/\*\*Course: SDEV 350 ~ Java Programming II  
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Provide detailed answers to the following questions covering material from Chapter 16 of your book:

# Data structures are typically classified as static or dynamic. A static data structure has a fixed size, which is known by the programmer and code is written based on this fixed size. A dynamic data structure has an unknown size. The size of the data structure may grow or shrink as it is used by the program. Give two examples of where each kind of data structure might be used.

**Examples of fixed data structures**

1. Cards in a deck. There are always 54 (including jokers), so no need to allow flexibility.  
   Card[] deck = new Card[54]; // build the array  
   deck[0] = new Card(QUEEN, SPADE); // add the queen of spades
2. An array to hold all U.S. Senators.  
   Senator[] senate = new Senator[50]; // build the array  
   senate[0] = new Senator(“Patrick Leady”, VT);

**Examples of dynamic data structures**

1. A collection of unique band names  
   Set<String> bands = new HashSet<>(); // build a set  
   bands.add(“Led Zeppelin”); // add a band
2. A collection of song titles by band  
   Map<String, String> songs = new HashMap<>(); // build a map  
   songs.add(“Led Zeppelin”, “Black Dog”); // add a song

# How do the Generic Collections described in Chapter 16 provide support for static and dynamic data structures?

Generic Collections in java only support dynamic data structures. All the interfaces to and implementations of Collection are dynamically sized. The methods add and remove are inherited from Collection, and automatically resize the collection.

Apache Commons provides an implementation of List that is not resizeable. I believe, from the doc, that it just removes support for methods add, remove, clear, and retain.

You would create it with something like this:

FixSizedList fixie = new FixSizedList(myList);

<https://commons.apache.org/proper/commons-collections/javadocs/api-3.2.1/org/apache/commons/collections/list/FixedSizeList.html>