1. Below, we show a program that gives an example of how to use lists to compute the sum of different values in a list.

Listing 1: list-example.py

```python
# Playing with list indices to compute the sums of numbers.

import random

# Create a list of random numbers
num_vals = int(input("How many integers?: "))
numbers = [0] * num_vals
for i in range(0, num_vals):
    numbers[i] = random.randint(-100, 100)
print "The list of numbers is:", numbers

# Compute numbers[0] + numbers[-1], numbers[1] + numbers[-2], etc.
if num_vals % 2 == 0:
    sums = [0] * (num_vals / 2)
else:
    sums = [0] * ((num_vals / 2) + 1)
for i in range(0, num_vals / 2):
    sums[i] = numbers[i] + numbers[-(i+1)]
if num_vals % 2 == 1:
    sums[num_vals / 2] = numbers[num_vals / 2]
print "The sums are:", sums
```

2. Here is a program to determine whether a word is a palindrome. For those students wanting an extra challenge, come up with a few different ways of solving this problem.

Listing 2: palindrome.py

```python
# Checks to see whether a user entered a word that is a palindrome. A palindrome is a word that reads the same forwards and backwards. # There are many ways to solve this problem. I'm just showing you one of the many possible solutions.

phrase = raw_input("Please enter a word: ")

palindrome = True
index = 0
while (palindrome == True) and (index <= len(phrase)/2):
    if phrase[index] != phrase[-(index+1)]:
        palindrome = False
        index = index + 1
if palindrome == True:
    print phrase, "is a palindrome!"
else:
    print phrase, "is NOT a palindrome!"
```