

This session will help you to understand the following,

- What are collections?
- Types of Collections.
- Usages of collections.



# What is a collection?

[Click to Continue](#)



A “collection” is a data structure that is used for grouping and storing multiple elements as one unit.



# Collection Framework

Click to Continue



Collection framework holds a group of interfaces and their implementation.

## Few salient points:

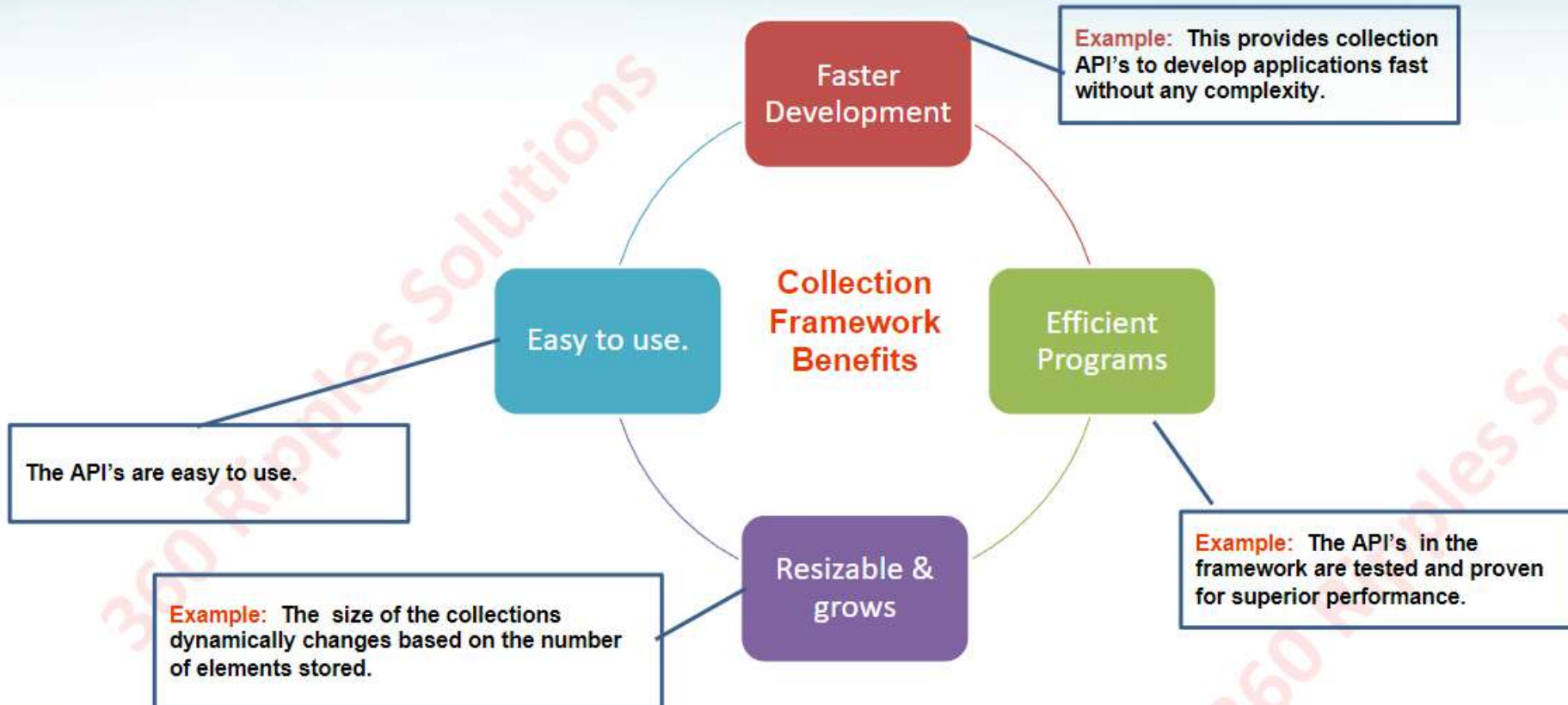
- The data stored in collection is called elements.
- Collections can store only reference types.
- Element in collections can be ordered or non ordered.
- The collections are available in **java.util** package.
- Collection can store duplicate (or) non duplicate elements.
- Collection framework contains,
  - Set of collection ***Interfaces and their implementations.***





# Advantages of Collection framework

Click to Continue



# Collection Interfaces

[Click to Continue](#)



A set of predefined java interfaces defined in **java.util** package which can be used to manage a collection of objects.

**Example:** Set, List, Map



These are classes which implements one of the collection interfaces. The programmer uses these for processing a collection of objects.

**Example:** ArrayList (implements List), HashMap (Implements Map)



# Sorted & Ordered Collection

Click to Continue



Assume the there is a list of currencies.

1. Rupees
2. Yen
3. Dollar
4. Pound
5. Dirham

Sorted Collection are used to sort the elements in ascending/descending order.

We will look into this in the coming slides.

**Scenario 1 :** What will you do to create a collection of currency which should follow the same order as mentioned above.

**Solution :** Ordered collection can be used. **Example: List.**

**Scenario 2:** How would you store the above currencies in a collection and sort them alphabetically.

**Solution :** Sorted collection like **SortedSet** can be used to automatically sort, the list will be sorted every time elements is added.



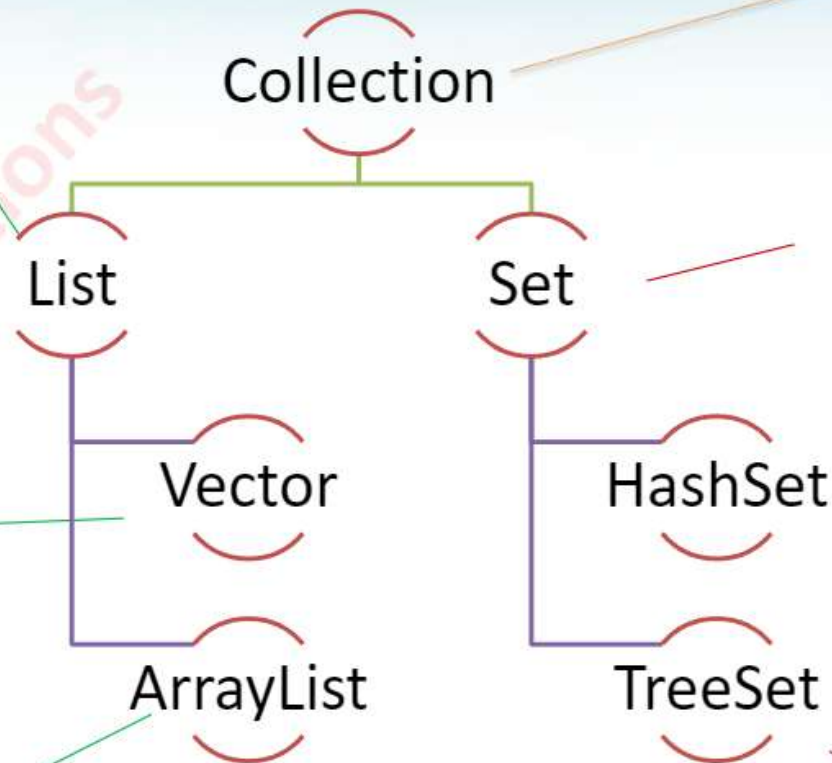


# Collection Framework

[Click to Continue](#)

- List is an ordered interface.
- This can contain duplicate elements.

- This is the root interface for all collection classes..



- This is an sorted interface.
- This cannot hold duplicate values.

- Vectors can hold duplicate values.
- This is thread safe.

- Allows null.
- Does not allow duplicate values.

- Array List can hold duplicate values.
- This is not thread safe.
- Can hold null values.

- Allows entries to be sorted in a specific order.



## List :

|     |      |     |     |      |        |       |       |      |      |
|-----|------|-----|-----|------|--------|-------|-------|------|------|
| Red | Blue | Red | Red | Blue | Indigo | Black | White | null | null |
|-----|------|-----|-----|------|--------|-------|-------|------|------|

Duplicate elements

Also allows null .

## Set:

|     |      |      |       |        |      |
|-----|------|------|-------|--------|------|
| Red | Blue | Cyan | White | Indigo | null |
|-----|------|------|-------|--------|------|

Does not allow duplicates

One null value is permitted





[Click to Continue](#)



In the next sessions we will learn about how to implement List, Set and Map

