**Arrays**

1. **Introduction**

An array is a storage area which is used to store a set of data values that are of the same kind with one variable name.

1. **Array types**

Array in visual basic can be as follow :

* One – Dimensional Arrays
* Control Arrays
* Two – Dimensional Arrays

**2.1 One –Dimensional Arrays**

An example of one- dimensional array is shown in figure below. This figure illustrates an array named **A** contains four elements and subscript named **(I).**

a(1)))

a(2)))



A(I)=A(4)=

a(3)))

a(4)))

1. **Array Declaration**

* A Dim statement is Used to declare an array.
* A Dim statement must occur before the first reference to the array elements.
* The following format can be used to declare the one dimensional array:

***Dim arrayName(m (start value) To n ( end value)) As varType***where m and n are integers***.***

***Example1:***

Write a VB program to input and print the elements for the array A(4).

***Solution :***

*Private Sub Form\_Click()*

*Dim A(1 To 4) As Single*

*For I = 1 To 4*

*A(I) = Val(InputBox("Enter element of A", I))*

*Print A(I(*

*Next I*

*End Sub*

***Example2:***

Write a VB program to generate the elements randomly [0,10] for the array C(8).

***Solution :***

*Private Sub Form\_Click()*

*Dim C(1 To 8) As Integer*

*For I = 1 To 8*

*C(I) = 10 \* Rnd*

*Print C(I(*

*Next I*

*End Sub*

***Example3:***

Write a VB program to enter the elements for the array A(6) then display the array B(6) which contain the reversed A elements.

***Solution:***

Private Sub Form\_Click()

Dim A(1 To 6), B(1 To 6) As Single

For I = 1 To 6

A(I) = Val(InputBox("Enter element of A", I((

Next I

For I = 1 To 6

B(I) = A(7 – I(

Next I

For I = 1 To 6

Print A(I); Spc(8); B(I(

Next I

End Sub

***Example4:***

Write a VB program to enter the elements of two arrays A and B. Each array contains (14) elements then display the array C(14) contain the mean between opposite numbers in two arrays.

***Solution:***

Private Sub Form\_Click()

Dim A(1 To 14), B(1 To 14), C(1 To 14) As Single

For I = 1 To 14

A(I) = Val(InputBox("Enter element of A", I))

B(I) = Val(InputBox("Enter element of B", I))

Next I

For I = 1 To 14

*C*(I) = A(I) + B(I) / 2

Next I

For I = 1 To 14

Print A(I); Spc(4); B(I); Spc(8); C(I(

Next I

End Sub

1. **Array Operations**
   1. **Finding Maximum and Minimum value**

***Example1:***

Write a VB program to enter the elements for the array A(10). Then find and print the maximum and minimum value in this array and locates its position.

***Solution:***

*Private Sub Form\_Click()*

*Dim L1, L2 As Integer*

*Dim A(1 To 10) As Integer*

*For I = 1 To 10*

*A(I) = Val(InputBox("Enter element of A", I))*

*Print A(I(*

*Next I*

*Max = A(1(*

*Min = A(1(*

*For I = 1 To 10*

*If A(I) >= Max Then*

*Max = A(I(*

*L1 = I*

*End If*

*If A(I) <= Min Then*

*Min = A(I(*

*L2 = I*

*End If*

*Next I*

*Print "Maximum="; Max; "AT Location"; L1*

*Print "Minimum="; Min; "AT Location"; L2*

*End Sub*

Homework: Write a VB to enter 25 numbers then find the following:

1. *Sum of odd numbers.*
2. *Number of even numbers.*