Working with Single Dimensional Array

Session Goals

By the end of this session, you will be able to demonstrate how to:

- **Declare Arrays**
- **Initialize Arrays**
- **Access Arrays elements**

Context Setting

A Programmer

Needs to store 100 different words that will be used in a game.

Therefore, to store these values, a programmer needs to declare 100 variables.

Let Us Try to Find Out

- What are Arrays?
- Why do we need Arrays?
- What are the different types of Arrays?
- How do we use an Array in a program?

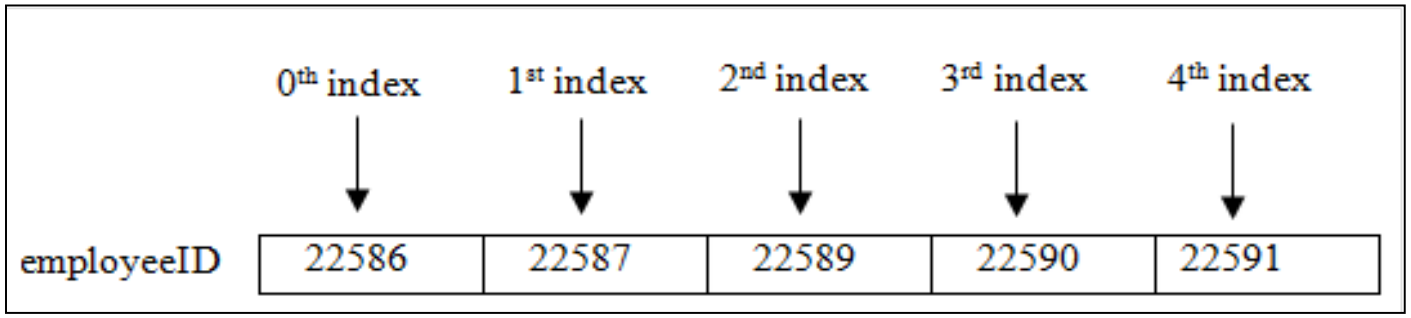
What are Arrays?

Arrays:

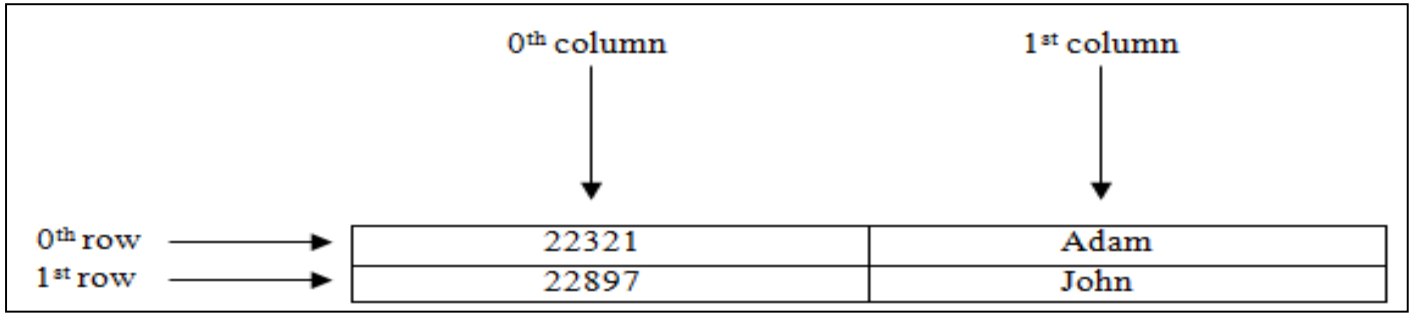
- **are objects which store multiple variables of the same type.**
- **can hold primitive data types as well as object references.**
- **are created on the heap.**
- **have a fixed length.**
- **are a utility class that provide many useful methods to work with.**

Types of Arrays

- **Different types of Arrays**
  - **One-dimensional array:**



  - **Multidimensional array**



Creating Single Dimension Arrays

- Syntax for creating Single Dimension Arrays

```
arraytype arrayname[] = new arraytype[size];

String jumbledWords[] = new String[3];

String jumbledWords[] ={“alpep”,”argneo”,”rgaeps”};
```

Accessing Single Dimension Arrays

- Syntax for accessing Single Dimension Arrays

  arrayname[index];

- Use for loop to access

```
String jumbledWords[] = {“alpep”,”argneo”,”rgaeps”};
for(int i=0;i<3;i++)
System.out.println(jumbledWords[i]);
```

Accessing Single Dimension Arrays Contd.

- Using length property of an array

```
String jumbledWords[] = {“alpep”,”argneo”,”rgaeps”};
for(int i=0;i<jumbledWords.length;i++)
   System.out.println(jumbledWords[i]);
```

- Using advance for loop to access an array

```
for(type var: arrayobject)

String[] jumbledWords = {“alpep”,”argneo”,”rgaeps”};
      System.out.println(“Elements stored in array are: “);
      for (String i : jumbledWords)
      {
      System.out.println(i);
}
```

Creating and Accessing Single Dimension Arrays Demo

```
public class ArrayOperations{
   public static void main(String args[])
   {
    String[] names = new String[3];
    names[0] = "Blue Shirt";
        names[1] = "Red Shirt";
        names[2] = "Black Shirt";
        int[] numbers = {100, 200, 300};
      for (String name:names)
         {
            System.out.println("Name:" + name);
            }
            for (int number:numbers)
            {
         System.out.println("Number:" + number);
            }
      }
 }
```

Creating and Accessing Single Dimension Arrays Demo

```
public class ArrayDemo {
   public static void main(String[] args) {
       int[] integers = {1, 2, 3}; //initializing an array
       String[] strings = {"one", "two", "three"};
       System.out.println("Printing integer array using for loop :");
       for (int i = 0; i < integers.length; i++) {
           System.out.println(integers[i]);
       }
       System.out.println("Printing string array using for loop :");
       for (int i = 0; i < strings.length; i++) {
           System.out.println(strings[i]);
       }
       System.out.println("Printing integer array using foreach loop :");
       for (int i : integers) {
           System.out.println(i);
       }
       System.out.println("Printing string array using foreach loop :");
       for (String s : strings) {
           System.out.println(s);
       }
   }
}
```

Key TakeAways

At the end of the session, you should be able to demonstrate how to:

- **Declare Arrays**
- **Initialize Arrays**
- **Access Arrays elements**

Thank You!