Assignment-9 Questions

1. What do you mean by array?

Ans: - An array is a data structure that stores a collection of elements, which can be of any data type, such as numbers, strings, or objects. The elements in an array are identified by an index, which is an integer value that represents the position of the element in the array. Arrays allow for efficient storage and retrieval of data and are commonly used in computer programming. The size of an array is fixed at the time of creation and cannot be changed dynamically.

2. How to create and array?

Ans: - Arrays are used to store multiple values in a single variable. In most programming languages, arrays are created using the following syntax:

Variable type [] array_name = {item1, item2, ..., itemN};

Where array_name is the name of the array, item1, item2, ..., itemN are the elements of the array, and N is the number of elements in the array.

3. Can we change the size of an array at run time?

Ans: - In Java, the size of an array is fixed when it is created and cannot be changed during runtime. However, you can create a new array with a different size and copy the elements from the original array to the new array.

4. Can you declare an array at run time?

Ans: - Yes, in Java, you can declare an array at runtime by using the new operator to create an array object with a specified size.

```
import java.util.Scanner;

public class Main {
  public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter the size of the array: ");
    int size = sc.nextInt();

    int[] array = new int[size];

    System.out.println("Array of size " + size + " has been created.");
  }
}
```

NAME :- RISHABH AGRAWAL
MBNO:- 9420155354
EMAIL:- agrawaltraders.rishabh@gmail.com

5. What is the default value of array?

Ans: - The default value of an array depends on the data type of the elements stored in the array. In Java, the default values for arrays of different data types are as follows:

For byte, short, int, and long arrays, the default value is 0.
For float and double arrays, the default value is 0.0.
For char arrays, the default value is '\u0000'.
For Boolean arrays, the default value is false.
For reference type arrays (e.g., String, Object, etc.), the default value is null.

6. What is a 1D array with an example?

Ans: - A one-dimensional (1D) array is a linear data structure that stores elements in a single row or column. It is also referred to as a single-dimensional array.

In Java, you can declare a 1D array by specifying the type of elements it will store, followed by the array name and the size of the array within square brackets [].

For example: -

```
public class Main {
  public static void main(String[] args) {
    int[] numbers = new int[5];

    numbers[0] = 10;
    numbers[1] = 20;
    numbers[2] = 30;
    numbers[3] = 40;
    numbers[4] = 50;

    System.out.println("First element of the array: " + numbers[0]);
    System.out.println("Second element of the array: " + numbers[1]);
    System.out.println("Third element of the array: " + numbers[2]);
    System.out.println("Fourth element of the array: " + numbers[3]);
    System.out.println("Fifth element of the array: " + numbers[4]);
  }
```

Output: -

```
First element of the array: 10
Second element of the array: 20
Third element of the array: 30
Fourth element of the array: 40
Fifth element of the array: 50
```

NAME :- RISHABH AGRAWAL
MBNO:- 9420155354
EMAIL:- agrawaltraders.rishabh@gmail.com

7. Write a program on a 2d array?

Ans: -

```
public class Main {
  public static void main(String[] args) {
    int[][] matrix = new int[3][3];

    matrix[0][0] = 1;
    matrix[0][1] = 2;
    matrix[0][2] = 3;
    matrix[1][0] = 4;
    matrix[1][1] = 5;
    matrix[1][2] = 6;
    matrix[2][0] = 7;
    matrix[2][1] = 8;
    matrix[2][2] = 9;

    for (int i = 0; i < matrix.length; i++) {
      for (int j = 0; j < matrix[i].length; j++) {
        System.out.print(matrix[i][j] + " ");
      }
      System.out.println();
    }
  }
}
```

Output: -

```
1 2 3
4 5 6
7 8 9
```

NAME :- RISHABH AGRAWAL
MBNO:- 9420155354
EMAIL:- agrawaltraders.rishabh@gmail.com