Anything that can be viewed as a list, regardless of its actual implementation.

Supporting `first`, `rest`, `cons`, as described in `clojure.lang.ISeq`.

```
(seq coll)

(next aseq) ;; aka (seq (rest aseq))
```

A seq.

In an inner class of the collection. This leads to mangled names like:

```
clojure.lang.SomeCollection$Seq
```

The key/value pairs are the elements.

Use sorted sets and sorted maps.

```
(sorted-set & elements)

(sorted-map & elements)
```

They are like `cons` and `concat`, but they add the elements in the position most efficient for the underlying representation.

```
(conj coll element & elements)
(into to-coll from-coll)
```

... immutable ... lazy.

```
(interpose separator coll)
user=> (apply str (interpose ", " ["a" "b" "c"]))
"a, b, c"
```

`clojure.contrib.str-util`'s `str-join` wraps the common `apply str` pattern.

`vec` and `set` take a single collection argument, `hash-set` and `vector` take variable elements.

`list`, `vector`, `hash-set`, `hash-map`.

```
(take-while pred coll)
(drop-while pred coll)
(split-at index coll)
(split-with pred coll)
```

```
(complement
```

```
(every? pred coll)
(some pred coll)
(not-every? pred coll)
(not-any? pred coll)
```

```
(map f coll)
(reduce f val? coll)
(sort comp? coll)
(sort-by keyfn comp? coll) ; keyfn is for *getting* the keys
```

```
(for [binding-form coll-expr filter-expr? ...] expr)
```

There can be may binding-form/coll-expr pairs in a row.

Seq comprehensions are a macro.

- `:when expr` which is much like a standard filter/guard.

- `:while expr` which stops the comprehension as soon as the predicate fails.

```
(doall coll) ; stores result of traversal and returns
(dorun coll) ; doesn't store, returns nil
```

- Java collections, arrays, and strings
- Regexps
- File hierarchies
- Streams
- XML trees
- Database results

```
(peek coll)
(peek coll)
```

`peek` returns the first element, `pop` is like `rest` but throws an exception on an empty sequence.

`peek` which returns the last element, and `pop` which returns the "init" of a vector.

```
(get vector index)
(vector index)
(subvec vector start end?)
```

`take`/`drop` work on any sequences, but `subvec` is much faster for vectors.

```
(keys map)
(vals map)
(get map key not-found?)
(a-map element) ; test for membership
(a-keyword map) ; test for membership
```

You can't know if a result of `nil` indicates they key was not in the map or if it was present, mapped to `nil`.

You can get around the problem with:

```
(contains? map key)
(get map key not-found?)
```

```
(assoc map key val & more-kvs)
(dissoc map key & more-keys)
(select-keys map key-seq)
(merge map1 map2) ; map2 wins if both keys exist
(merge-with merge-fn & maps)
```

... imported to use unqualified.

```
(use 'clojure.set)
```

unions, intersection, difference.

There are two important correspondences between relational algebra, databases, and the clojure type system.

relation = table = set-like
tuple = row = map-like

So in clojure you might have a set of maps (i.e., a relation).

Straight sets:

```
(select pred set)
```

Relations (sets of maps):

```
(rename relation rename-map)
(project relation keys)
(join rel1 rel2 keymap?)
```