**Need of Collection**

**Problem**:

Let’s say we have to store some int values to perform some mathematical operations.

**Solution**:

Define one int type of variable and assign that variable a value.

Ex.

Int i=10;

**Problem**:

Here we can save a single value in a single variable but what if I have lots of values like 1k values that are required to store in some variable.

**Solution**:

We can define 1k variables and save our values in those variables but again we will face some issue to define the names of those variables and there will be a pain of managing those variables also.

To counter such kind of problem we have Arrays in java which can store homogeneous elements.

Ex.

Int[] arr = new int[200];

199

3

2

1

0

In the above example we have arr variable of type int that can store 200 values.

**Problem**:

The main disadvantage of using arrays is that they are of fixed in size and we cannot increase and decrease the size of array.

Let’s take an example of earlier stated array arr which is of type 200. If have to use only 50 values then remaining 150 spaces will be wastage of memory or if I have to store 500 values then I cannot increase the size of this array, instead I have to define one another array with the size of 500.

**So defining array is bad choice if you don’t know the number of elements you have to store or you are defining the total number of elements you have to store at run time.**

**Limitation with arrays:**

1. Fixed in size
2. Holds only homogeneous element.
3. No underlying data structure is provided in Arrays (Stack, Linked List etc)

**Solution**:

Collection Framework.

Java Collection Framework is a set of predefined interfaces and classes of Data Structures like LinkdedList, Trees, Queues etc.

**Arrays vs Collection**

|  |  |
| --- | --- |
| Arrays | Collection |
| Fixed in size | it can increase and decrease automatically as we insert or delete elements. |
| homogeneous element | heterogeneous element |
| No underlying data structure | We have lots of underlying data structures like ArrayList, HashMap, HashSet etc. |