

Stack Implementations

CS110C

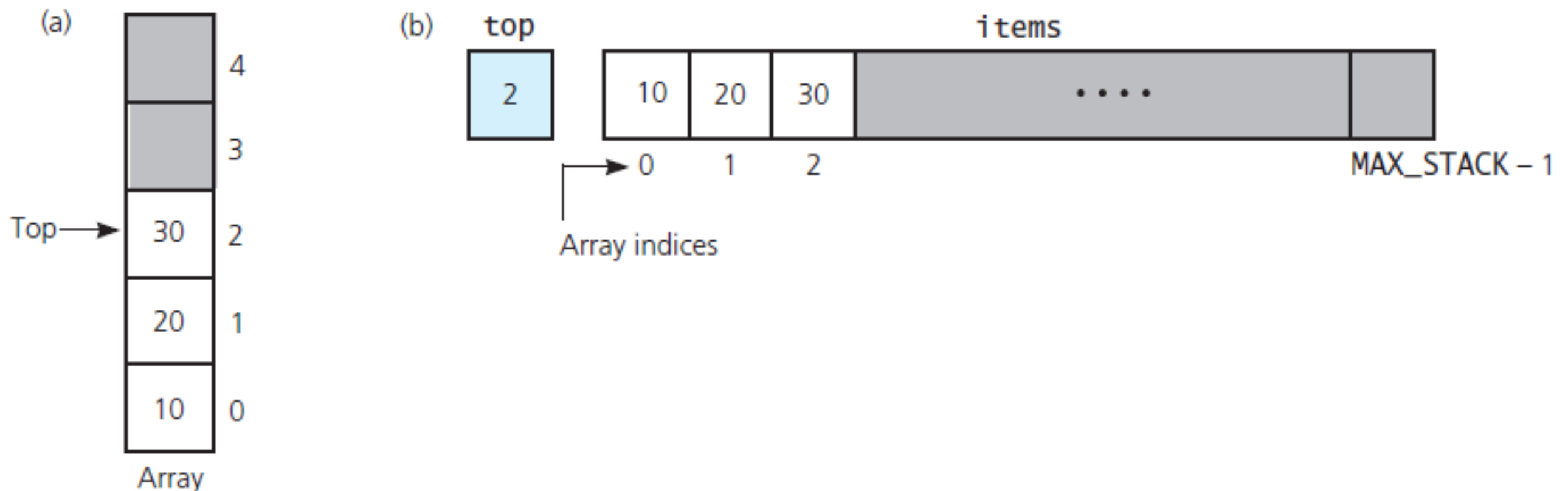
Max Luttrell, CCSF

stack implementations

- there are two common ways to implement a stack:
 - array-based
 - link-based

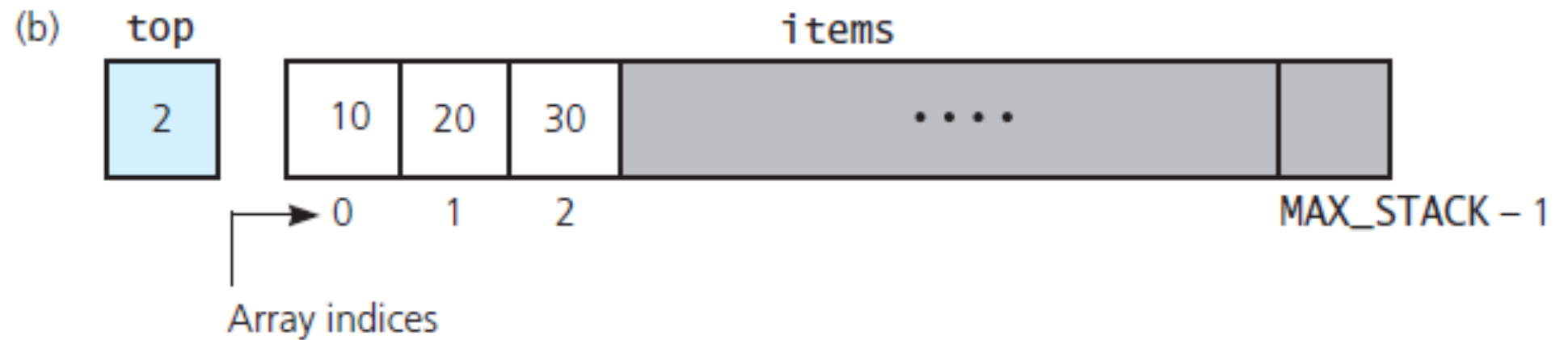
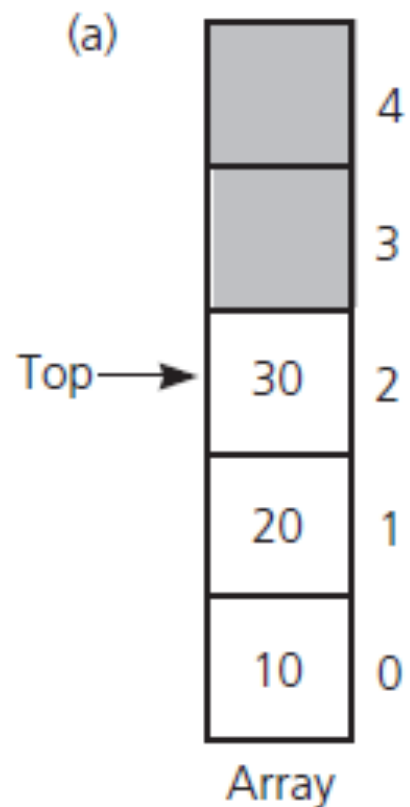
array-based stack

- an array-based stack has two private member data:
 - an array, to hold the stack
 - an integer holding the index of the top of the stack



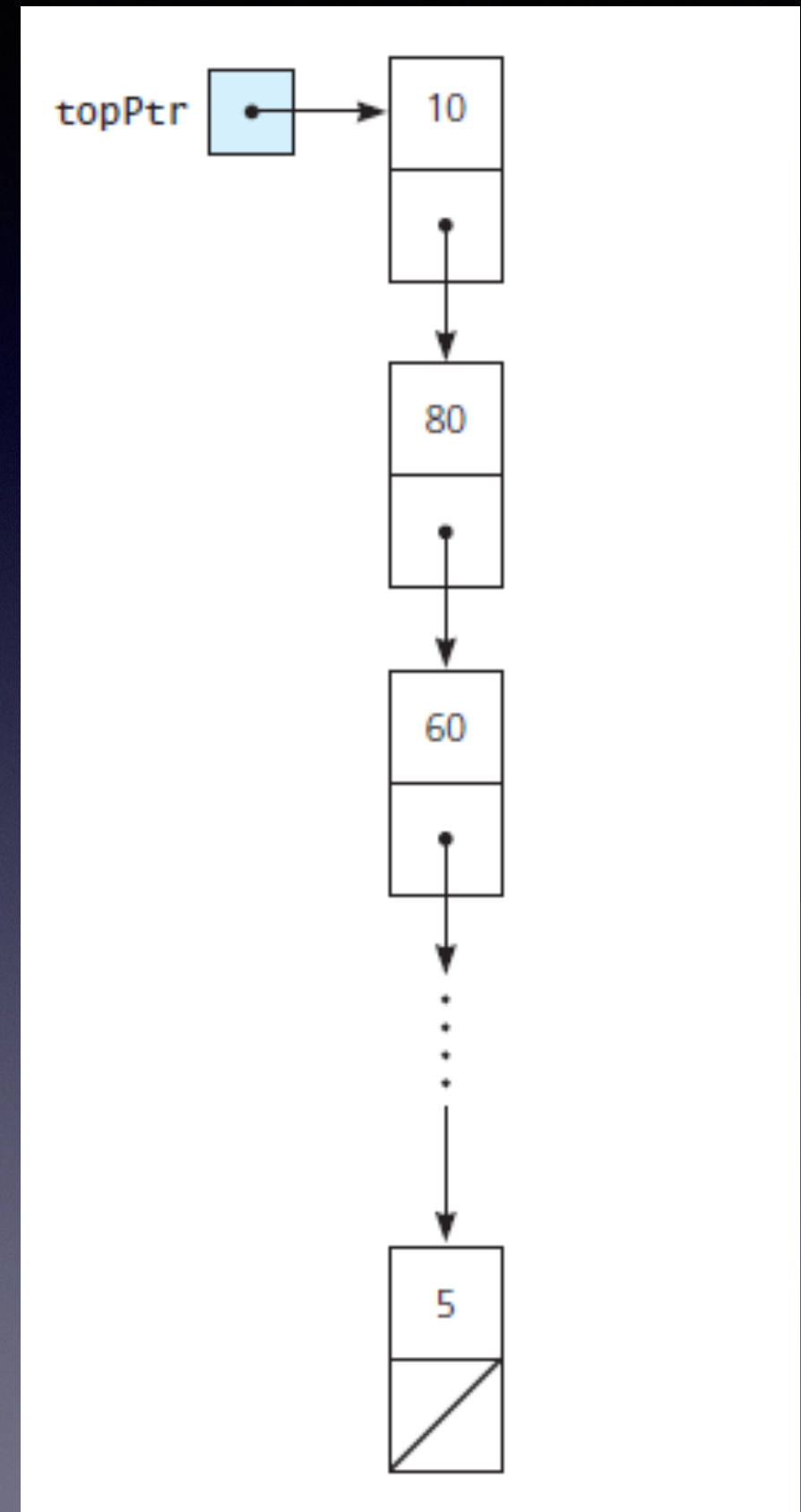
array-based stack

```
bool ArrayStack::push(int entry)
{
    bool result = false;
    if (top < MAX_STACK-1)
    {
        top++;
        items[top] = entry;
        result = true;
    }
    return result;
}
```



link-based stack

- an link-based stack consists of:
 - a Node for each element, whose next pointer points to the previous element
 - a pointer to top of stack



link-based stack

```
class Node {  
    public:  
        int data;  
        Node* next;  
};
```

```
bool LinkedStack::push(int entry)  
{  
    bool result = true;  
    Node *newNode = new Node;  
  
    newNode->data = entry;  
    newNode->next = topPtr;  
    topPtr = newNode;  
  
    return result;  
}
```

