Globant

Topic 1:

Collections and Streams

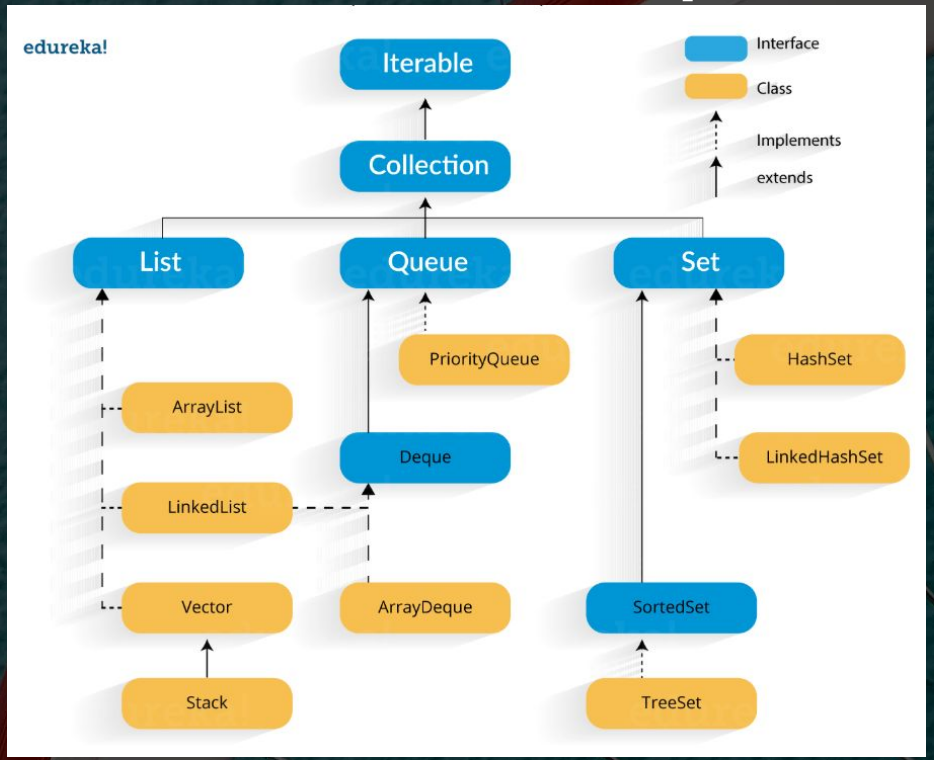
Java Collection Framework

Provides an architecture to store and manipulate a group of objects

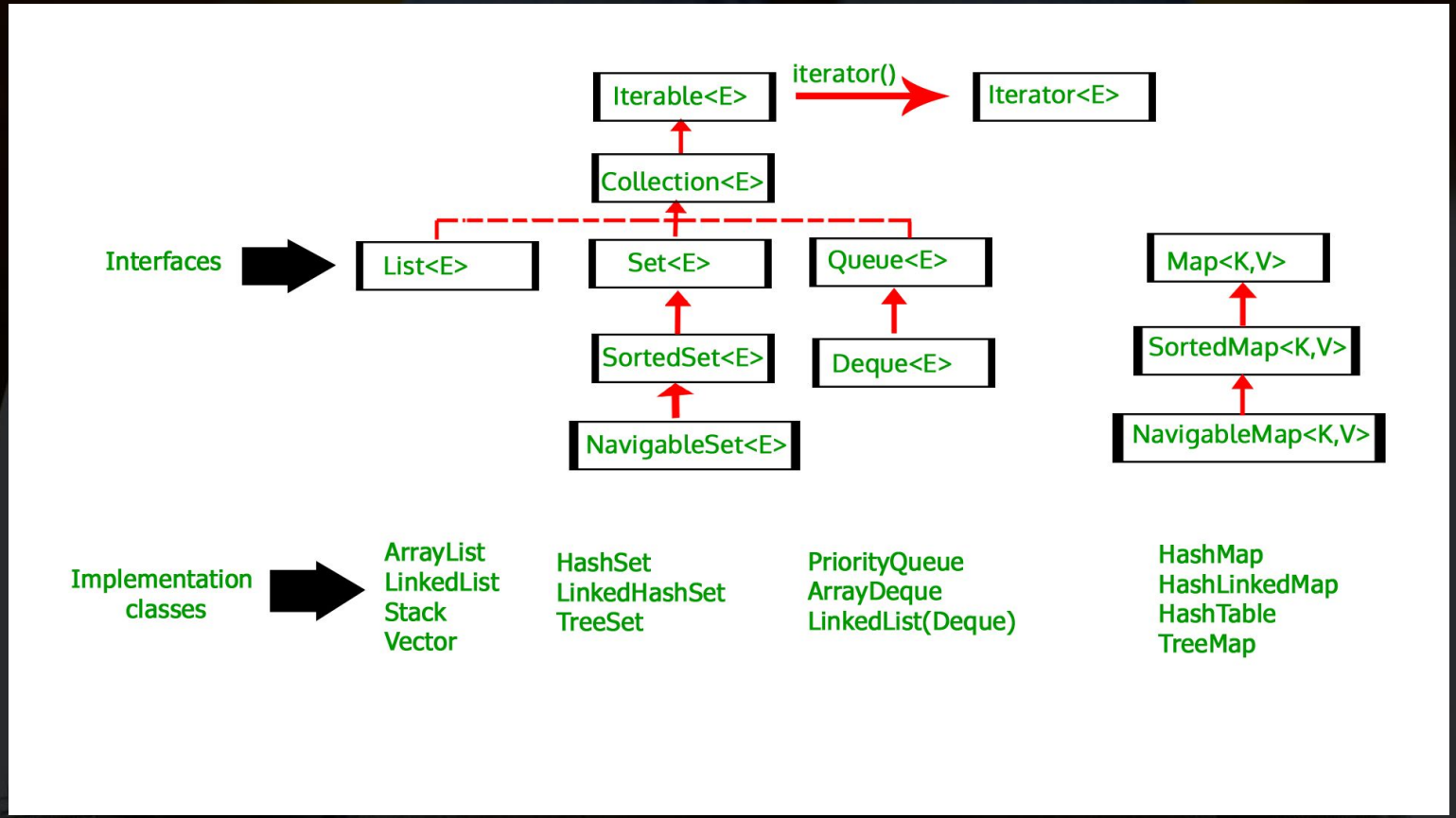
Iterable is the parent interface but the common level of abstraction is Collection.

They are implemented through the concept of Generics

Its main extensions are:
- List
- Set
- Queue



Collection Interfaces & Implementations



List vs Set vs Map

Interface	Duplicates Allowed?	Null Values Allowed?	Insertion order preserved?	Iterator	Data Structure
List	Yes	Yes, Multiple null values are allowed	Yes and can retrieve using index	Iterator, ListIterator	Array
Set	No	Yes but only once	No	Iterator	Underlying Map implementation
Map	Not for keys	Yes but only once for keys, can have multiple null values	No	Through keyset, value and entry set	Hashing techniques

Functional Interfaces

They can have only one functionality to exhibit.

A lambda is an implementation of the method of a functional interface

Lambdas can be used as variables and parameters

There is a set of pre-existing functional interfaces in the package java.util.function

```
// Java program to demonstrate Implementation of
// functional interface using lambda expressions

class Test
{
  public static void main(String args[])
  {

    // lambda expression to create the object
    new Thread(()->
       {System.out.println("New thread created");}).start();
  }
}
```

A component that is capable of internal iteration of its elements

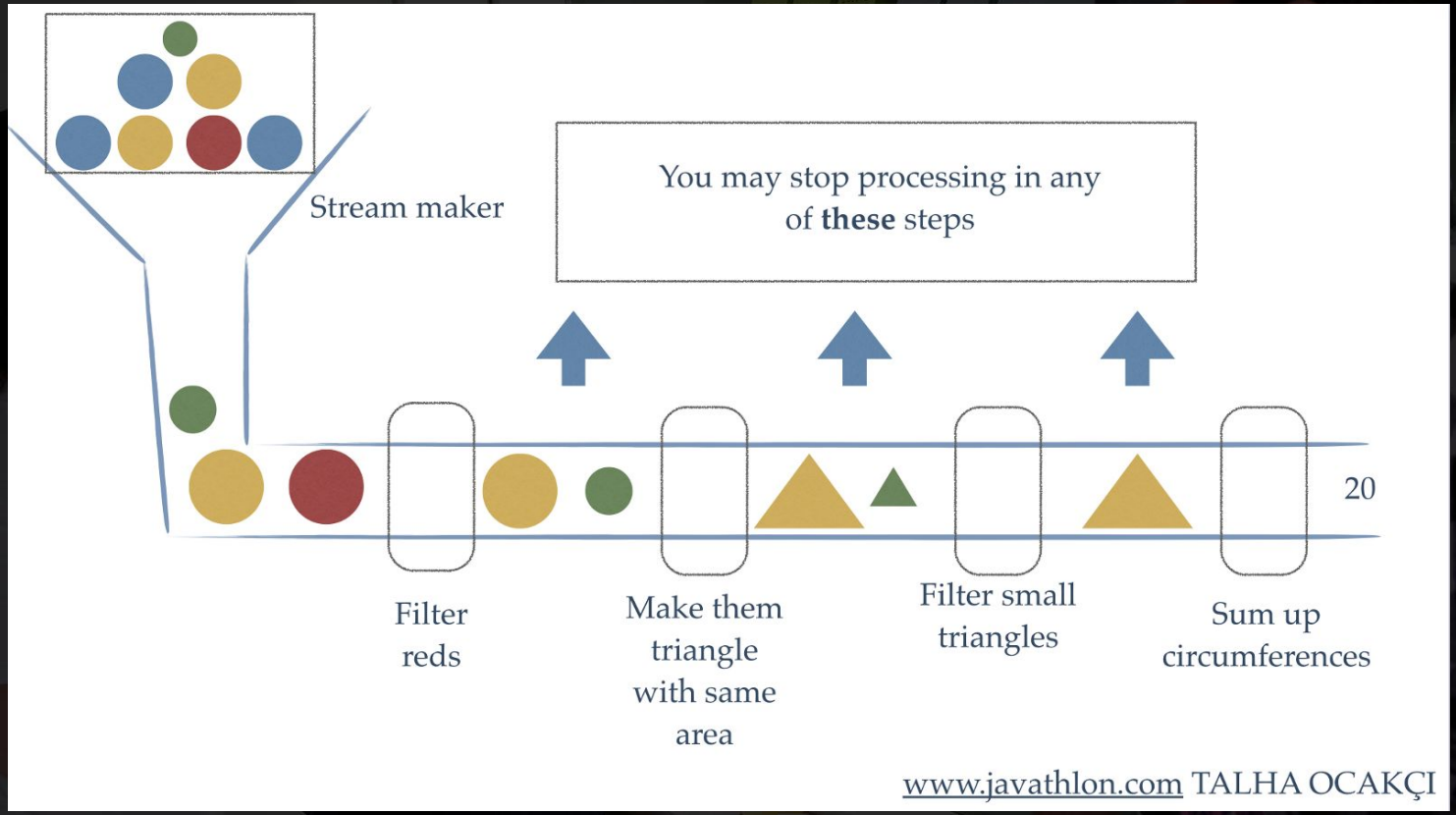
You can attach listeners to a Stream. These listeners are called when the Stream iterates the elements internally.

The listeners are called once for each element in the stream. That way each listener gets to process each element in the stream. This is referred to as stream processing.

The listeners of a stream form a chain. The first listener in the chain can process the element in the stream, and then return a new element for the next listener in the chain to process.

A listener can either return the same element or a new, depending on what the purpose of that listener (processor) is.

Streams


Stream maker
You may stop processing in any of **these** steps
20
Filter reds
Make them triangle with same area
Filter small triangles
Sum up circumferences
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