Chapter 7: Lists

Key Terms

anonymous list: a list without a name

binary search: an efficient function to search for a key in a list. binary search first compares the key with the element in the middle of the list and reduces the search range by half. for binary search to work, the list must be pre-sorted

garbage collection: an object that is not referenced is a garbage. garbage is automatically collected by Python

index:

linear search: a function to search for an element in a list. linear search compares the key with the element in the list sequentially

selection sort: an approach to sort list. it finds the largest number in the list and places it last. it then finds the largest number remaining and places it next to last, and so on until the list contains only a single number

Chapter Summary

1. You can use the Python built-in functions len, max, min, and sum to return the length of a list, the maximum and minimum elements in a list, and the sum of all the elements in a list.

2. You can use the shuffle function in the random module to shuffle the elements in a list.

3. You can use the index operator [] to reference an individual element in a list.

4. Programmers often mistakenly reference the first element in a list with index 1, but it should be 0. This is called the *index off-by-one error*.

5. You can use the concatenation operator + to concatenate two list, the repetition operator \* to duplicate elements, the slicing operator [:] to get a sublist, and the in and not in operators to check whether an element is in a list.

6. You can use a for loop to traverse all elements in a list.

7. You can use the comparison operators to compare the elements of two lists.

8. A list object is mutable. You can use the methods of append, extend, insert, pop, and remove to add and remove elements to and from a list.

9. You can use the index method to get the index of an element in a list and the count method to return the count of the element in the list.

10. You can use the sort and reverse methods to sort and reverse the elements in a list.

11. You can use the split method to split a string into a list.

12. When a function is invoked with a list argument, the reference of the list is passed to the function.

13. If list is sorted, binary search is more effective than linear search for finding an element in the list.

14. Selection sort finds the smallest element in the list and swaps it with the first element. It then finds the smallest element remaining and swaps it with the first element in the remaining list, and so on, until only a single element remains.