

Activity 5 – Array Exercises

Example 1: Accessing Array Elements

```
class Main {
    public static void main(String[] args) {

        // create an array
        int[] age = {12, 4, 5, 2, 5};

        // access each array elements
        System.out.println("Accessing Elements of Array:");
        System.out.println("First Element: " + age[0]);
        System.out.println("Second Element: " + age[1]);
        System.out.println("Third Element: " + age[2]);
        System.out.println("Fourth Element: " + age[3]);
        System.out.println("Fifth Element: " + age[4]);
    }
}
```

[Run Code](#)

Output

```
Accessing Elements of Array:
First Element: 12
Second Element: 4
Third Element: 5
Fourth Element: 2
Fifth Element: 5
```

Example 2: Print Array Elements (Using For-Each)

```
// print array elements

class Main {
    public static void main(String[] args) {

        // create an array
        int[] numbers = {3, 9, 5, -5};

        // for each loop
        for (int number: numbers) {
            System.out.println(number);
        }
    }
}
```

```
}  
}
```

Example 3: Sum of Array Elements (Using For-Each) – Array Provided

```
// Calculate the sum of all elements of an array  
  
class Main {  
    public static void main(String[] args) {  
  
        // an array of numbers  
        int[] numbers = {3, 4, 5, -5, 0, 12};  
        int sum = 0;  
  
        // iterating through each element of the array  
        for (int number: numbers) {  
            sum += number;  
        }  
  
        System.out.println("Sum = " + sum);  
    }  
}
```

Example 4: Sum of Array Elements (Using For-Each) – Array Created in program

```
1. import java.util.Scanner;  
2. public class Array_Sum  
3. {  
4.     public static void main(String[] args)  
5.     {  
6.         int n, sum = 0;  
7.         Scanner s = new Scanner(System.in);  
8.         System.out.print("Enter size of the array:");  
9.         n = s.nextInt();  
10.        int a[] = new int[n];  
11.        System.out.println("Enter array elements:");  
12.        for(int i = 0; i < n; i++)  
13.        {  
14.            a[i] = s.nextInt();  
15.            sum = sum + a[i];  
16.        }  
17.        System.out.println("Sum of the array is:"+sum);  
18.    }  
19. }
```

Program Explanation

1. The program starts by importing the **java.util.Scanner class**, which will be used to read user input.
2. In the main method, the program declares two integer variables: "**n**" and "**sum**". "**n**" will be used to store the number of elements in the array and "**sum**" will be used to store the sum of all elements in the array.
3. The program creates an instance of the Scanner class named "**s**" and uses it to prompt the user to enter the number of elements they want in the array.
4. The user's input is then read using the **nextInt()** method of the Scanner class and stored in the "**n**" variable.
5. The program creates an integer array named "**a**" with a length of "**n**".
6. The program then prompts the user to enter all the elements of the array and reads each element using a for loop that iterates from 0 to n-1.
7. Within the loop, the user's input is stored in the "**a**" array and added to the "**sum**" variable.
8. Once all elements have been read and added to the sum, the program prints the sum of all elements in the array to the console using the **System.out.println()** method.

Program 1

1. Create an array for the following: Volvo, BMW, Ford, Mazda
2. Output each value from the array.

Solution

```
String[] cars = {"Volvo", "BMW", "Ford", "Mazda"};
for (String i : cars) {
    System.out.println(i);
}
```

Program 2

1. Create an array for the following student marks: 2, -9, 0, 5, 12, -25, 22, 9, 8, 12.
2. Calculate the total and average of the marks.

Solution

```
class Main {
    public static void main(String[] args) {

        int[] numbers = {2, -9, 0, 5, 12, -25, 22, 9, 8, 12};
        int sum = 0;
        Double average;

        // access all elements using for each loop
        // add each element in sum
        for (int number: numbers) {
            sum += number;
        }

        // get the total number of elements
        int arrayLength = numbers.length;

        // calculate the average
        // convert the average from int to double
        average = ((double)sum / (double)arrayLength);

        System.out.println("Sum = " + sum);
        System.out.println("Average = " + average);
    }
}
```

[Run Code](#)

Output:

```
Sum = 36
```

Program 3

Write a program to find and output the largest element in the list: 10, 324, 45, 90, 9808.

```
// Java Program to find maximum in arr[]
class Test
{
    static int arr[] = {10, 324, 45, 90, 9808};

    // Method to find maximum in arr[]
    static int largest()
    {
        int i;

        // Initialize maximum element
        int max = arr[0];

        // Traverse array elements from second and
        // compare every element with current max
        for (i = 1; i < arr.length; i++)
            if (arr[i] > max)
                max = arr[i];

        return max;
    }
    // Driver method
    public static void main(String[] args)
    {
        System.out.println("Largest in given array is " + largest());
    }
}
```