**ArrayList:**

ArrayList is a data structure that can be stretched to accommodate additional elements within itself and shrink back to a smaller size when elements are removed. In other words it’s a dynamic array.

Example: Methods add(), size() and remove()

**package** FPPackage;

**import** java.util.ArrayList;

**public** **class** ArrayListDemo {

**public** **static** **void** main(String[] args) {

//Declaring an arraylist

ArrayList a = **new** ArrayList();

//Adding elements to array list

a.add("Subbu");

a.add("Raj");

a.add("Krishna");

a.add("Vishnu");

a.add("Raghu");

//Getting elements from arraylist

System.***out***.println(a.get(0));

System.***out***.println(a.get(1));

System.***out***.println(a.get(2));

//Getting the number of elments in an arraylist

System.***out***.println(a.size());

//Printing an arraylist

System.***out***.println(a);

//Removing an elements from an array list

a.remove("Vishnu");

System.***out***.println(a.size());

System.***out***.println(a);

//Removing an elements by index

a.remove(2);

System.***out***.println(a.size());

System.***out***.println(a);

//Checking if an array list contains a value

System.***out***.println("Contains Vishnu "+a.contains("Vishnu"));

}

}

The above array list can accept anything and even integers as well.

Ex: ArrayList with different datatypes

**package** FPPackage;

**import** java.util.ArrayList;

**public** **class** ArrayListDemo {

**public** **static** **void** main(String[] args) {

//Declaring an arraylist

ArrayList a = **new** ArrayList();

//Adding elements to array list

a.add("Subbu");

a.add("Raghu");

a.add(1);

//Printing an arraylist

System.***out***.println(a);

}

}

Here we are adding an integer value of 1 with the previous strings values. This doesn’t cause any problem and it produces the result as

[Subbu, Raghu, 1]

But if we want to restrict the arraylist to accept only a particular datatype we can do it the following way.

ArrayList<String> a = new ArrayList<String>();

Now the above problem produces a compilation error as it won’t accept integers.

**Iterating through an arraylist:**

**Two ways:**

1. **Using Iterator**

**package** FPPackage;

**import** java.util.ArrayList;

**import** java.util.Iterator;

**public** **class** ArrayListDemo {

**public** **static** **void** main(String[] args) {

//Declaring an arraylist

ArrayList<String> a = **new** ArrayList<String>();

//Adding elements to array list

a.add("Subbu");

a.add("Raghu");

a.add("Venu");

a.add("Rajesh");

//Iterating through the list

Iterator itr = a.iterator();

**while**(itr.hasNext()) {

System.***out***.println(itr.next());

}

}

}

1. **Using For Loop:**

**package** FPPackage;

**import** java.util.ArrayList;

**import** java.util.Iterator;

**public** **class** ArrayListDemo {

**public** **static** **void** main(String[] args) {

//Declaring an arraylist

ArrayList<String> a = **new** ArrayList<String>();

//Adding elements to array list

a.add("Subbu");

a.add("Raghu");

a.add("Venu");

a.add("Rajesh");

//Iterating through the list

**for**(String s:a) {

System.***out***.println(s);

}

}

}

**addAll method:**

**package** FPPackage;

**import** java.util.ArrayList;

**import** java.util.Iterator;

**public** **class** ArrayListDemo {

**public** **static** **void** main(String[] args) {

//Declaring an arraylist

ArrayList<String> a = **new** ArrayList<String>();

//Adding elements to array list

a.add("Subbu");

a.add("Raghu");

a.add("Venu");

a.add("Rajesh");

ArrayList<String> b = **new** ArrayList<String>();

b.add("Ganesh");

b.add("Vamshi");

//Adding b list to a

a.addAll(b);

//Iterating through the list

**for**(String s:a) {

System.***out***.println(s);

}

}

}

removeAll() Example:

**package** FPPackage;

**import** java.util.ArrayList;

**import** java.util.Iterator;

**public** **class** ArrayListDemo {

**public** **static** **void** main(String[] args) {

//Declaring an arraylist

ArrayList<String> a = **new** ArrayList<String>();

//Adding elements to array list

a.add("Subbu");

a.add("Raghu");

a.add("Venu");

a.add("Rajesh");

ArrayList<String> b = **new** ArrayList<String>();

b.add("Raghu");

b.add("Rajesh");

b.add("Vamshi");

//Adding b list to a

a.removeAll(b);

//Iterating through the list

**for**(String s:a) {

System.***out***.println(s);

}

}

}

**retainAll() Example:**

**package** FPPackage;

**import** java.util.ArrayList;

**import** java.util.Iterator;

**public** **class** ArrayListDemo {

**public** **static** **void** main(String[] args) {

//Declaring an arraylist

ArrayList<String> a = **new** ArrayList<String>();

//Adding elements to array list

a.add("Subbu");

a.add("Raghu");

a.add("Venu");

a.add("Rajesh");

ArrayList<String> b = **new** ArrayList<String>();

b.add("Raghu");

b.add("Rajesh");

b.add("Vamshi");

//Adding b list to a

a.retainAll(b);

//Iterating through the list

**for**(String s:a) {

System.***out***.println(s);

}

}

}