Using and Creating Arrays

- **An array is a fixed-sized, homogeneous aggregate supporting random access. It is an object.**
  - ➢ **What does fixed-sized mean?**
  - ➢ **What does homogeneous mean?**
  - ➢ **What does random access mean?**

- **The size of an array is fixed when it is created. What happens when it gets "full"? How do we know how big it is?**

```
int[] list = new int[100];
String[] slist = new String[200];
int x = list[30];
list[30] = list[31];
slist[0] = new String("AGGTAG"); }
slist[200] = slist[0]; // crash-bang-boom
```

a priori limits

- **If we don't know how big to make the array, what can we do?**
  - ➢ **Make it too big, then make a new one that's the right size.**
  - ➢ **Issues? How big is too big?**

- **Alternatively, we can use another method for storing data**
  - ➢ **Use an ArrayList (from `java.util`)**
  - ➢ **This grows-as-needed**
  - ➢ **Then we can convert to an array**

ArrayList `(ImprovedWordCounter.java)`

- **Must import the class, from the package in which it lives**
  - ➢ **What does import do?**
  - ➢ **How do we know what to import?**

- **Possible use for ArrayList**

```
ArrayList list = new ArrayList();
for(int k=0; k < s.length(); k++){
    int index = proteinEnd(s,k);
    if (index >= k){
        list.add(s.substring(k,index));
        k = index;
    }
}
```

Mary Shaw

- **Software engineering and software architecture**
  - ➤ **Tools for constructing large software systems**
  - ➤ **Development is a small piece of total cost, maintenance is larger, depends on well-designed and developed techniques**

- **Interested in computer science, programming, curricula, and canoeing**