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