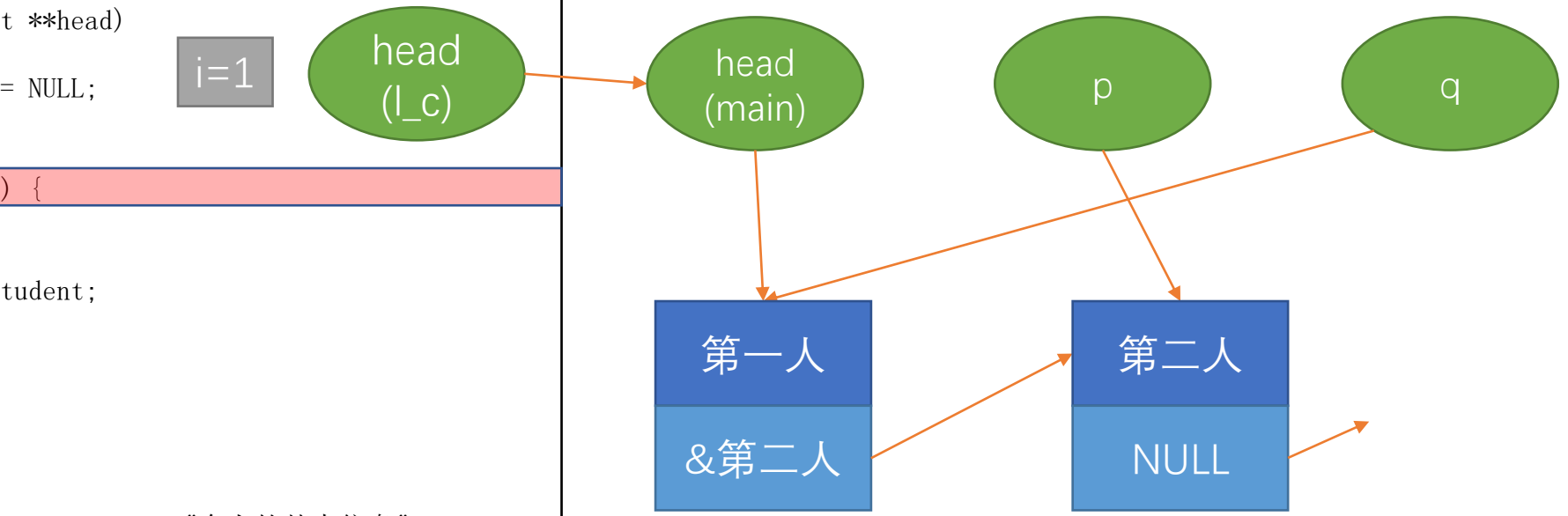

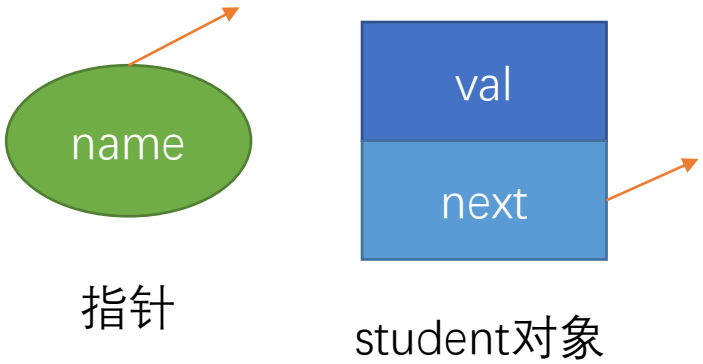

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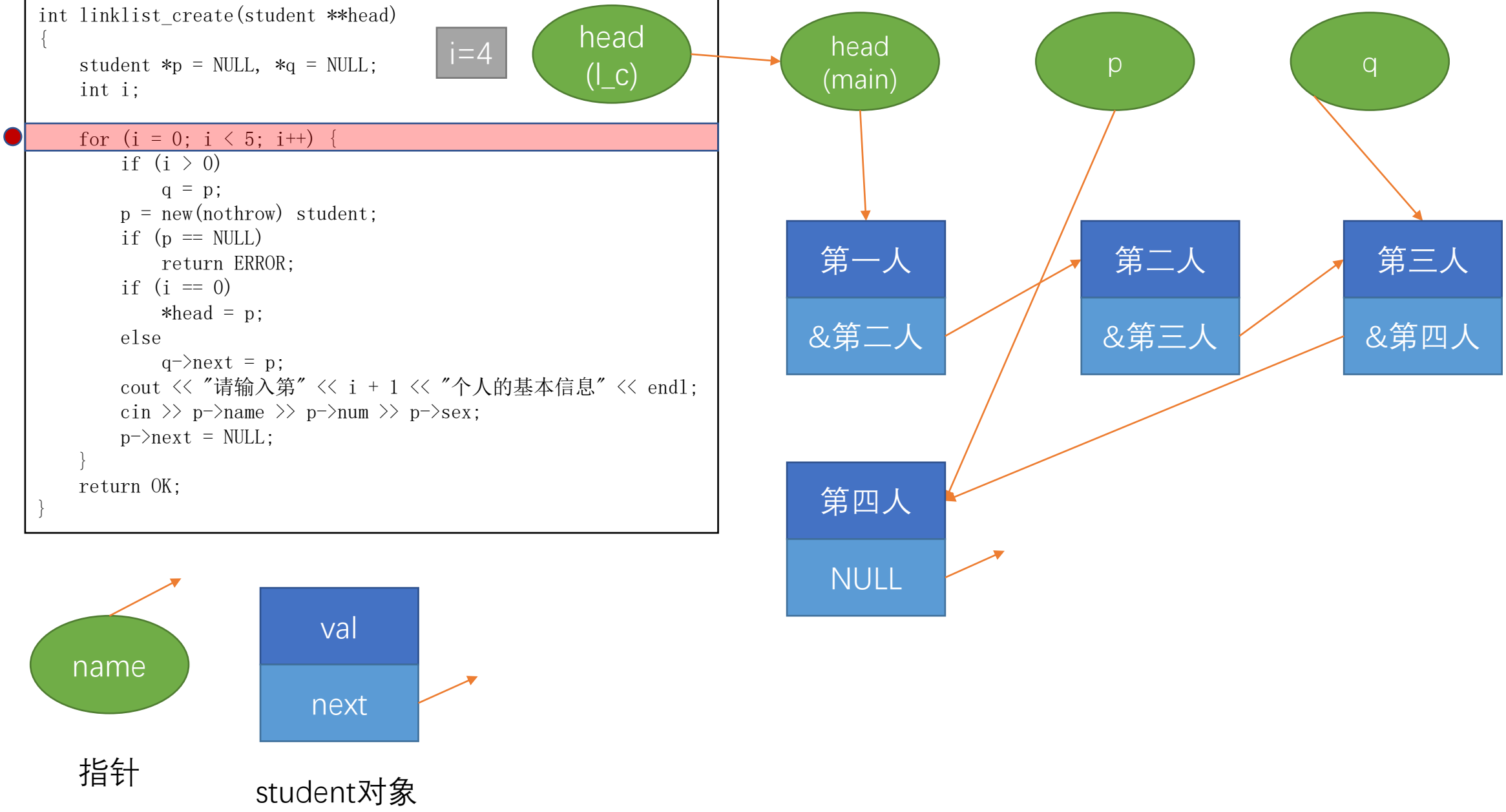

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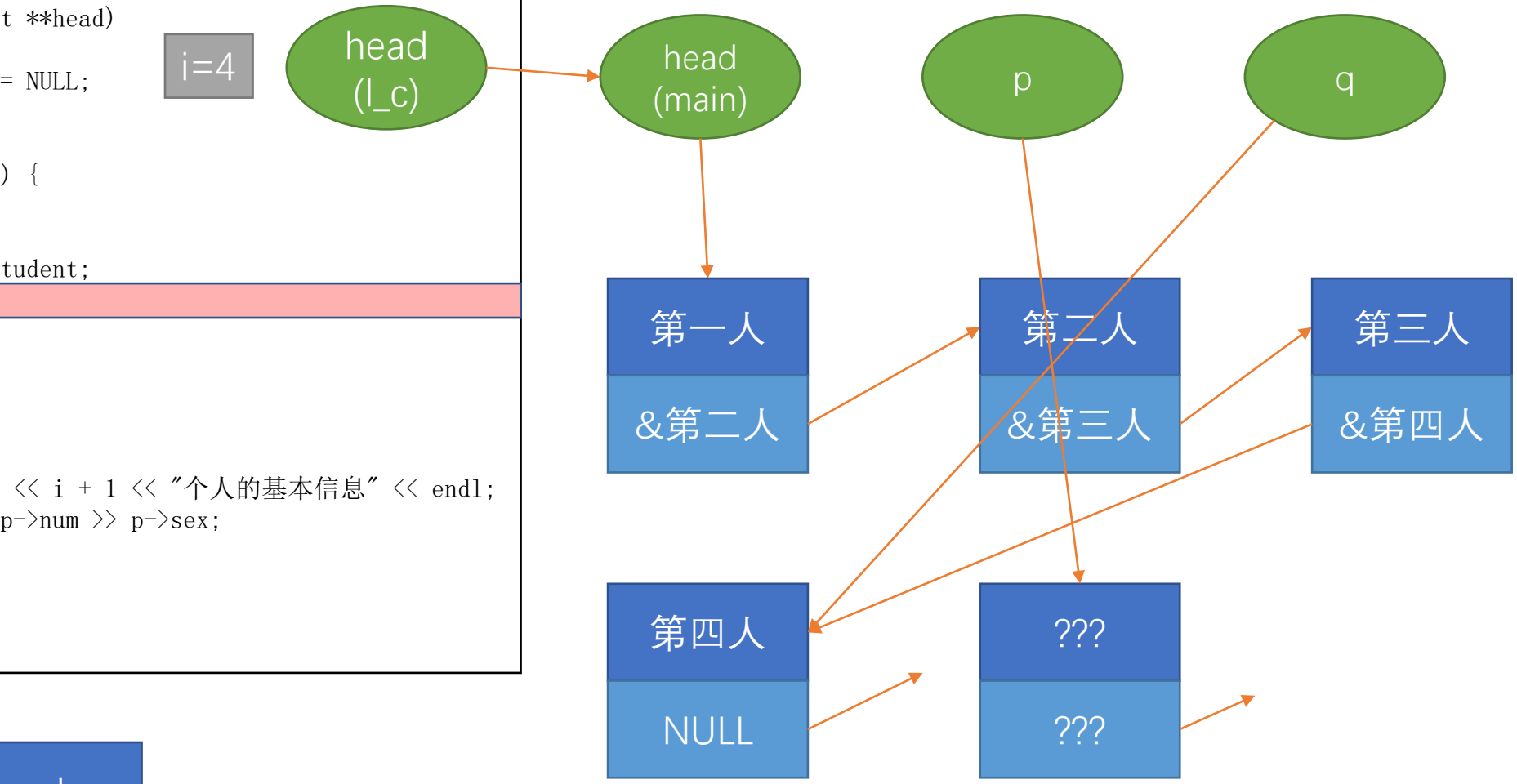

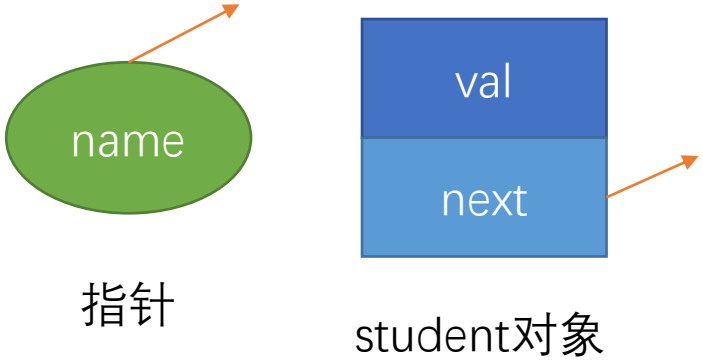

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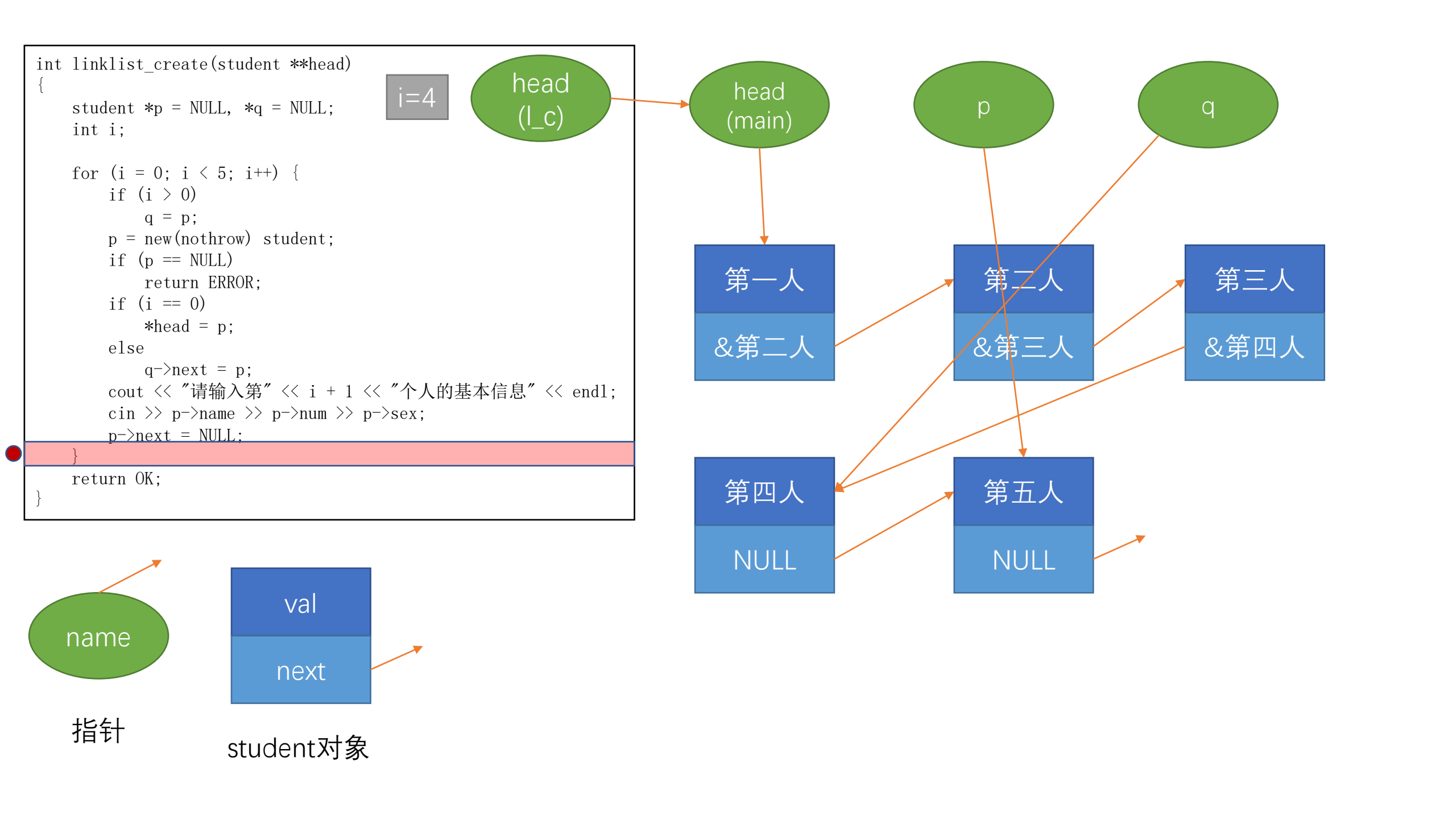

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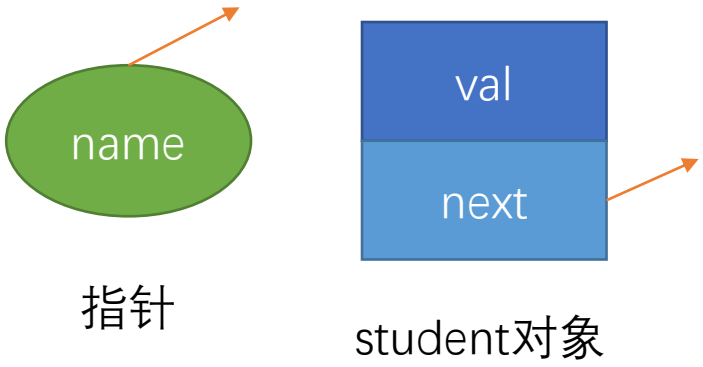
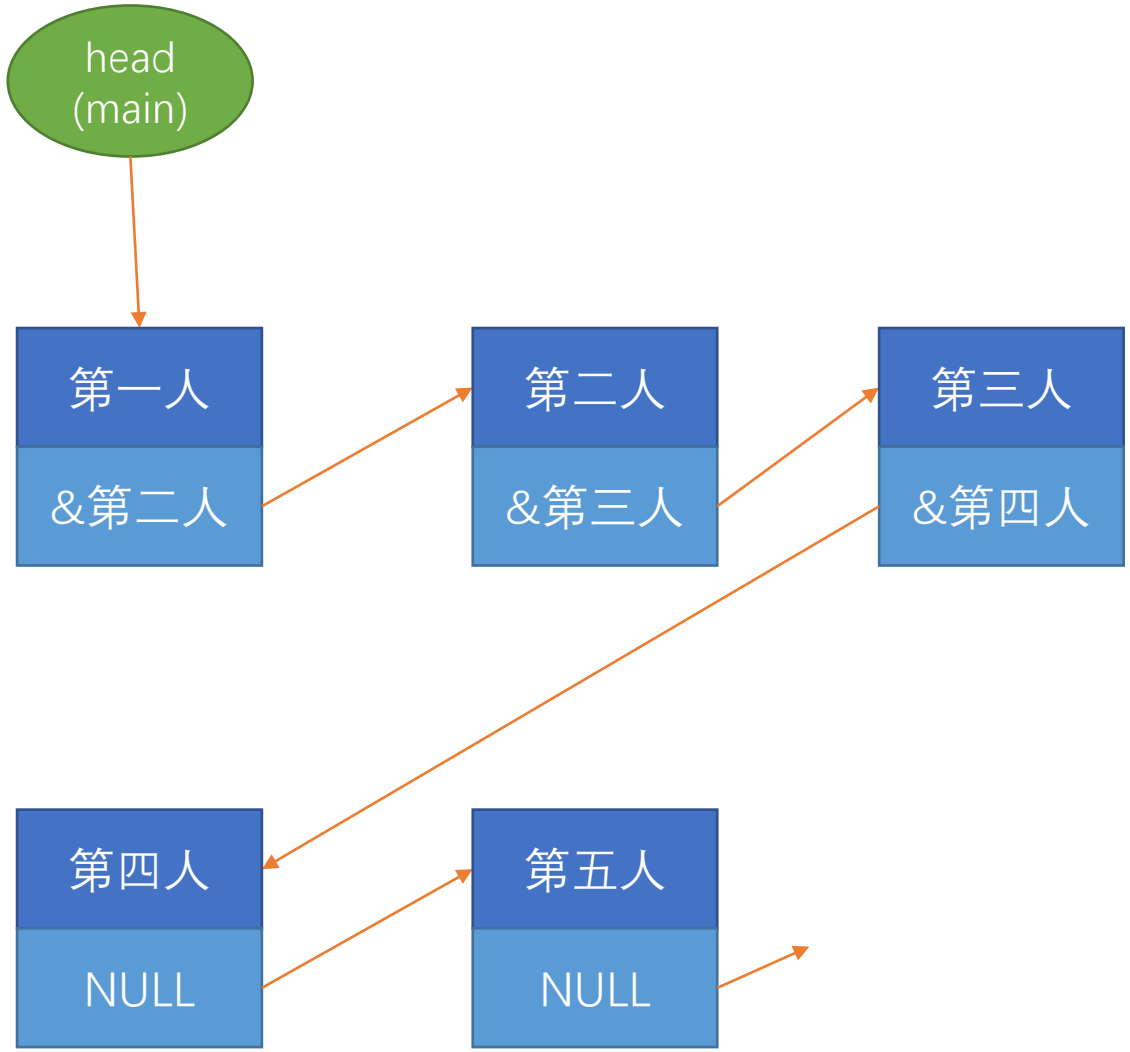


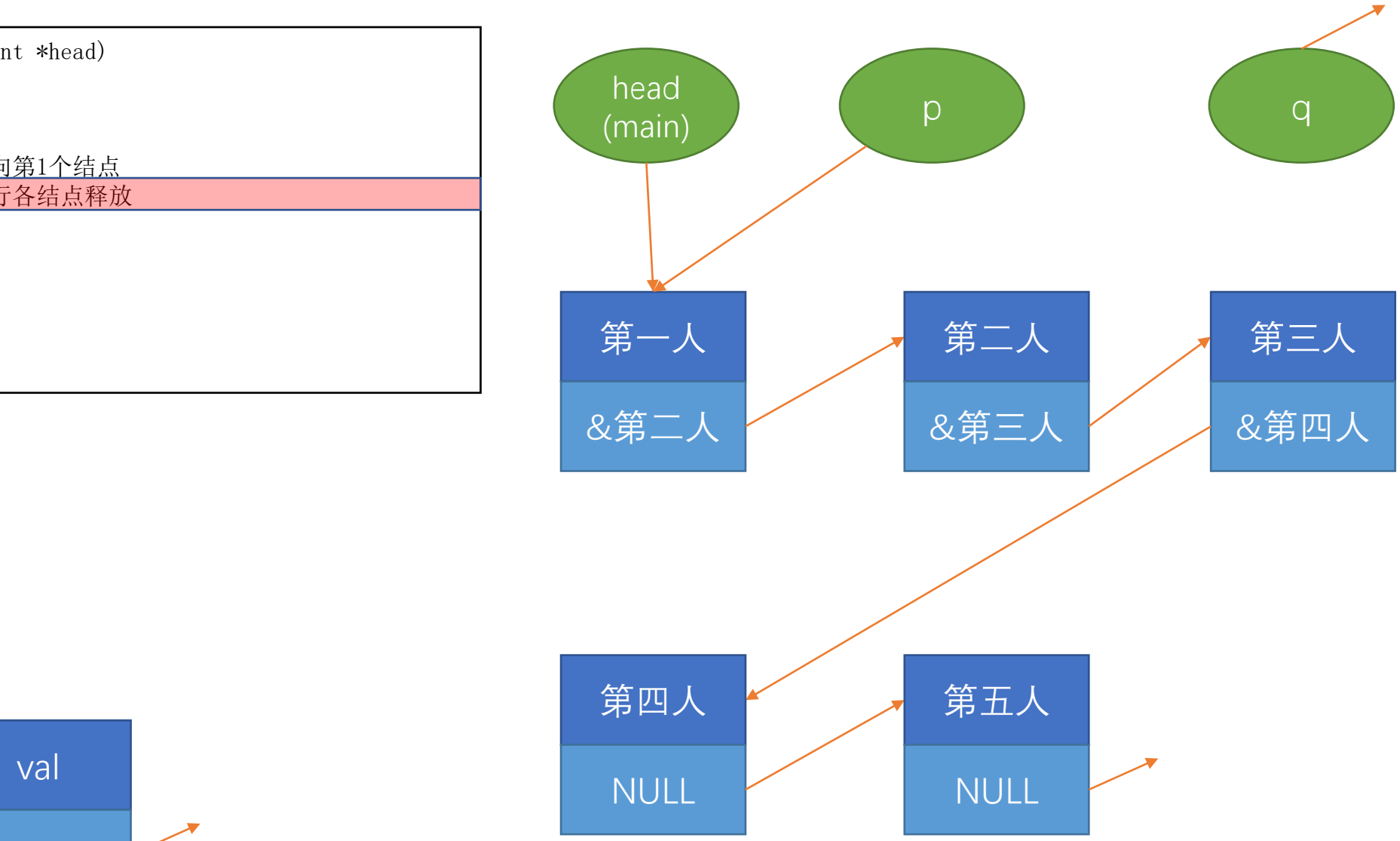
指针

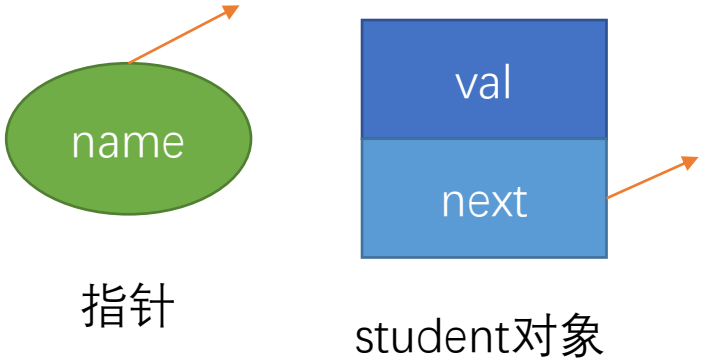
student对象



```
int linklist_destroy(student *head)
{
    student *p, *q;

    p = head; //p复位，指向第1个结点
    while (p) {  //循环进行各结点释放
        q = p->next;
        delete p;
        p = q;
    }
    return OK;
}
```





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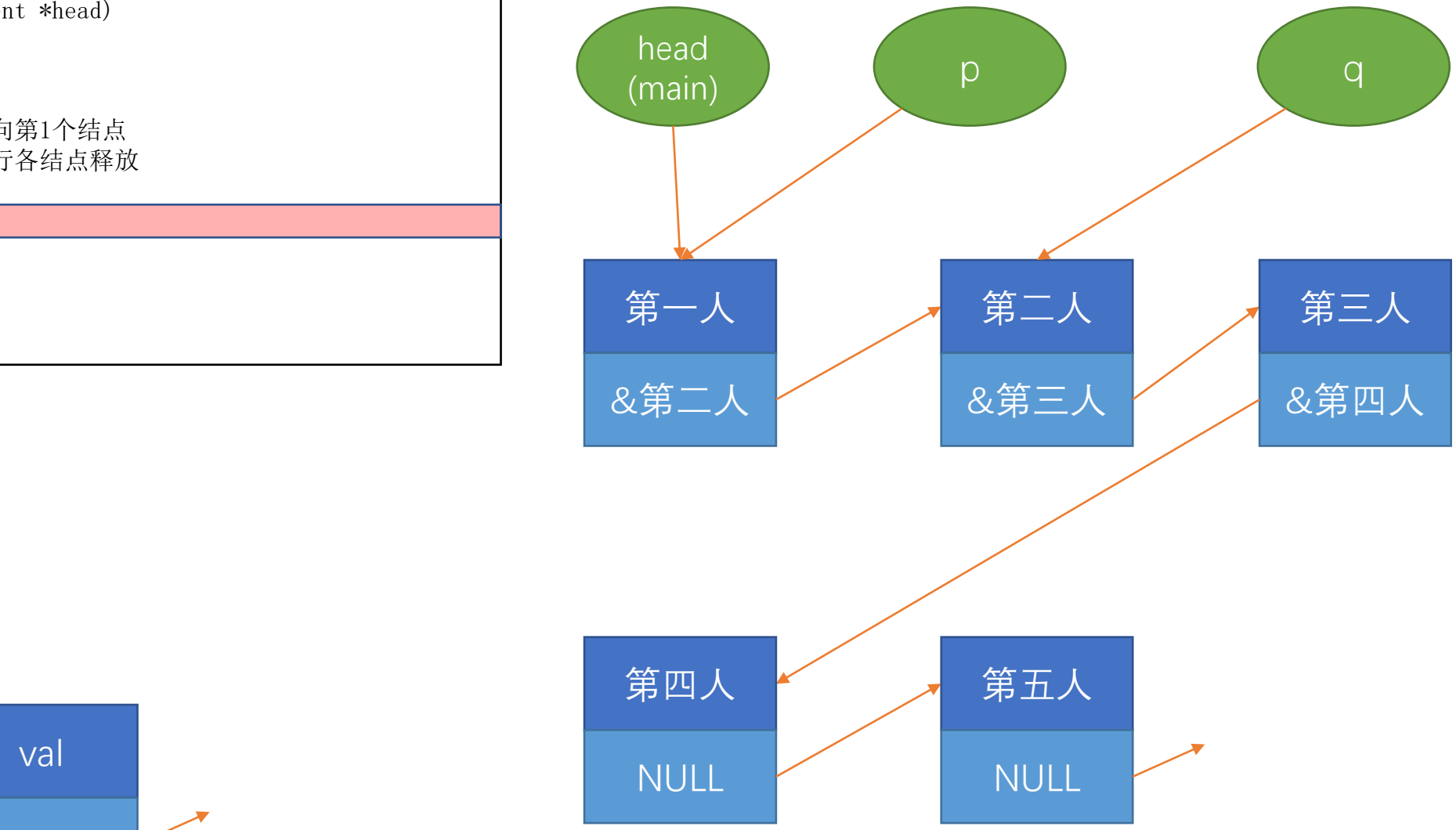

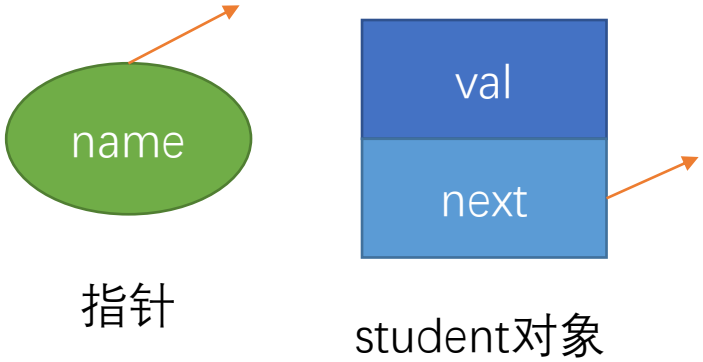

指针

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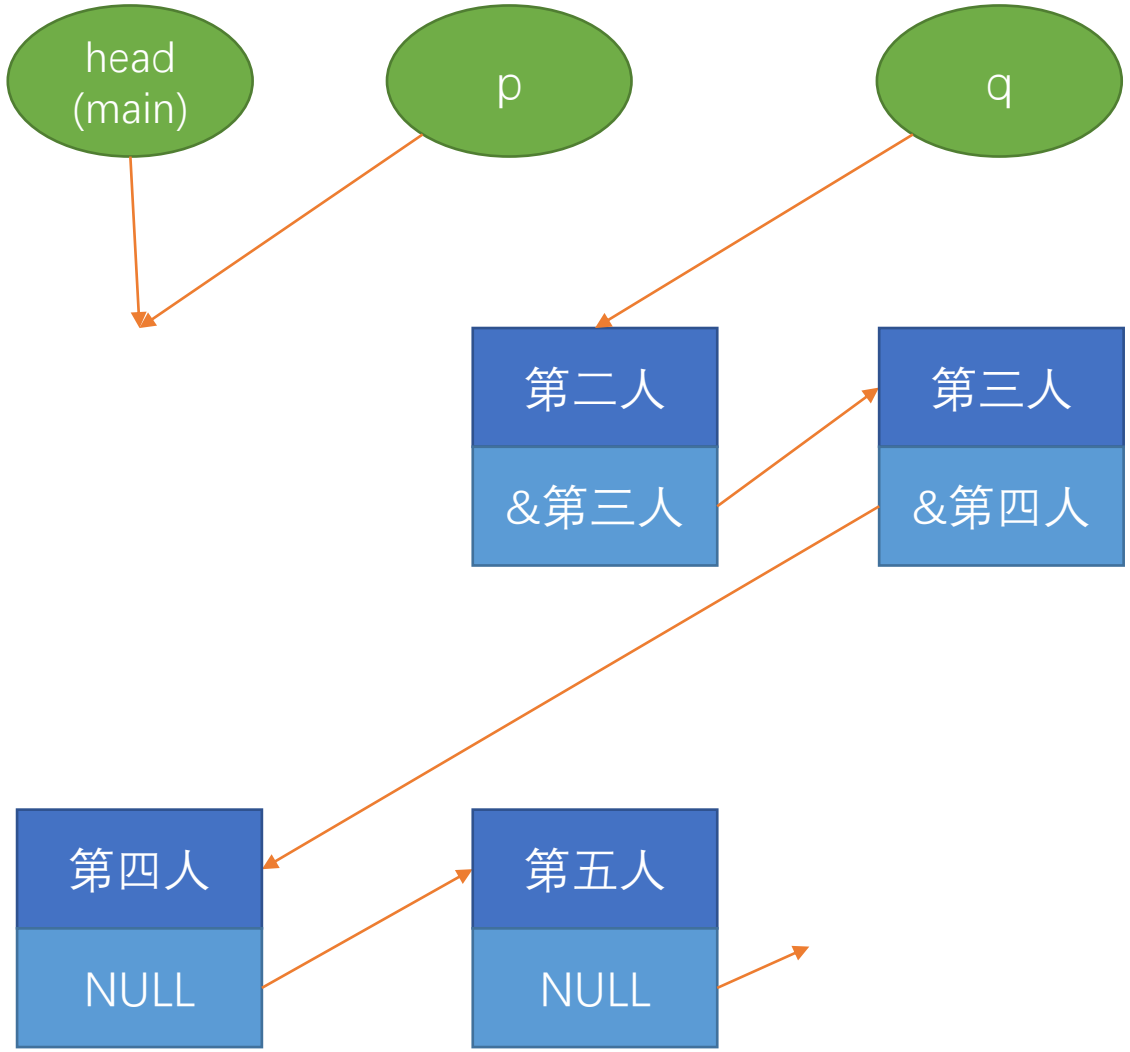

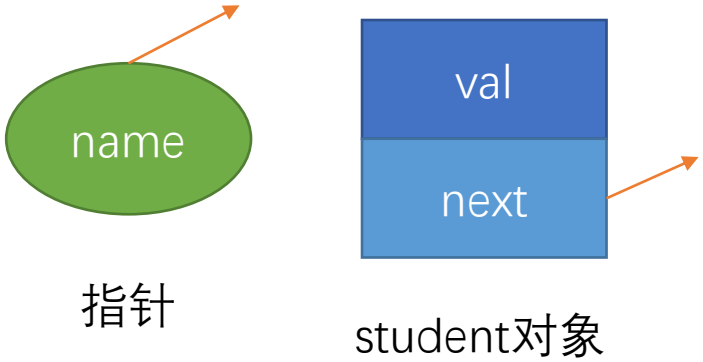

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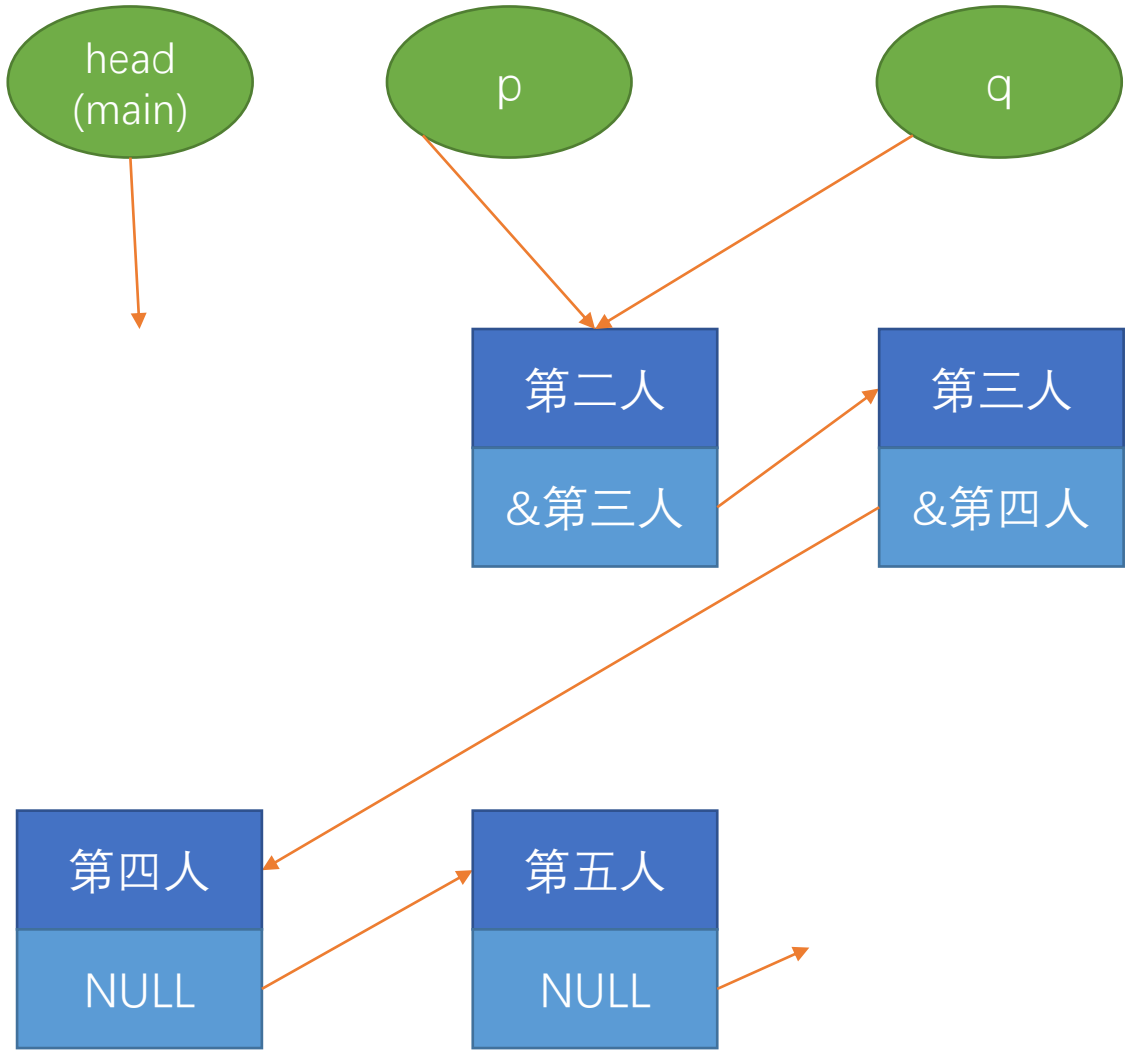

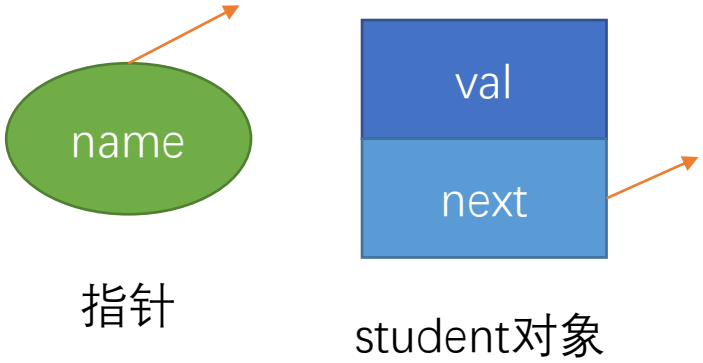

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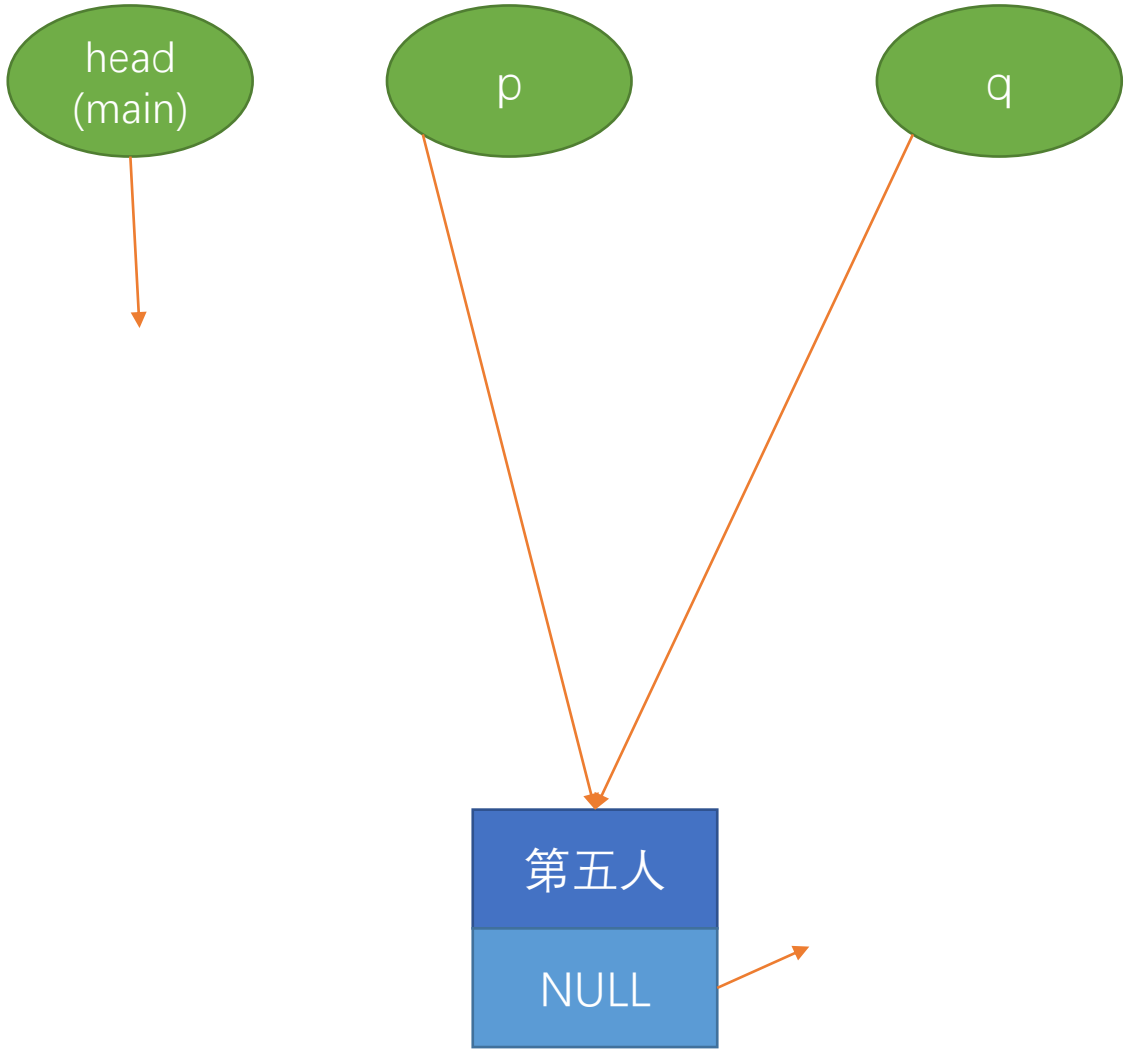

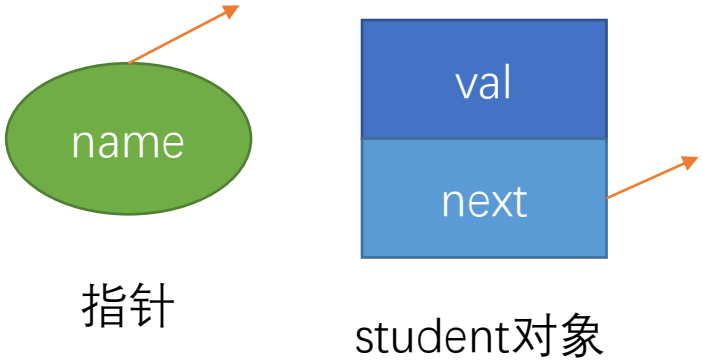

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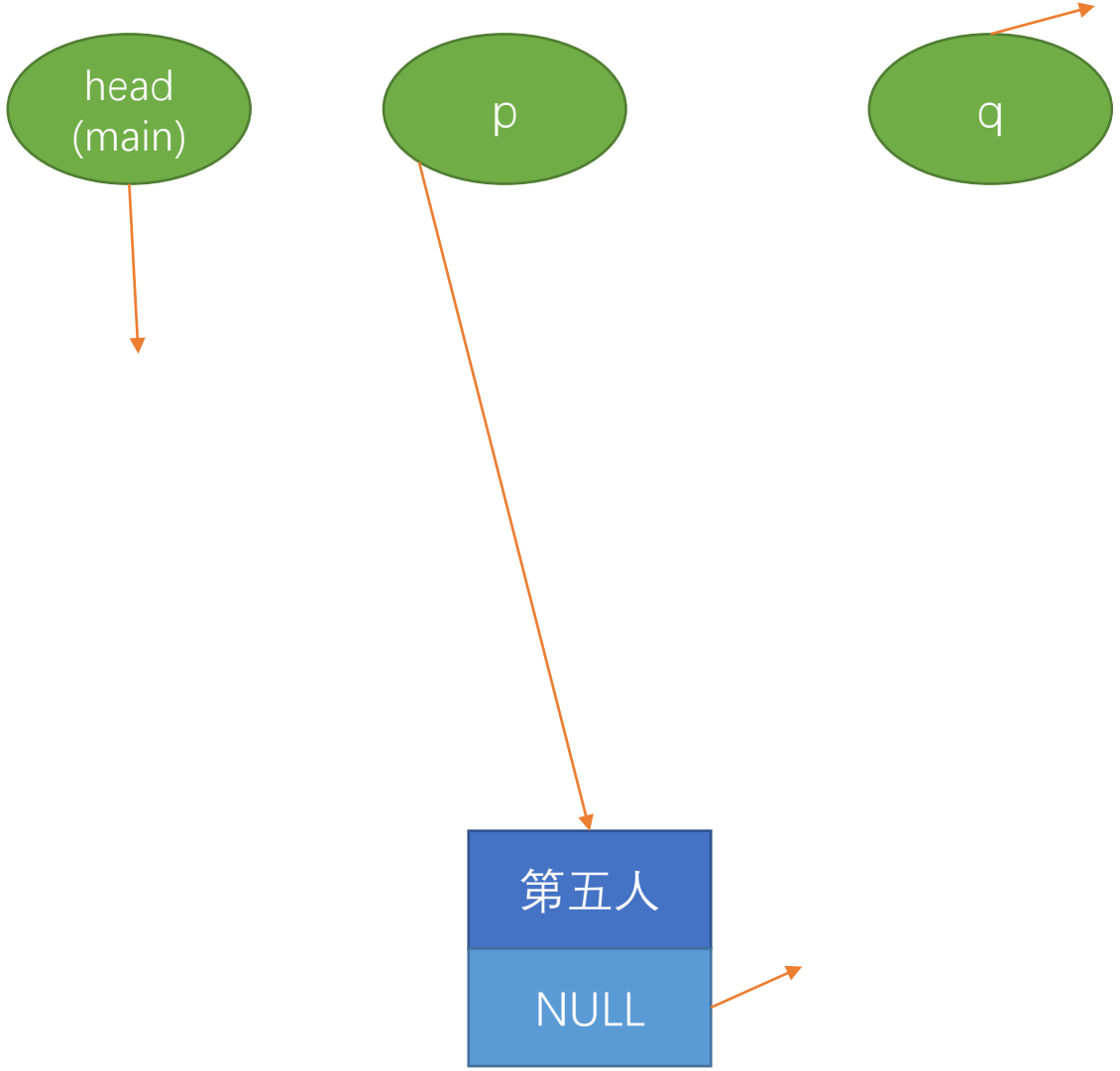

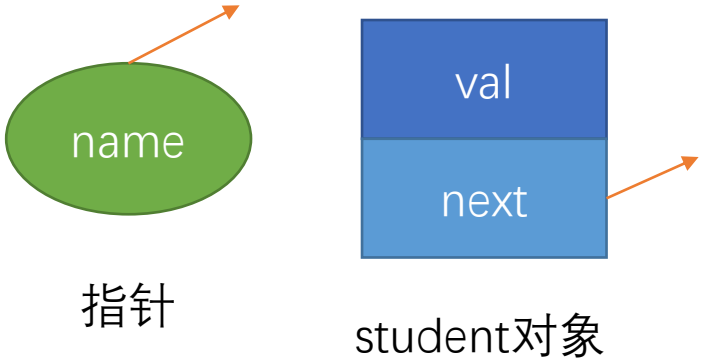

指针

student对象

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int linklist_destroy(student *head)
{
    student *p, *q;

    p = head; //p复位，指向第1个结点
    while (p) {  //循环进行各结点释放
        q = p->next;
        delete p;
        p = q;
    }
    return OK;
}
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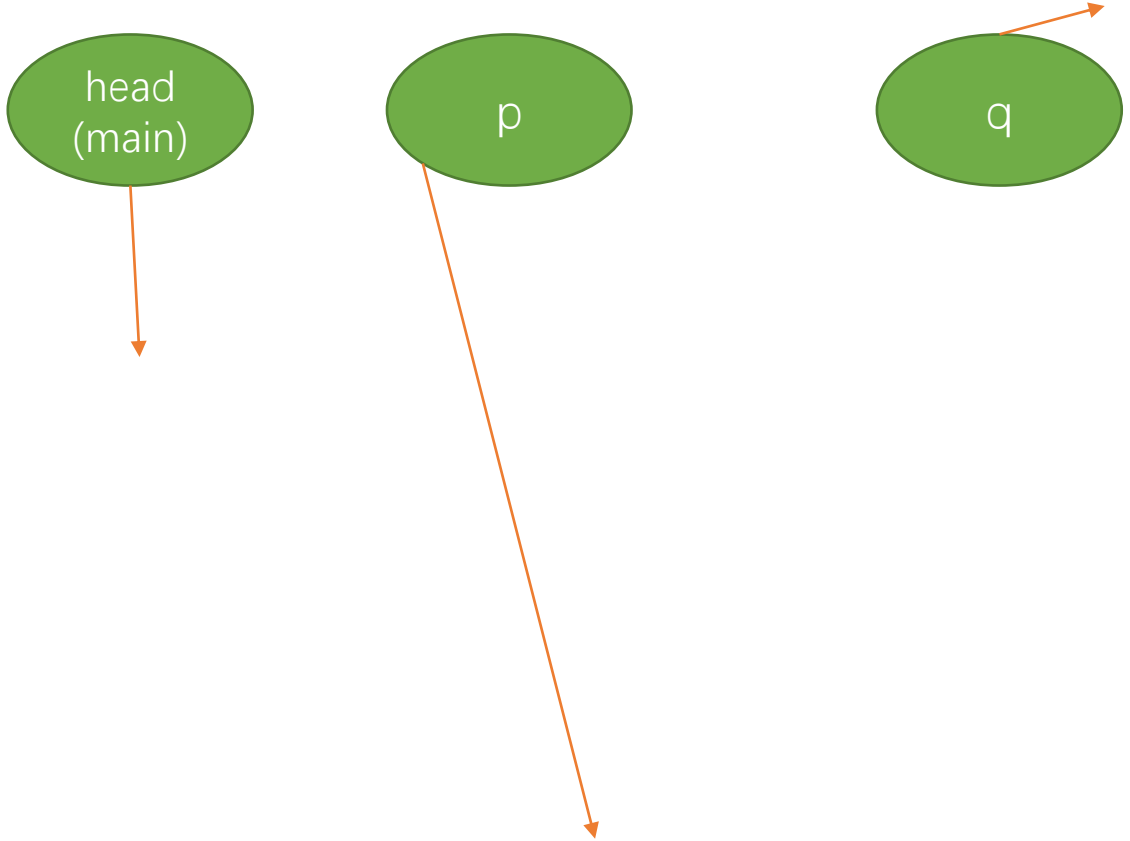

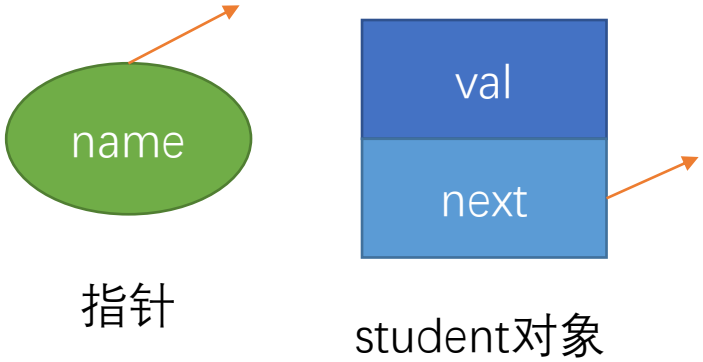

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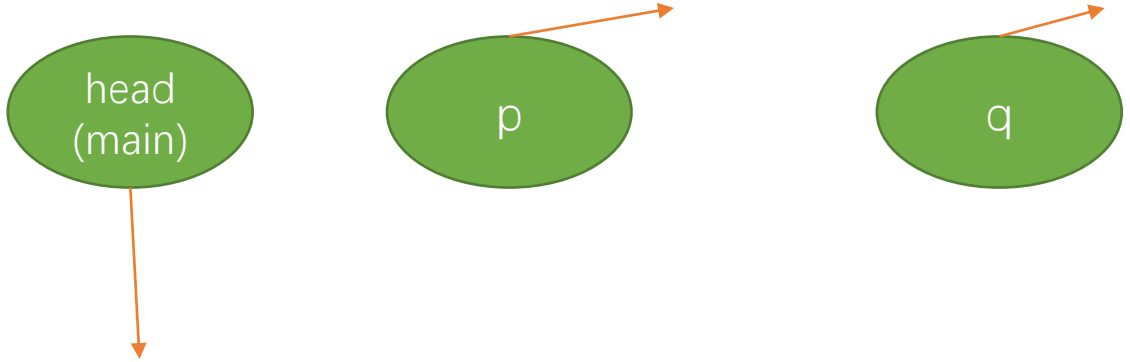

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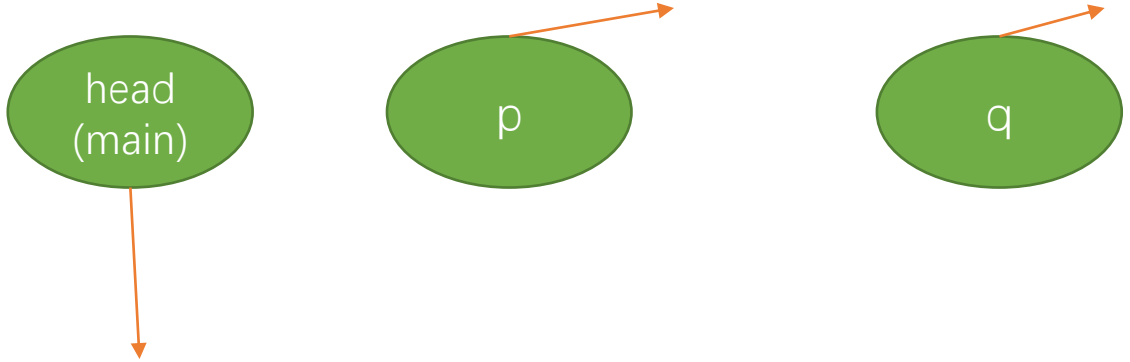

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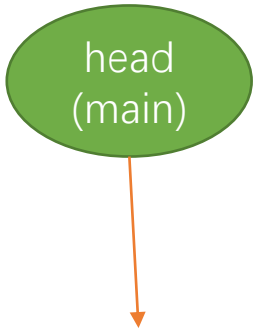
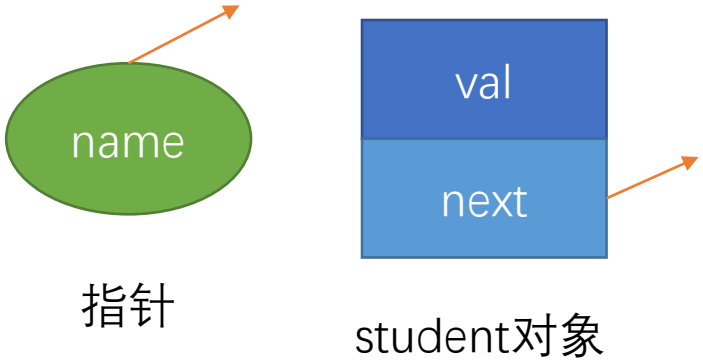


（遍历过程类似）



指针

student对象