PW SKILLS

Lecture - 11

Arrays in Java

List of Concepts Involved:

- Why an array?
- What is an Array?
- How to create an array?
- 1d, 2d, and jagged Arrays with memory

Topics covered Yesterday's Session:

- OOPs Fundamentals

Why Array?

- If we use a traditional approach, then to store 5 values we need to create 5 variables.
- Similarly to store 100 values we need to create 100 variables.
- The drawback in the traditional approach is that remembering the variables names is complex, so to avoid this problem we need to use **“Arrays”**.

What is an Array?

- It refers to index collection of fixed number of homogeneous data elements.
- Single variable holding multiple values which improves readability of the program.

How to create an array?

Array declarations:

1. 1-Dimensional Array
2. 2-Dimensional Array
3. Jagged Arrays

1-D Array: Declaration of array

- int[] a;//recommended to use as variable is separated from type.
- int a[];
- int []a;
- int[6] a; // compile time error. we cannot specify the size.

Array Construction:

Every array in java is an object hence we create using a new operator.

Array Initialisation: Since arrays are treated as objects,internally based on the type of data we keep inside array
JVM will keep default values.

Shortcut way of declaration,construction,initialisation in single line:

```
int []a = {10,20,30,40};
char [] a= {'a','e','i','o','u'};
String[] a= {"sachin","ramesh","tendulkar","IND"};
```

2-D Array:

2D-Array = 1D - Array + 1D - Array
(ref) (data)

Declaration(All are valid)

- int[][] a ;
- int a[][];
- int [][]a;
- int[] []a;
- int[] a[];
- int []a[];

2-D Array:

Array Construction:

- int[][] a = new int[3][2];

  or

- int[][] a = new int[3][];

  a[0] = new int[5];

  a[1] = new int[3];

  a[2] = new int[1];

Array Initialization:

a[0][0] = 10;

a[2][3] = 5;

For-each/Enhanced For loop

The for-each loop in Java go through each element of the array individually. It runs the body of the loop after holding an element of the array in a variable.

The syntax of the for-each loop is given below:

```
for(data_type variable:array){
//body of the loop
}
```

Next Lecture

- Different ways to create an Array
- Buffer overrun and ArrayIndexOutOfBoundsException
- Disadvantages of Array in Java

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THANK YOU