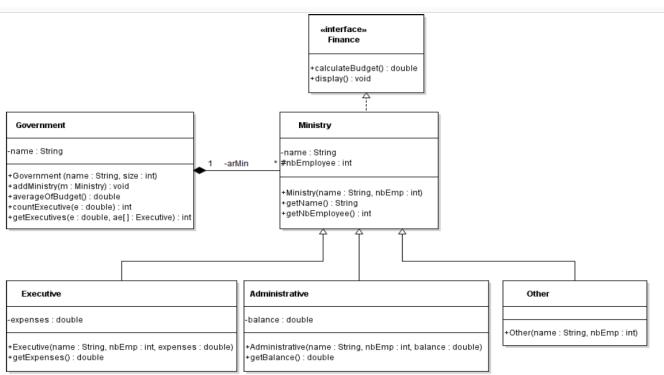# King Saud University
College of Computer and Information Systems
Department of Computer Science
CSC 113: Java Programming-II

Tutorial: Abstract Methods and Interface

Finance interface:
- ○ Methods:
  - ▪ *calculateBudget ()*:This method calculates and returns the budget of a Ministry. The budget of a Ministry is calculated as follows:
    - ○ **Executive**:
      Budget = expenses + nbEmployee * 1.5
    - ○ **Administrative**:
      Budget = nbEmployee * 10000 - balance.
    - ○ **Other**
      Budget = nbEmployee * 10000.
  - ▪ *display()*: display all the attributes

Ministry class:
- ○ Attributes:
  - • *name*: the name of the ministry.
  - • *nbEmployee:* number of employees in the ministry
- ○ Methods:
  - ▪ *Ministry(name: String, nbEmp: int)*: constructor
  - ▪ *getName ()*: this method returns the name of the ministry.
  - ▪ *getNbEmployee ()*: this method returns the number of employees of the ministry.

***Executive* class**
- o Attributes:
  - • ***expenses***: the expenses of the ministry.
- o Methods:
  - ▪ ***Executive(name: String, nbEmp : int, expenses : double)***: constructor.
  - ▪ ***getExpenses()***: this method returns the amount of expenses.

***Administrative* class:**
- o Attributes:
  - • ***balance***: the basic salary allocated for the role.
- o Methods:
  - ▪ ***Administrative (name: String , nbEmp : int, balance : double):*** constructor.
  - ▪ ***getBalance ():*** This method returns the balance of the administrative ministry.

***Other* class:**
- o Methods:
  - ▪ ***Other (name: String , nbEmp : int):*** constructor.

Government class
- o Attributes:
  - • ***name***: the name of the Government.
- o Methods:
  - ▪ ***Goverment (name: String, size: int)***: constructor.
  - ▪ ***addMinistry(m: Ministry)***: this method adds the *Ministry* m to the Government.
  - ▪ ***averageOfBudget ()***: this method calculates and returns the average budget of all ministries of the government.
  - ▪ ***countExecutive(e: double):*** this method returns the number of **Executive** ministries with **expenses** greater than **e**.
  - ▪ ***getExecutives(e : double, ae[ ]: Executive):*** This method inserts into the array **ae** all *Executive* ministries having expenses greater than **e** and budget greater than the average budget. Also this method returns the number of *Executive* ministries added to **ae**.

QUESTION: Translate into Java code the following. We assume the remaining classes are available.

- ▪ The interface ***Finance.***
- ▪ The class ***Ministry.***
- ▪ The class ***Executive.***
- ▪ The class ***Government.***