

**King Saud University**  
**College of Computer & Information Sciences**  
**Computer Science Department**

CSC111 Lab Week13	Arrays
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**Exercise 1:**

Having company class (see UML class diagram), we would like to manage employees of a company.

**Attributes:**

- id[]: an array that contains IDs of employees
- name[]: an array that contains names of employees
- salary[]: an array that contains salaries of employees
- current: the first empty index (represent the number of inserted employees).

<b>Company</b>
-id[]:int -name[]:String -salary[]:float -current:int
+Company(int size) +addEmployee(int i,String n,float s):boolean +search(int id):int +findMaxSalary():float +findMinSalary():float +calculateTotalSalaries():float +calculateAverageSalaries():float +printEmployeeData(int i):void

**The methods:**

- +Company(int size): a constructor that initialize all three arrays with the specified size and set current index to zero.
- +addEmployee(int i,String n,float s): add an employee data to the current index & increment current index by one (*hint: you have to check if array size is not exceeded*)
- +search(int i): return the index of employee with the specified id, if ID does not exists, return -1
- +findMaxSalary(): return the max salary among all employees
- +findMinSalary(): return the max salary among all employees
- +calculateTotalSalaries(): calculate the total sum of all salaries
- +calculateAverageSalaries(): calculate the average of all salaries.
- +printEmployeeData(int i): prints employee data that has the specified id (*hint: use search() method to find the index*)

- a) Implement the class **Company**.
- b) Test your program using the main class (**TestCompany**). Your program should create an instance of class Company with maximum employees size = 10. In addition, it should display a menu driven interface that lists the following options:

```
1)Add a new employee info
2)Quit
Your choice?
```

In the first option, you have to prompt the user to enter employee data from keyboard. In case of the employee can't be added (i.e. array has reached max size), print a statement explaining this case.

When the use chooses Quit, you should display **max salary**, **min salary**, **total salaries**, and **average salaries**. Also, choose an existed employee id and display his/her information, and another employee that does not exist.

### Sample run:

```
Welcome to Company System
1)Add a new employee info
2)Quit
Your choice?
1
Enter employee ID, name, and salary, respectively
123
saad
10000
Employee data were added successfully
1)Add a new employee info
2)Quit
Your choice?
1
Enter employee ID, name, and salary, respectively
111
khalid
20000
Employee data were added successfully
1)Add a new employee info
2)Quit
Your choice?
1
Enter employee ID, name, and salary, respectively
666
Ali
5000
Employee data were added successfully
1)Add a new employee info
2)Quit
Your choice?
2
max salary: 20000.0
min salary: 5000.0
total salaries: 35000.0
average salaries: 11666.667

-----
Printing Employee Data
-----
id: 666
name: Ali
salary: 5000.0
-----

Employee ID is not found
```