Arrays

Array

An **array** is a collection of homogenous data type elements.

- All elements are of the **same data type**
- Stored in **contiguous memory locations**
- Accessed using an **index** (starts from 0)
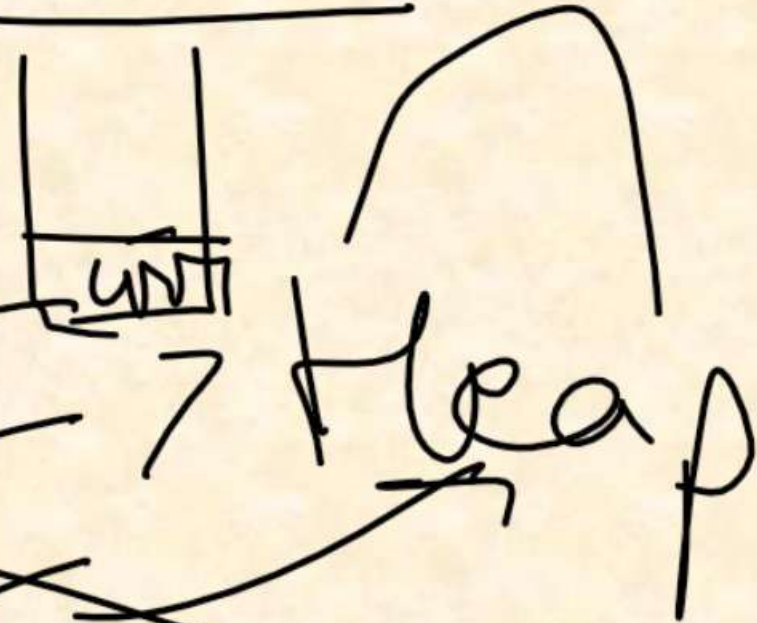
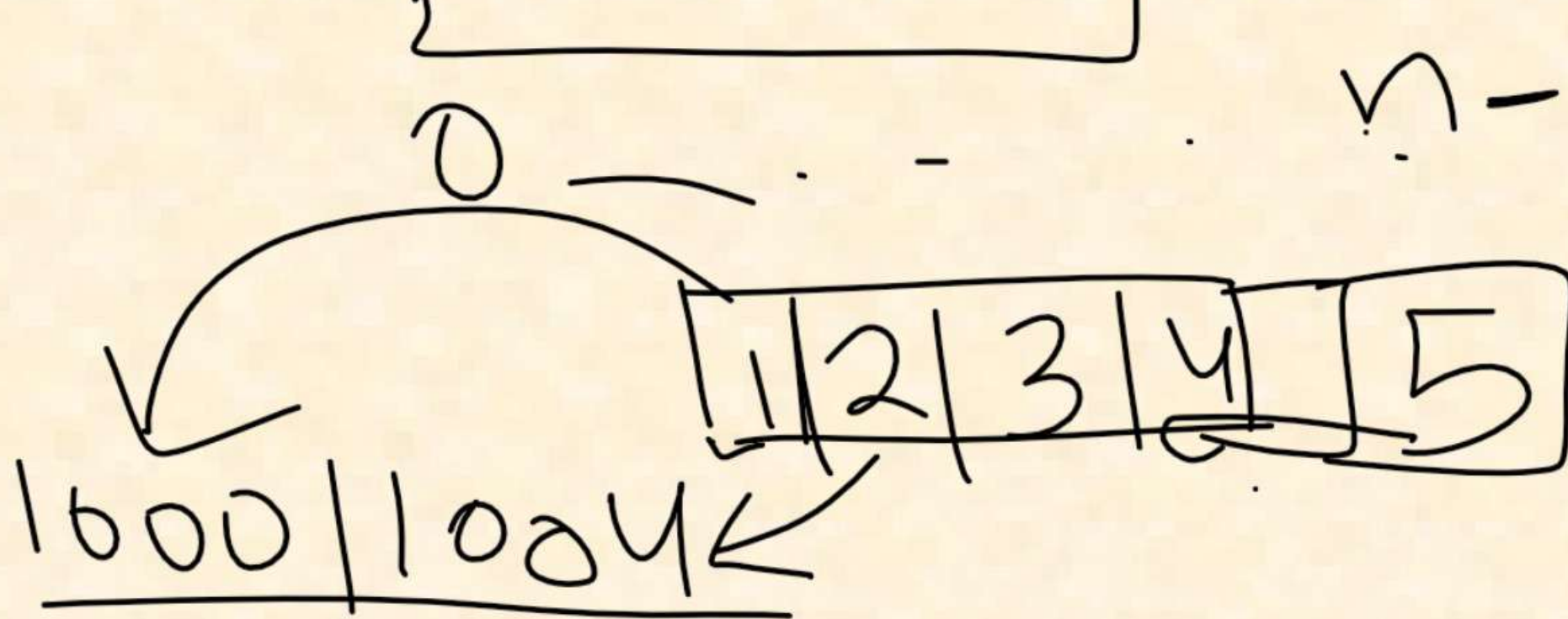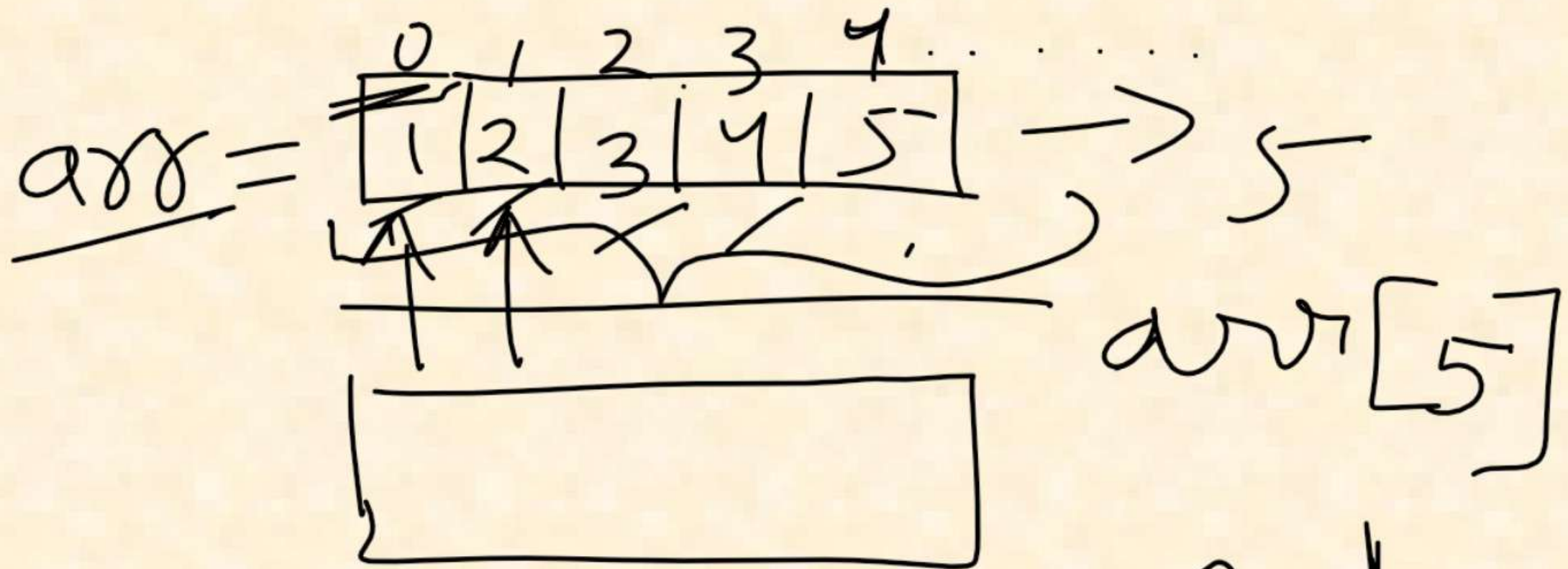**Syntax:-**

dataType[] arrayName = new dataType[size];

To find length of Array= seat.length;

UNT

Heap

compile runtime Dynamic

name of array

$$arr = \begin{array}{|c|c|c|c|c|} \hline 1 & 2 & 3 & 4 & 5 \\ \hline \end{array} \quad \longrightarrow \quad 5$$

0 1 2 3 4 . . . . . .

$arr[5]$

n-1

0 . . . . . .

$$\begin{array}{|c|c|c|c|c|} \hline 1 & 2 & 3 & 4 & 5 \\ \hline \end{array}$$

| 600 | 1004 |

2D Array

[1, 2, 3, 4]

int[][] matrix = new int[2][3];

[3][4]

Error

= 12

3×4
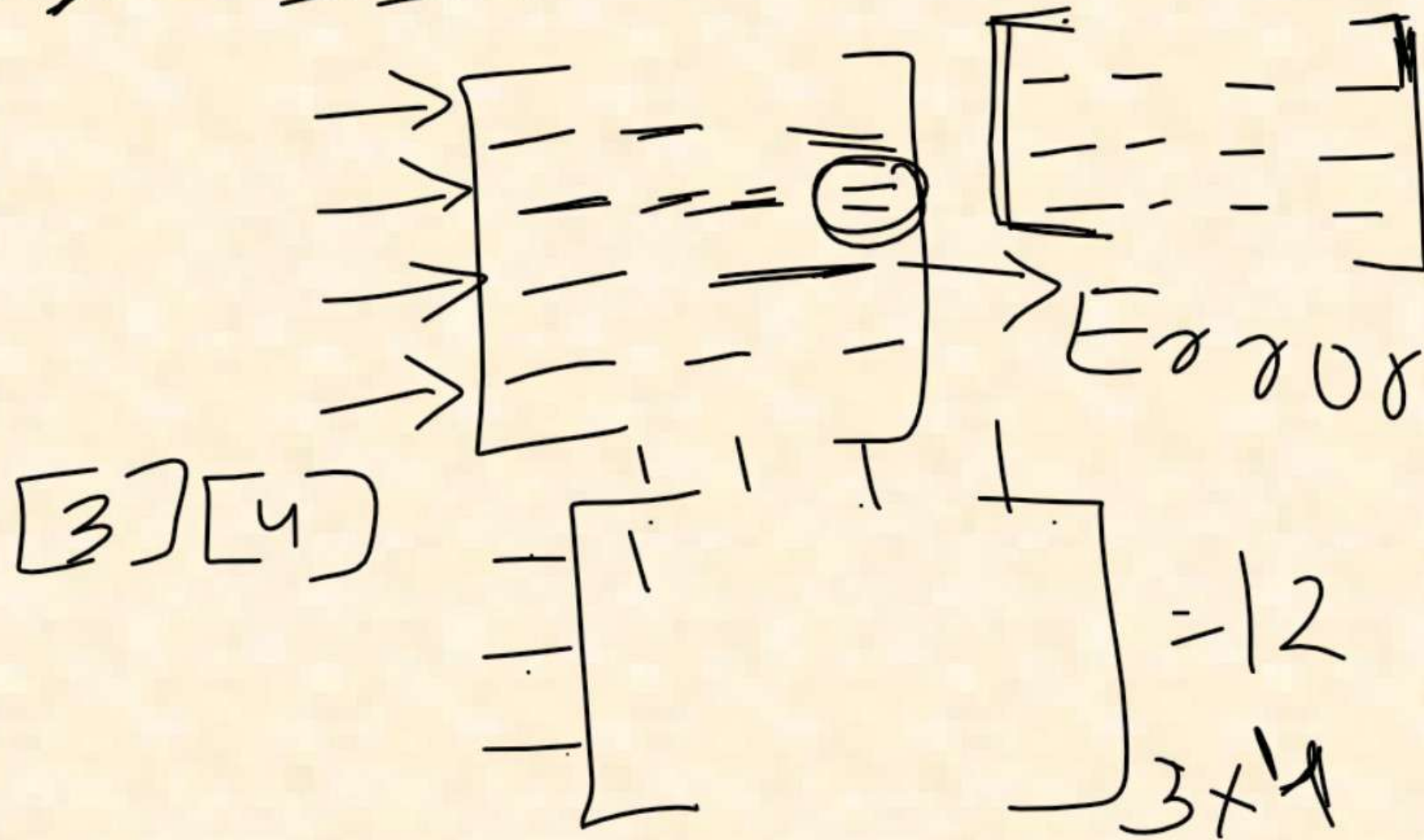
Code:

```java
import java.util.Scanner;

public class Array_example {

    public static void main(String[] args) {

//          int rno=1;
//          int rno2=2;
//          int rno3=3;
//          int rno4=4;
//          int rno5=5;
        Scanner sc=new Scanner(System.in);
        int[] rno=new int[5];
        System.out.println("Enter 5 students roll no.");
        for(int i=0;i<5;i++) {
         rno[i]=sc.nextInt();
        }
    System.out.println("Details Successfully Saved.");

        for(int i=0;i<5;i++) {

                System.out.println(rno[i]);
        }
        for(int i:rno) {
            System.out.println(i);
        }


            int[][] seat=new int[3][4];
            System.out.println("Enter seat details:");
            for(int i=0;i<3;i++) {
                for(int j=0;j<4;j++) {
                 seat[i][j]=sc.nextInt();
                }
            }
            System.out.println("Details Successfully
Saved.");

            int[][] seat= {{1,2,3},
                            {4,5},
                            {7,8,9}};
            for(int i=0;i<seat.length;i++) {
                for(int j=0;j<seat[i].length;j++) {
                 System.out.print(seat[i][j]+" ");
                }
                System.out.println();
            }
        }
}
```

ArrayList

ArrayList is Dynamic size Array. $\longrightarrow$ Acc. to need

Syntax:-

int

ArrayList<Integer> list=new ArrayList<>();

Datatype

name of list variable

Code:

```java
import java.util.*;
public class ArrayList_example {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner sc=new Scanner(System.in);
        ArrayList<Integer> rno=new ArrayList<>();
        for(int i=0;i<3;i++) {
            int a=sc.nextInt();
            rno.add(a);
        }
        for(int i=0;i<rno.size();i++) {
            System.out.print(rno.get(i)+" ");
        }
        System.out.println();
        rno.set(0, 10);
        for(int i=0;i<rno.size();i++) {
            System.out.print(rno.get(i)+" ");
        }
        System.out.print(rno.contains(2));
    }

}
```