Seng 265
Lab 10

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Online lab evaluation

- Lab instructor: Sonmaz Zehtabi

- Instructions [here](#).
  - If the link doesn't work you can find a pdf called online lab evaluation instructions on connex under /lectures and labs/lab slides
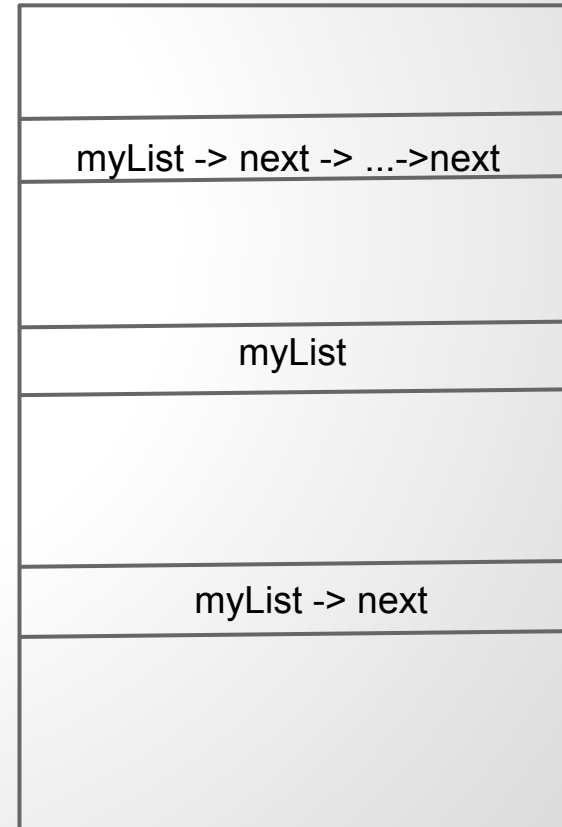
Data structures

- Definition

- Arrays and Linked lists
  - Creating
  - Operations:
  - Time and space complexity (optional)

Arrays vs linked list on heap

Array "myArray" on heap

.
.
.
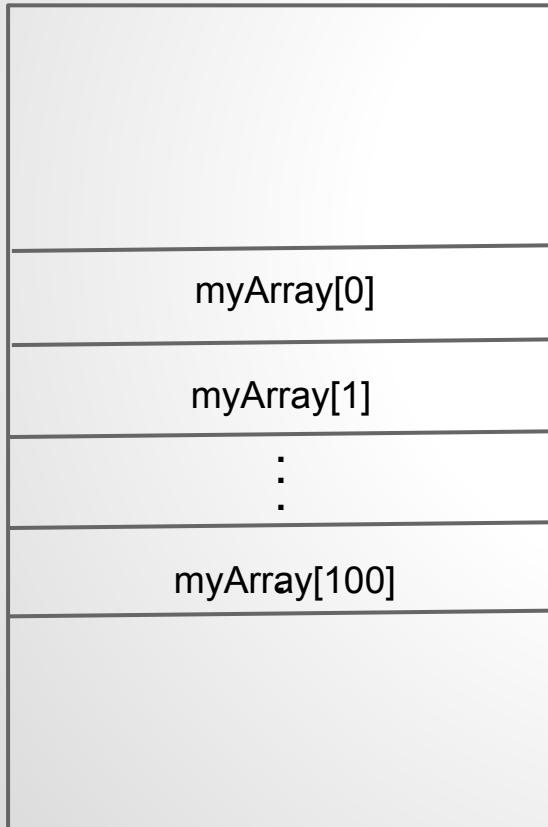
Linked list "myList" on heap

myArray[0]
myArray[1]
. . .
myArray[100]

myList -> next -> ...->next
myList
myList -> next

Dynamic arrays vs linked lists: creating

- **Memory Allocation:**
  - **Arrays**: allocate a bunch of items together. We might decide to shrink or expand later.

  - **Linked lists**: allocate one item at a time.

  - Better heap management

  - Harder for the programmer

Dynamic arrays vs linked lists: creating (cont.)

Structs:

- Arrays:

```
struct myStruct {
    int var1;
    char var2;}
```

- Linked lists:

```
struct myStruct {
    int var1;
    char var2;
    myStruct* nextItem;}
```

- '.' versus '->'

Array vs Linked list: Operations

- Insert (to the beginning, middle or end)
- Delete
- Random access
- Search
- etc.

Time and space complexity (optional)

- Creation
- Insert (to the beginning, middle or end)
- Delete
- Random access
- Search
- etc.

Exercise