**College Logo**

**<College NAME>**

**Gaushala Kathmandu**



**DSA Lab 1 report**

**Submitted To: Submitted By:**

**Name Name:**

**Department of Computer Science Roll no:**

**………………. Section:**

**TITLE:** Read 10 integers, find their average, and determine by how much each integer deviates from that average.

**INTRODUCTION**

Array is an ordered collection of data items in which data items are stored in a contigious memory. It stores same types of data item. Data item can be inserted and deleted at any position.The primitive operation that can be performed on array are: insertion,deletion,modify, search and traverse.

**Declaring Arrays**

To declare an array in C, a programmer specifies the type of the elements and the number of elements required by an array as follows:

*type arrayName [ arraySize ];*

ex:

*double balance [ 10 ] ;*

where, balance is a variable array which is sufficient to hold up to 10 double numbers.

**Accessing Array:**

An element is accessed by indexing the array name. This is done by placing the index of the element within square brackets after the name of the array. For example.

*Double salary = balance [4];*

The above statement will take fifth element from the array and assign the value to salary variable.

**Storing on/ initialization (of) Array:**

Array in C can be initialized either one by one or using a single element as follows:

*double balance [ 5 ] = { 1000.0, 2.0 , 3.4, 7.o, 50.0};*

The number of values between braces{} can not be larger than the number of elements that we declare for the array between square brackets [].

Or you can omit the size, the required size will created during initialization as follows:

*double balance [ ] = { 1000.0, 2.0 , 3.4, 7.o, 50.0};*

Exactly the same array is created as you did in the previous example. Following is an element to assign a single element of the array

*balance [ 4] = 1000.0;*

The above statement assign element number 5th in the array with a value of 100.

**ALGORITHM:  
Write algorithm in this section**

**SOURCE CODE:**

/\* Read 10 integers from user, find sum, average and

deviation of each number from input\*/

# include <stdio.h>

# include <Conio.h>

//Main function starts here

void main()

{

int index, sum=0, array[10];

float average, deviation[10];

clrscr();

// Print your name and roll number

printf(“\n\n\n YourName\t\t\t YourRollnumber”);

// Read 10 values from console

printf("Enter 10 numbers \n");

for ( index = 0 ; index <10 ; index++)

{

scanf("%d", &array[index]);

sum = sum + array[index];

} // End for loop

//calculate average

average = (float) sum / 10 ;

//calculate deviation

float deviation[10];

for ( index = 0 ; index <10 ; index++)

{

if( array[index] > average)

deviation[index] = array[index] - average;

else

deviation[index] = average - array[index];

} //end for loop

// print sum and average

printf("\n\n\nTotal sum = %d \t\t\t and average = %f",sum, average);

// print deviation from each number

printf("\n\n\n Deviation from each input is:\n\n ");

for ( index = 0 ; index <10 ; index++)

printf(" %f\t",deviation[index]);

getch();

} //End main

**OUTPUT**

**put program screen shot over here :**

**press screenshot key on keyboard**

**paste on ms paint using ctrl+V**

**crop , copy and affix required part on the document**

**CONCLUSION:**

**Summarize the lesson you have learned**

**for eg:**

* Array is used to store multiple data of same type
* data item are stored in contiguous memory
* can be declared according to the input size
* data item can be inserted, deleted, modified, traversed, searched etc

**Note:**

* Lab report should be in handwritten format
* Take snapshot of your output , print your name and roll number at top on output along with program title.
* create folder Lab 1 inside folder DSA\_Kist\_Labno\_YourSection\_Rollno (For ex DSA\_Kist\_LAB01\_A\_01 )on google drive and upload All program of lab1 and share with email hbanjade@gmail.com