

**Programming Language Concepts, CS2104**  
**Tutorial 5 (30 September 2011)**  
**(All students must prepare/attempt in advance.)**

**Exercise 1**

Write a Python program that computes the sum of the elements of a list.

**Exercise 2**

Write a Python program that creates a dictionary from a list. Each even-ranked element of the list will become a key of the dictionary. Each odd-ranked element will become the value associated to the key represented by the preceding element in the list.

**Exercise 3**

Write a Python program that converts a dictionary into a list. All the keys and values in the dictionary should appear in the result list in some order.

**Exercise 4**

We augment the toy language discussed in Lecture 6 with arrays. All arrays have 100 elements. Array access is done via the operator @. That is, the expression `a@k` accesses the element with rank `k` in array `a`. Array indices range from 0 to 99. Augment the rules for compiling expressions with array access. Test the compiler with a sorting algorithm.