

### 1-D Case

`l = [13, 99, 6, 76, 11, 83, 27, 84, 28, 67, 66, 22, 96, 46, 63, 21, 65, 48, 8, 14, 84, 22, 28, 11, 83, 87, 11, 76, 6, 83, 27]`

Q2. Write a program to find the Maximum element of the array `l`.

Q3. Write a program to find the Minimum element of the array `l`.

Q4. Write a program to find the range of the values of array `l`. Note that range of values is equal to `max - min`.

Q5. Write a program to search a given element in the array.

Q6. Write a program to sort the array in ascending order.

Q7. Write a program to sort the array in descending order.

Q8. Write a program to find the average (mean) of the array `l`.

Q9. Write a program to find the squared-standard deviation of the array `l`. Recall that squared-standard deviation is average of the squared-difference of each data point from the mean. In first step, accumulate (sum) the square of difference of each element from the mean. In the next divide the sum by total number of elements. Squared-Standard deviation of `l` = 994.17

Q10. Find the number of unique elements in the array `l`.

Q11. Write a program to find the mode (element with maximum occurrence) of the array `l`.

Q12. Write a program to find the median of the array `l`.

Q13. Write a program to calculate the histogram of the array `l` [Challenging].

Q14. Print the Histogram in the form of a bar chart using `"*"`

### 2-D Case

Now consider a 4x4 two-dimensional array `td` with following elements.

```
int td[4][4]={{5, 12, 60,80},{1,16,24,12},{10,25,32,39},{14,99,78,62}};
```

Q1. Find the sum of all elements of `td`.

Q2. Find average of each rows.

Q3. Find trace of the matrix `td`.

Q4. Find average of the diagonal elements of `td`.

Q6. Print the transpose of matrix `td`.

Q7. Define another matrix `td2` and copy all the elements of `td` to `td2`.

Q8. Define a vector (array of size of 4 elements) and find its product with the matrix. (A matrix-vector product)

Q9. Now find the product between matrix `td` and `td2` and store the results of matrix multiplication in another matrix `td3` of the same size.