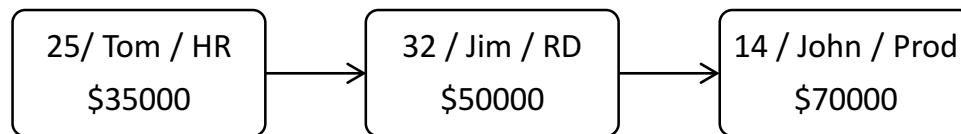# CSCI 3400 Homework 4

In this homework, you will implement a single linked list to store a list of employees in a company. Every employee has an ID, name, department, and salary. You will create 2 classes: Employee and EmployeeList. Employee class should have all information about an employee and also a "next" pointer. See below:

Employee	
Type	**Attribute**
int	ID
string	name
string	department
int	salary
Employee*	next
Return Type	*Function*
(constructor)	**Employee**(int ID, string name, string department, int salary)

EmployeeList class should have a head pointer and a size as attributes. The head pointer points to list of the employee nodes. In the class, following member functions should be implemented:

EmployeeList	
Type	*Attribute*
Employee*	head
int	size
Return Type	*Function*
(constructor)	**EmployeeList**()
void	**addEmployee**(int ID, string name, string department, int salary)
void	**removeEmployee**(int ID)
void	**print**()
void	**print**(string department)
void	**print**(int ID)
int	**getSize**()
bool	**isEmpty**()

addEmployee (): Adds a new employee to the list. The new employee is placed based on his/her salary <mark>from lowest to highest</mark>. For example, if you have following three employees:

25/ Tom / HR $35000	→	32 / Jim / RD $50000	→	14 / John / Prod $70000

A new employee, "*11 / Mike / Marketing / $65000*" will be placed between Jim and John since his salary is more than $50000 and less than $70000.

removeEmployee(): This functions will remove the employee using by his/her ID. If the given ID number is not in the list, it will give an error.

print(): Prints all employees in (salary) order. ID, name, department, and salary should be printed for each employee.

print(string department): Prints all employees whose department matches with the user input department.

print(int ID): Prints the employee with given input ID.

getSize(): returns the number of employees in the list.

isEmpty(): returns true if list is empty, returns false otherwise.

The main program is provided for you. So you will only implement the Employee and EmployeeList classes. I expect you to have 2 files: EmployeeList.h and EmployeeList.cpp. Employee class definition should be in the EmployeeList.h file.

main.cpp includes all necessary functions to read the dataset file (dataset.txt). Also, several test cases are prepared for you to see whether your code is running or not. <mark>You do not need to change any code in the main.cpp file.</mark>