Lab 9

Module Main( )

Constant Integer SIZE = 10

Declare String names = [‘Ross Harrison’, ‘Hannah Beauregard’, ‘Bob White’, ‘Ava Fischer’,

‘Chris Rich’, ‘Xavier Adams’, ‘Sasha Ricci’, ‘Danielle Porter’, ‘Gordon Pike’,‘Matt Hoyle’]

Declare String search = ‘ ‘

Declare Integer index

Call Module insertionSort(String Ref names[ ], Integer SIZE)

Call Module displayMod(String names)

Display ‘Please enter the name for which you wish to search: ‘

Input search

Set index = binarySearch(String names [ ], String search, Integer SIZE)

If index > -1 Then

Display ‘This person is number ‘, index + 1, ‘ on the list.’

Else Then

Display ‘Error. The name you are searching for is not on the list.’

End If

End Module

Function Integer binarySearch(String names [ ], String search, Integer SIZE)

Declare Integer first = 0

Declare Integer last = SIZE – 1

Declare Integer position = -1

Declare Boolean found = False

Declare Integer middle = 0

While (NOT found) AND (first <= last)

Set middle = (first + last) / 2

If names[middle] == search Then

found = True

position = middle

Else If names[middle] > search Then

Set last = middle – 1

Else

Set first = middle + 1

End If

End While

Return position

End Function

Module Insertion Sort(String Ref names [ ], Integer SIZE)

Declare Integer index

Declare Integer scan

Declare Integer unsortedValue

For index = 1 to SIZE – 1

Set unsortedValue = names[index]

Set scan = index

While scan > 0 AND names[scan – 1] > unsortedValue

Set names[scan] = names[scan – 1]

Set scan = scan – 1

End While

Set array[scan] = unsortedValue

End For

End Module

Module displayMod(names)

Display ‘Here is a list of the names in the group, in alphabetical order: ‘, names

End Module

Call Module Main( )