

9. Writing a program in Java to verify implementation of arrays.

Source Code:

```
package FirstPackage;

public class Array {
    public static void main(String[] args) {
        // declaring an array of integers
        int[] numbers = new int[6];

        // initializing the array
        for (int i = 0; i < numbers.length; i++) {
            numbers[i] = i + 1;
        }

        // accessing elements of the array
        for (int i = 0; i < numbers.length; i++) {
            System.out.println("numbers[" + i + "] = " + numbers[i]);
        }

        // declaring and initializing an array of strings
        String[] names = {"Alexa", "Sovin", "Boby"};

        // accessing elements of the array
        for (int i = 0; i < names.length; i++) {
            System.out.println("names[" + i + "] = " + names[i]);
        }

        // multi-dimensional array
        int[][] matrix = {{34, 22, 33}, {31, 14, 12}, {15, 36, 55}};

        // accessing elements of the array
        for (int i = 0; i < matrix.length; i++) {
            for (int j = 0; j < matrix[i].length; j++) {
                System.out.println("matrix[" + i + "][" + j + "] = " +
matrix[i][j]);
            }
        }
    }
}
```

Output:

The screenshot shows the Eclipse IDE interface. The Package Explorer on the left shows a project named 'SampleProject' with a package 'FirstPackage' containing several Java files, including 'Array.java'. The main editor displays the code for 'Array.java', which includes a static method 'main' that demonstrates array operations: declaring an array of integers, initializing it with values 1 through 5, accessing elements, declaring and initializing an array of strings, and declaring and initializing a multi-dimensional array. The output console on the right shows the execution results, including the array elements and the multi-dimensional array data.

```
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        // declaring an array of integers
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        // initializing the array
        for (int i = 0; i < numbers.length; i++) {
            numbers[i] = i + 1;
        }

        // accessing elements of the array
        for (int i = 0; i < numbers.length; i++) {
            System.out.println("numbers[" + i + "] = " + numbers[i]);
        }

        // declaring and initializing an array of strings
        String[] names = {"Alexa", "Sovinn", "Boby"};

        // accessing elements of the array
        for (int i = 0; i < names.length; i++) {
            System.out.println("names[" + i + "] = " + names[i]);
        }

        // multi-dimensional array
        int[][] matrix = {{34, 22,33}, {31, 14,12}, {15, 36,55}};

        // accessing elements of the array
        for (int i = 0; i < matrix.length; i++) {
            for (int j = 0; j < matrix[i].length; j++) {
                System.out.println("matrix[" + i + "][" + j + "] = " + matrix[i][j]);
            }
        }
    }
}
```

```
<terminated> Array [Java Application] C
numbers[0] = 1
numbers[1] = 2
numbers[2] = 3
numbers[3] = 4
numbers[4] = 5
numbers[5] = 6
names[0] = Alexa
names[1] = Sovinn
names[2] = Boby
matrix[0][0] = 34
matrix[0][1] = 22
matrix[0][2] = 33
matrix[1][0] = 31
matrix[1][1] = 14
matrix[1][2] = 12
matrix[2][0] = 15
matrix[2][1] = 36
matrix[2][2] = 55
```