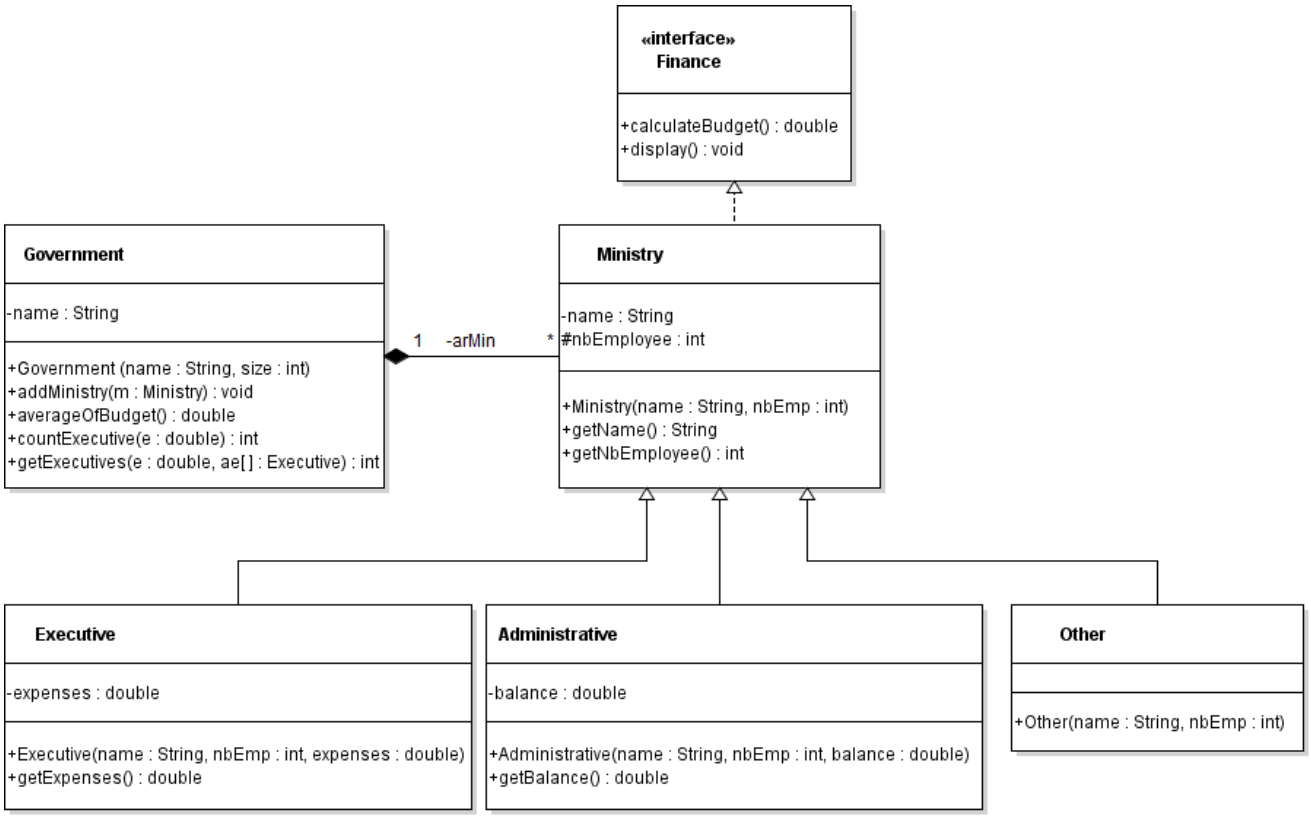
King Saud University
College of Computer and Information Sciences
Department of Computer Science
CSC113 – Computer Programming II – Midterm 2 Exam – Spring 2015

Exercise1:



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

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

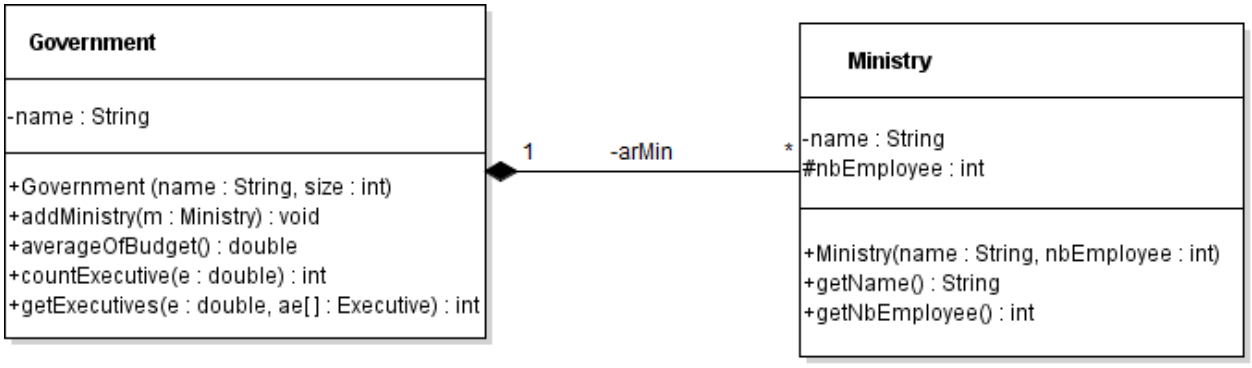
Other class:
- Methods:
  - ***Other (name: String , nbEmp : int):*** constructor.

QUESTION: Translate into Java code the following:

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

Exercise 2:

Let's consider the same class ***Ministry*** described in exercise 1.



Government class

- Attributes:
  - ***name***: the name of the Government.
- 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 class ***Government.***