Slide Title: Arrays and Slices in GoLang

Declaration, Usage, and Alteration

Declaring Arrays in Go

```
var myArray [5]int // Declaring an array of 5 integers
```

- Declare an array in Go with a specific size.

Using Arrays in Go

```
myArray[0] = 42
```

- Access elements using zero-based indexing.
- Set the value of the first element to 42.

Altering Arrays in Go

```
myArray[2] = 99
```

- Modify elements by assigning new values.
- Here, we set the value of the third element to 99.

Python Equivalent: Lists

```
myList = [0] * 5  # Declare a list of 5 zeros
myList[0] = 42    # Access and modify as in Go
myList[2] = 99
```

- In Python, we use lists, which are dynamic arrays.

Introduction to Slices in Go

```
mySlice := []int{1, 2, 3, 4, 5} // Declare and initialize a slice
```

- Slices are dynamic arrays in Go.

Using Slices in Go

```
mySlice = append(mySlice, 6) // Append an element to the slice
```

- Modify slices using the `append` function.

Python Equivalent: Lists (Again)

```
myList = [1, 2, 3, 4, 5]
myList.append(6)  # Append an element in Python
```

- Python lists also support dynamic resizing.

Common Operations on Arrays and Slices

- Slicing
- Reslicing
- Copying

Slicing Arrays and Slices in Go

```
subArray := myArray[1:4]    // Slice an array
subSlice := mySlice[1:4]    // Slice a slice
```

- Slicing extracts a portion of an array or slice.

Slicing Lists in Python

```
subList = myList[1:4]  # Slice a list in Python
```

- Python uses a similar slicing syntax.

Reslicing in Go

```
resliced := mySlice[:2] // Reslice to include the first two elements
```

- Reslicing changes the start index of a slice.

Reslicing in Python

```
resliced = myList[:2]  # Reslice in Python
```

- Python also supports reslicing lists.

Copying Arrays and Slices in Go

```
copyArray := myArray     // Copy an array
copySlice := make([]int, len(mySlice))
copy(copySlice, mySlice) // Copy a slice
```

- Copying creates a new array/slice with the same values.

Copying Lists in Python

```
copyList = myList.copy()  # Copy a list in Python
```

- Python's `copy` method creates a copy of a list.

Summary

- Arrays in Go have a fixed size.
- Slices are dynamic arrays.
- Common operations include slicing, reslicing, and copying.