

Initialize Dynamically by Pointing Sentinel to Itself

Let's write a routine for initialization:

Given a pointer to the **head** of the list,

```
void dl_init (double_list_t* head)
{
    head->prev = head->next = head;
}
```

point **prev** and the **next** fields back to the **head**.

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List Insertion Requires the Head and the New Element

To **insert** an element into a list, we **need**

- a **pointer** to the **list head** and
- a **pointer** to the **new element**.

For example, we might write:

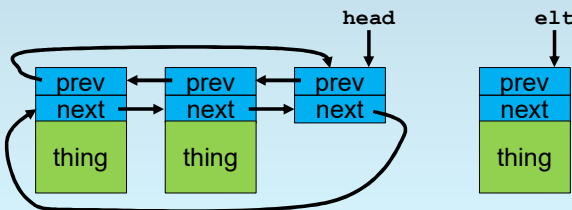
```
void dl_insert (double_list_t* head,
               double_list_t* elt);
```

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Structures for Insertion Include List and Element

```
void dl_insert (double_list_t* head,
               double_list_t* elt);
```

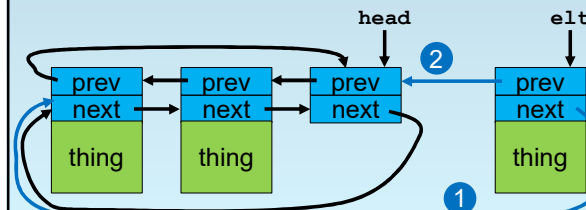
So we have...



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First Two Insertion Steps Change New Element

```
elt->next = head->next; // step 1
elt->prev = head;       // step 2
```



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