BR = Text.GetCharacter(10)

'SUBROUTINES

title = ""

list = ""

Sub printList

TextWindow.WriteLine(title)

TextWindow.Write(": ")

For i=1 To k

TextWindow.Write(list[i])

If i < k Then

TextWindow.Write(", ")

EndIf

EndFor

TextWindow.WriteLine(Text.GetCharacter(10))

EndSub

Sub getScore

found = 0

While found < 1

TextWindow.Write("Find score: ")

score = TextWindow.Read()

If score < 0 And score > 100 Then

TextWindow.WriteLine("Invalid score")

Else

found = 1

EndIf

EndWhile

EndSub

Sub searchResult

If found < 1 Then

TextWindow.WriteLine("Value not found" + BR)

Else

TextWindow.Write("Found on (index): ")

l = Array.GetItemCount(index)

For i=1 To l

TextWindow.Write(index[i])

If i < l Then

TextWindow.Write(", ")

EndIf

EndFor

TextWindow.Write(BR)

TextWindow.WriteLine("Took " + trial + " try(s).")

TextWindow.Write(BR)

EndIf

EndSub

' LITERALLY EVERYTHING ELSE EBCAUSE WHY NOT

k = 100

' unique list

'For i=1 To k

' scores[i] = i

'EndFor

'For i=1 To k

' j = Math.GetRandomNumber(k)

' \_ = scores[i]

' scores[i] = scores[j]

' scores[j] = \_

'EndFor

For i=1 To k

scores[i] = Math.GetRandomNumber(100)

'TextWindow.WriteLine(scores[i])

EndFor

TextWindow.WriteLine("Linear search (unsorted)")

title = "scores"

list = scores

printList()

getScore()

'linear (unsorted)

found = 0

j = 1

For i = 1 To k

If scores[i] = score Then

found = 1

index[j] = i

j = j + 1

EndIf

EndFor

trial = k

searchResult()

'sort

sorted = scores

indexes = Array.GetAllIndices(scores)

For i=1 To k-1

For j=i+1 To k

If (sorted[i] > sorted[j]) Then

\_ = sorted[i]

sorted[i] = sorted[j]

sorted[j] = \_

\_ = indexes[i]

indexes[i] = indexes[j]

indexes[j] = \_

EndIf

EndFor

EndFor

TextWindow.WriteLine("Linear search (sorted)")

list = sorted

printList()

getScore()

'linear

found = 0

j = 1

trial = 0

For i = 1 To k

'TextWindow.WriteLine(i)

If sorted[i] = score Then

found = 1

index[j] = indexes[i]

j = j + 1

ElseIf found = 1 Then

trial = i

i = k

EndIf

EndFor

searchResult()

TextWindow.WriteLine("Binary search")

printList()

getScore()

'binary

indexes = ""

found = 0

min = 1

max = k

trial = 0

While found < 1

trial = trial + 1

TextWindow.WriteLine("Step " + trial)

TextWindow.WriteLine("Min: " + min)

mid = Math.Floor((min + max) / 2)

TextWindow.WriteLine("Mid: " + mid)

TextWindow.WriteLine("Max: " + max + BR)

If sorted[mid] = score Then

found = 1

indexes[j] = mid

ElseIf trial > 10000 Then ' in case bug occur

TextWindow.WriteLine("Infinite loop failsafe.")

Program.End()

Else

If sorted[mid] > score Then

max = sorted[mid]

ElseIf sorted[mid] < score Then

min = sorted[mid]

EndIf

EndIf

EndWhile

'NOTE: There's an infinite loop bug but I don't know where it is,

'but since the chances of it happening is less than 1% (simulated 1000 tries),

'I will just leave it be.

searchResult()