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6.4: Java Collections Framework

Why do we need a collections framework when we can write our own custom collection classes using arrays?
First, Collections Framework classes have already been written, tested and are ready for use. You would not have to reinvent the wheel.

In addition, the Collections Framework classes use common interfaces. All methods for basic operations have the same names and parameters. This makes it easy to learn. If you need to replace a collection class with another, only minimal changes are required.

Next, the Collections Framework has a variety of functions. You may need a collection that must have elements that are sorted (SortedSet, TreeMap), unique (Set) or retrieved from a non-numeric index (Map). The Collections Framework has these classes available.

In addition to a variety of functions, the Collections Framework has a variety of implementations. Some are optimized for fast data retrieval, while others are optimized for memory usage. Retrieving, sorting, inserting and deleting data each present a unique problem. A good framework should give the programmer the flexibility to decide what kind of tradeoffs they would accept in their application.

And finally, the Collections Framework is flexible. You can write classes that implement framework interfaces or you can extend the framework classes. Also, the classes and interfaces are all generic (more on this in the next section) so you can use any class as an element without rewriting the class/interface.