CS330 - Computer Organization & Assembly Language
Assignment # 10

Due Date: 11/30/2019 Saturday 11:59 PM

Individual Work Only

Instructions:

- Assignment must be completed and turned in by the due date given in canvas.
- Upload the .s files to Canvas. It must be a .s file or you will lose points.

Problem:

Write an AT&T/GNU syntax assembly language program to find an element in an array using the Binary Search algorithm. You may hardcode the array. There are 5 bonus points available for taking user input to fill the array the array with elements, and 5 bonus points for taking user input for the item to search for.
Pseudocode, from geeksforgeeks:

```
def binarySearch (arr, l, r, x):
    if r >= l:
        mid = l + (r - l)//2
        if arr[mid] == x:
            return mid
        elif arr[mid] > x:
            return binarySearch(arr, l, mid-1, x)
        else:
            return binarySearch(arr, mid+1, r, x)
    else:
        return -1
```

Notes:

> You cannot turn in code that was converted from C to Assembly. It is acceptable to view it for building an understanding, but you will earn a zero for turning in that code.

Your code must be compilable with the command `gcc [filename]` on Vulcan (moat.cis.uab.edu) in order to earn any credit. You will earn a zero if the code cannot be compiled in this way.

You cannot turn in any other assembly syntax but AT&T Assembly 64 bit. This is not the syntax we have been teaching and is not compilable with the above given command. You will earn a zero if the syntax is not AT&T Assembly 64 bit.