



Computer Science 50

Introduction to Computer Science I

Harvard College

Week 6

David J. Malan
malan@post.harvard.edu

Singly Linked Lists

```
typedef struct _node
{
    int n;
    struct _node *next;
}
node;
```

see
list1.{c,h}

Singly Linked Lists

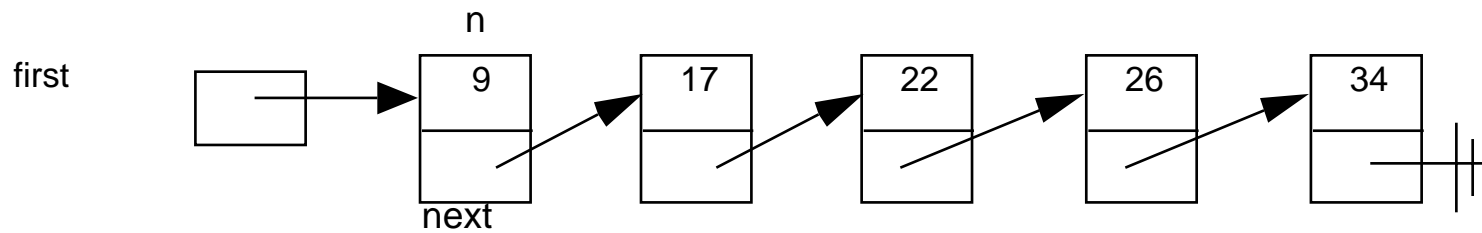
```
typedef struct
{
    int id;
    char *name;
    char *house;
}
student;
```

```
typedef struct _node
{
    student *student;
    struct _node *next;
}
node;
```

see
list2.{c,h}

Singly Linked Lists

Representation



Singly Linked Lists

Traversal

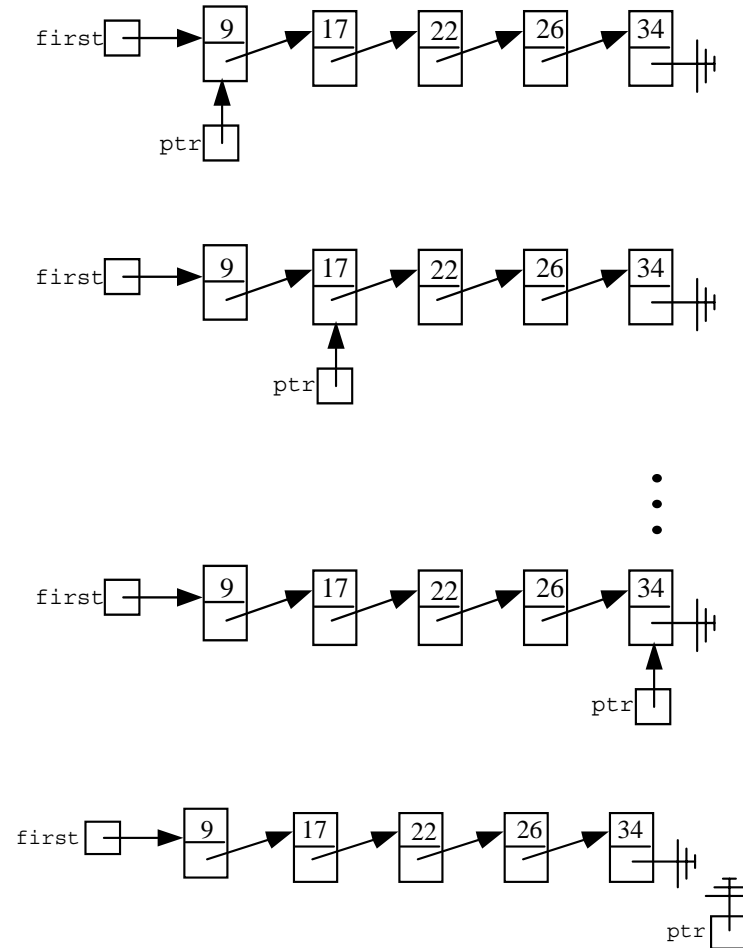
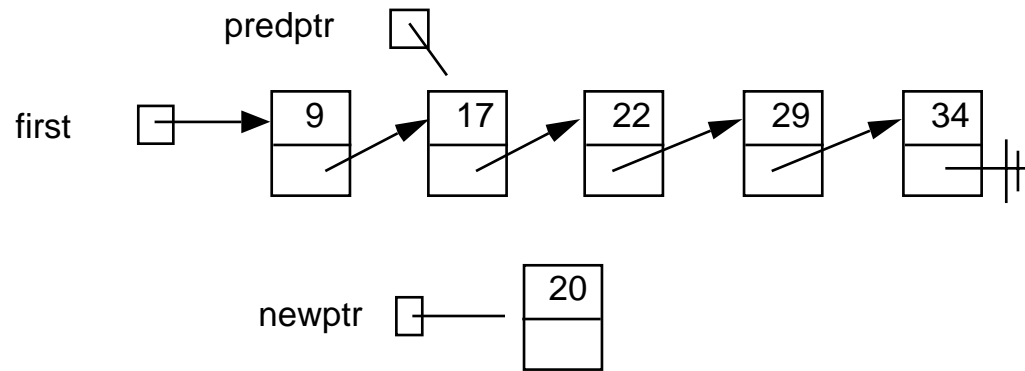


Figure from <http://cs.calvin.edu/books/c++/ds/1e/>.

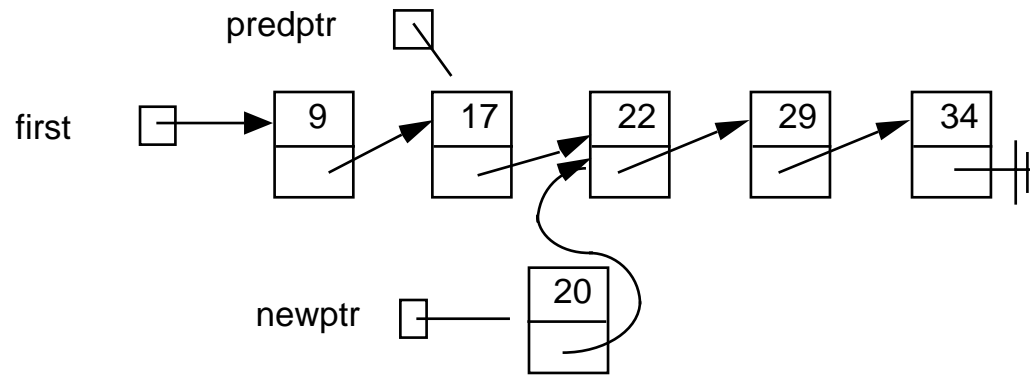
Singly Linked Lists

Insertion in Middle: Step 1



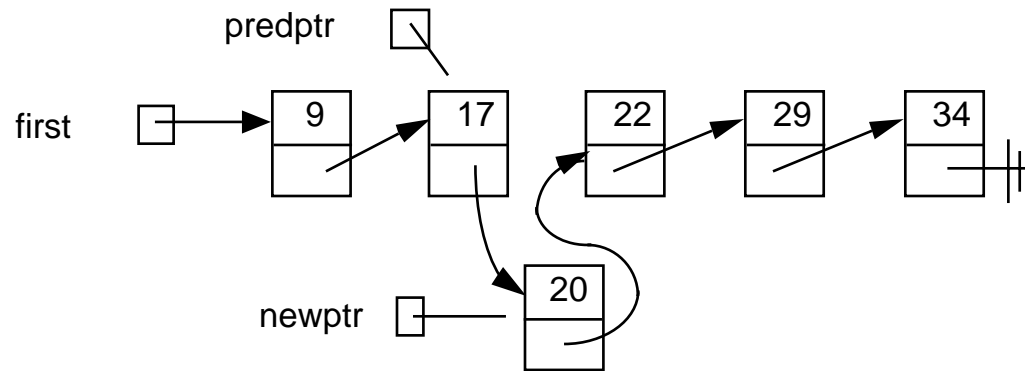
Singly Linked Lists

Insertion in Middle: Step 2



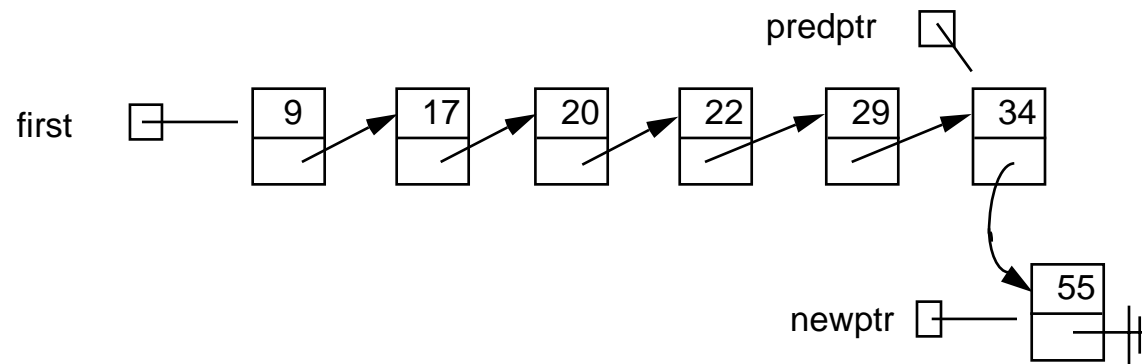
Singly Linked Lists

Insertion in Middle: Step 3



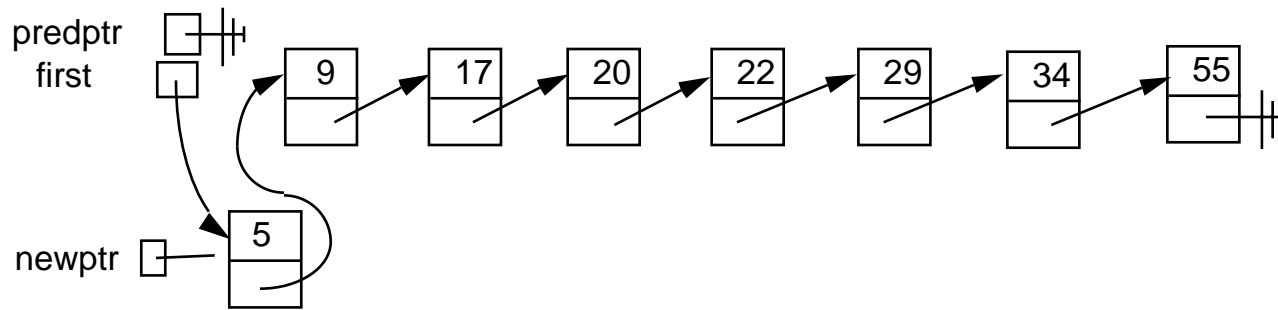
Singly Linked Lists

Insertion at Tail



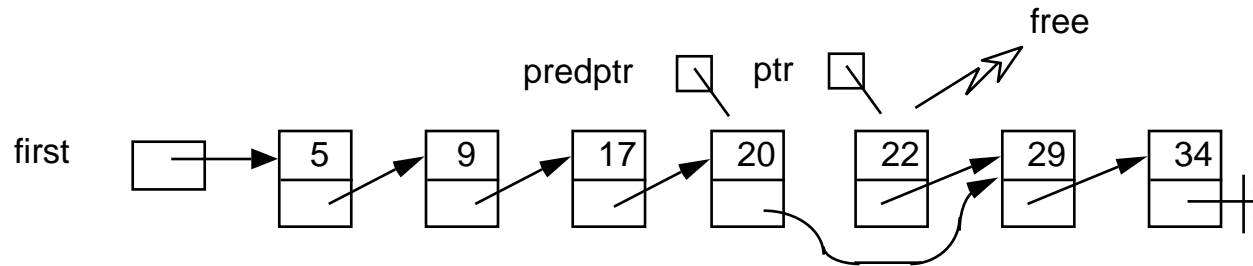
Singly Linked Lists

Insertion at Head



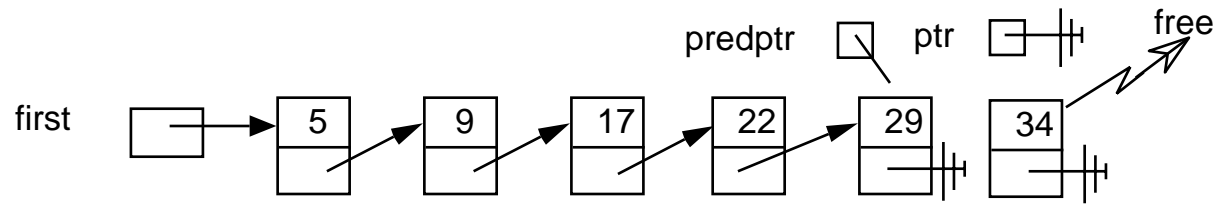
Singly Linked Lists

Deletion from Middle



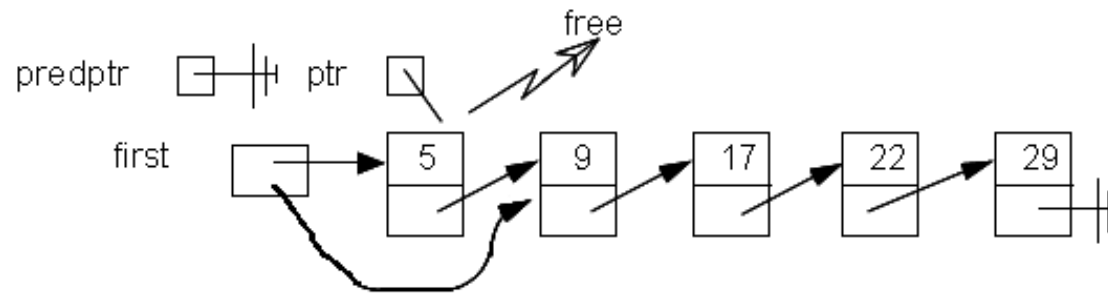
Singly Linked Lists

Deletion from Tail



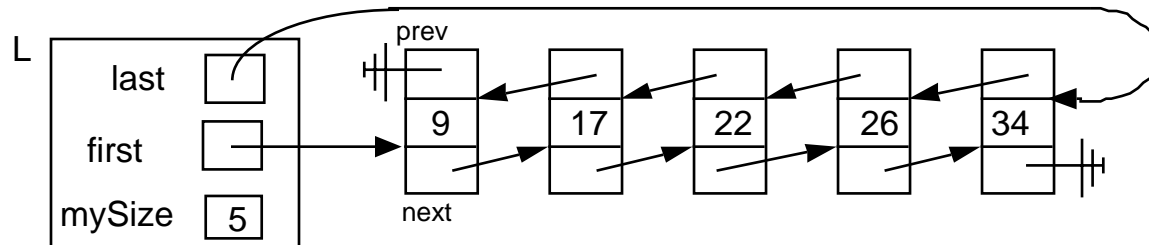
Singly Linked Lists

Deletion from Head



Doubly Linked Lists

Representation





Computer Science 50

Introduction to Computer Science I

Harvard College

Week 6

David J. Malan
malan@post.harvard.edu