Gebze Institute of Technology
Department of Computer Engineering
CSE 241/505
Object Oriented Programming
Fall 2014
Homework # 2
Function Pointers
Due date Oct 13th 2014

In this homework you will learn and use function pointers. If you did not attend the PS about function pointers, you may find good information about function pointers from the web.

First read and understand standard C functions such as lsearch, qsort, and lfind. The page at http://www.cplusplus.com/reference/clibrary/cstdlib/bsearch/ is a good source of information for these types of functions.

Then write a global C function that returns a pointer to the nth element of a given array. The prototype for the function should be like (very similar to lsearch)

```
void * return_nth (const void * base,
                   size_t num, size_t size,
                   int nth,
                   int (* comparator) (const void *, const void *));
```

The returned element should be the nth element of the sorted array, so you should sort the array if it is not sorted.
Here are the rules for the function

- It should work for any array data type such as int, double, char, DayOfYear, Person
- It should return null if paramater nth is out of range
- It should not modify the array
- It should not use any other standard C functions

Test your function at least 6 times with arrays of int, double, Person, and DayOfYear. Write and implement any classes required for your testing. You will also need comparator functions for each type.

Notes:

- You should submit your work to the moodle page.