CSE 215: Programming Language II Lab
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Lab – 4
Array

An Array is a collection of **similar type** of elements which have a **contiguous memory location (Stack Memory Location)**.

- Java supports arrays of primitive data types, similar to C.
- Unlike C, Java also has support for arrays of the String datatype.
- Similar to C, Java arrays use 0-based indexing.

Declaring arrays:

```
<datatype>[] <array_identifier> = new datatype[size];
For example:
```

```
int[] myIntArray = new int[5];
String[] myStringArray = new String[5];

myIntArray[0] = 2;
myIntArray[1] = 3;

myStringArray[0] = "Hello";
myStringArray[1] = "World";
```

Declaring and Assigning values in one statement:

```
String[] cars = {"Volvo", "BMW", "Ford", "Mazda"};
```

2D and 3D arrays also follow the same principle for declarations.

2D array

```
<datatype>[][] <array_identifier> = new datatype[row][col];
```

3D array, can you name the daily usage of such array?

```
<datatype>[][][] <array_identifier> = new datatype[channel][row][col];
```

Task:

1. Declare an integer array of size 6, initialize it with user input, calculate and print the average. Now calculate the percentage of numbers that are above that average.

For example: if 3 of the array elements are greater than average, percentage is: 3 * 100 / 6 = 50%

2. Take an integer from user, generate that many Fibonacci numbers and store in an array. Display the array.

Sample output:

```
Enter a number: 8
First 8 Fibonacci numbers: 0 1 1 2 3 5 8 13
```

3. Take a 3X3 array and initialize it with these values:

3 4 9
4 6 0
2 9 11

Calculate and print the sum for each row, column and both diagonals.

4. Take an integer array and print only the numbers that are in consecutive orders of 3.

```
Enter size: 12
Enter numbers: 1 2 3 2 2 2 11 4 4 4 3 3
Output: 2 4
```