# Chapter 5

**ADTs Stack and Queue**

5.1 Stacks

Logical Level

Operations on Stacks

Application Level

Implementation Level

Definition of the Stack Class

Definitions of Stack Operations

Test Plan

Alternate Array-Based Implementation

5.2 Implementing a Stack as a Linked Structure

Function Push

Function Pop

Function Top

Other Stack Functions

Comparing Stack Implementations

5.3 Queues

Logical Level

Operations on Queues

Application Level

Implementation Level

Definition of the Queue Class

Implementations of Queue Operations

Another Queue Design

Test Plan

Comparing Array Implementations

Counted Queue

Implementation of the Derived Class

Application of the CountedQueType Class

Inheritance and Accessibility

5.4 Implementing a Queue as a Linked Structure

Function Enqueue

Function Dequeue

A Circular Linked Queue Design

Comparing Queue Implementations

Summary

Exercises