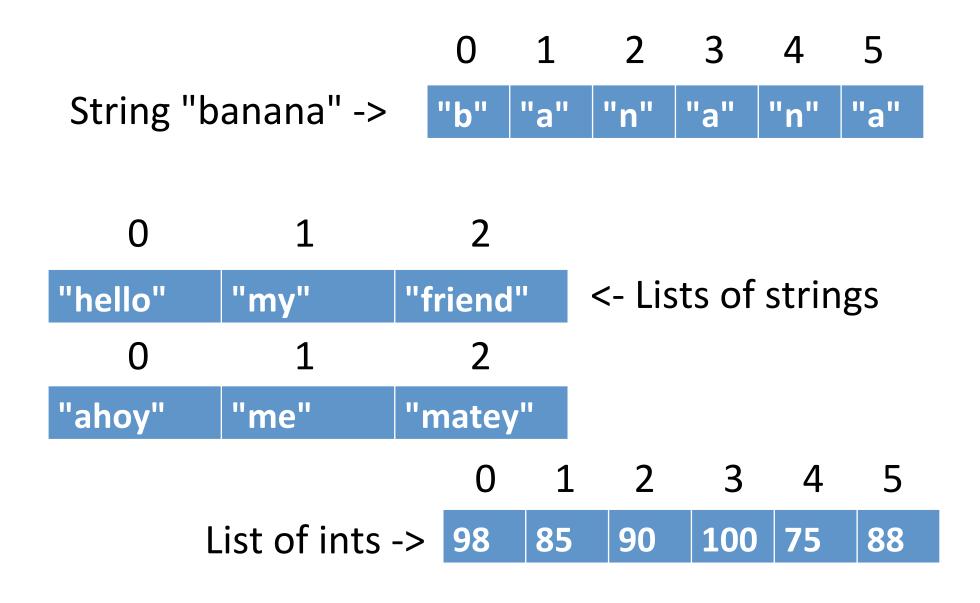
Lists I

What is a list?

- Lists are strings on steroids.
- A string stores an ordered sequence of single characters.



 A list stores an ordered sequence of any data type.



Strings	Lists
string_var = "abc123"	list_var = [item1, item2,]
string_var = ""	list_var = []
len("abc123") len(string_var)	len([3, 5, 7, 9]) len(list_var)
string_var[p] string_var[p:q]	list_var[p] list_var[p:q]
str3 = str1 + str2 str3 = "abc" + "def"	list3 = list1 + list2 list3 = [1, 2, 3] + [4, 5, 6]
"i" in "team" -> False	7 in [2, 4, 6, 8] -> False

One important difference

- Strings are *immutable*
 - You can't change a string without making a copy of it.

```
s = "abc"
s[0] = "A"  # illegal!
s = "A" + s[1:]  # legal
```

One important difference

Lists are mutable

```
- Can be changed "in-place" (without explicit copying)
L = [2, 4, 6, 8, 10]
L[0] = 15  # legal
L.append(26)  # legal
```

```
while True:
   num = int(input("Enter number: "))
   if num == -1:
       break
   print("Your number is", num)
```

```
lst = []
while True:
   num = int(input("Enter number: "))
   if num == -1:
       break
   lst.append(num)
```

- Make a text file with some integers in it, one per line.
- Write a program to read all the numbers and store them in a list.
- After all the numbers are read in, use a for loop to print out sums of adjacent pairs of numbers in the list.
 - Hint: You don't need the sliding window technique; instead, use math with list indices.

- Copy the file pirate-dictionary.txt from my public folder.
- Edit your pirate translator to read in the words from the dictionary (instead of having the words be literal lists in your code).
- Edit your pirate translator to let the user type in a sentence from the keyboard and it will be translated into Pirate.
 - Challenge: Make the translator work with words in upper or lowercase.
 - Challenge: Translate Pirate to English.