

# CS-231 PROGRAMMING LANGUAGE DESIGN

## SORTING USING FUNCTIONAL OBJECTS

In this program, you will write a C++ program for the following task. You will process a two files, one containing employee names, education level and salaries, second containing name, sex and age of the persons.

In the first file, (employees.txt) name will be two word string with first name and last name, education level will be "High\_School", "Bachelors", "Masters", "Doctorate". Salaries will be a "\$" sign followed by an integer. Each line will contain these with "," (comma) as a separator. For example,

```
John Smith,Masters,$60000
Jackie Collins,Doctorate,$80000
Will Smith,Masters,$100000
```

In the second file, (persons.txt) name will be two word string with first name and last name, sex will be F for female and M for male and age will be an integer. Each line will contain these with "," (comma) as a separator. For example,

```
Jack Smith,M,45
Amy Collins,F,35
Bill Williams,M,34
```

Create lists of (structs) one for employee records and another for persons.

1. Read the lists from a file and load it into a `vector` type in C++
2. Use functional object called `Humans` with overload sort operator. One of them sorts employees and other sorts persons.
3. There is a sort-by variable in the `Humans` that is assigned a value of "NAME", "EDUCATION", "SALARY", "AGE", or "SEX"
4. The main instantiates the functional object and calls sort to sort the vector using three sort-by values for persons and three sort-by values for employees.
5. The result of sorting is printed. After each sort call original list must be preserved before the next sort.
6. Print all the 6 sorted list.

**NO LOOPS CAN BE USED IN THIS ASSIGNMENT EXCEPT FOR STEPS 1 and 6.** (If you must use a loop, it will cost you 20 points off per loop. Loops include range based loops, for loops, do loops, for-each loops and do-while loops.

You can use any iterators, classes and algorithms from STL. `count-if`, `find-if`, `sort`, `copy-if`, `transform`, `remove-if` are all algorithms that might be helpful for this assignment