C# Programming Homework 18

Chapter 18, C# Step by Step

Readings

Read chapter 18 in the C# Step by Step book.

Discussion Questions

Answer the discussion questions in writing.

1. You are building a help ticket system. You want to ensure that the older the ticket, the sooner it will

be handled by the team. For example, a ticket submitted a week ago has a higher priority than a

ticked just submitted. What kind of data structure would you use, and why?

Queue type because it’s first in, first out

2. You are building a tracking system for seasonal agricultural farm labor. The labor requirements vary

widely, depending on the season. Your requirement is that the newest hires are terminated first, and

that our more experienced hires are kept longer. What kind of data structure would you use, and why?

Stack type because the last item or person that gets pushed on is the first one that gets popped off

3. You are building a transaction database. Your requirement is that the database adds data very quickly,

and that deletions, updates, and searches happen infrequently. In other words, data is typically added

in the order in which the transaction occurs. What kind of data structure would you use, and why?

LinkedList because this collection can act like a queue or a stack, but it also supports random access as a list does.

4. You are building an analytical database. Your requirement is that the database handle queries very

quickly, but that the data never changes, i.e., there are no inserts, deletions, or updates. What kind

of data structure would you use, and why?

HashSet. An unordered set of values that is optimized for fast retrieval of data.

5. You are building a personnel directory, where searched are performed by last name, first name, middle

name. What kind of data structure would you use, and why?

Dictionary. A collection of values that can be identified and retrieved by using keys rather than indexes.

6. You are building a username/password database. Your requirement is that updates happen frequently

(when users change their passwords) and that searches (to authenticate users) happen extremely

quickly. What kind of data structure would you use, and why?

SortedList. A sorted list of key/value pairs. The keys must implement the IComparable<T> interface.

7. What is a lambda expression? Give an example. Why would we use a lambda expression?

A lambda expression is an expression that returns a method. (Weapon W) => {return W.Name == M4;}. A lambda expression is a convenient way of defining an anonymous function that can be passed around as a variable or as a parameter to a method call.

8. What is the difference between lambda expressions and anonymous methods? What are the advantages

of each?

Lambda expressions provide a more succinct and natural syntax than anonymous methods, and they pervade many of the more advanced aspects of C#, as you will see throughout the subsequent chapters in this book.