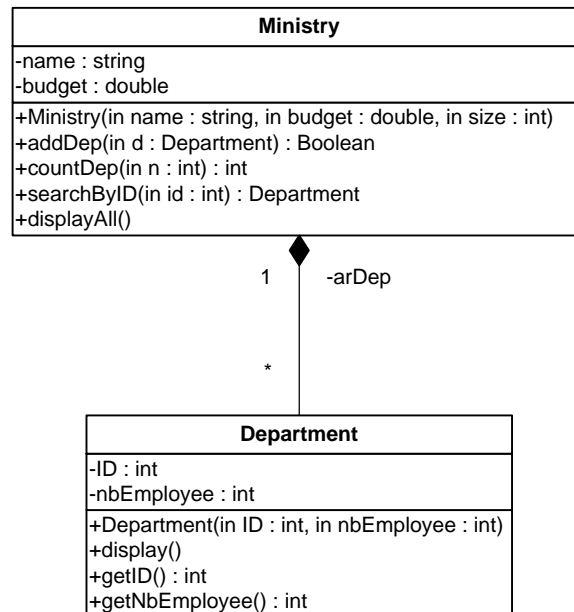


King Saud University
College of Computer and Information Sciences
Department of Computer Science
CSC113 – Computer Programming II – Midterm 1 Exam – Spring 2015

Exercise1:



Department class:

- Attributes:
 - **ID**: the identifier of the department.
 - **nbEmployee**: the number of employees of the department.
- Methods:
 - **Department (ID: int, nbEmployee: int)**: constructor
 - **getID()**: this method returns the identifier (ID) of the department.
 - **getNbEmployee()**: this method returns the number of employees of the department.
 - **searchByID(id: int)**: this method returns the department of the ministry which ID is equal to *id*.
 - **display()**: this method displays all the information of the department.

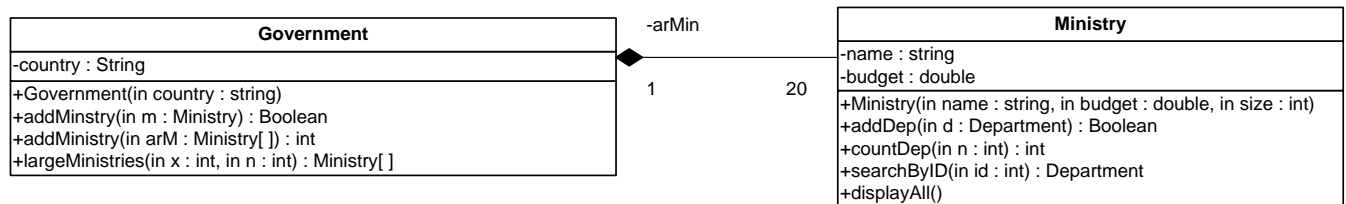
Ministry class

- Attributes:
 - **name**: the name of the ministry.
 - **budget**: the budget of the ministry.
- Methods:
 - **Ministry (name: String, budget: double, size: int)**: constructor.
 - **addDep(d: Department)**: this method adds the department **d** to the ministry . It returns *true* if the *department d* is successfully added. Otherwise, it returns *false*.
 - **countDep (n: int)**:this method returns the number of departments having the number of employees greater or equal to **n**.
 - **displayAll()**:this method displays the information of all departments of the ministry.

QUESTION: Translate into Java code the **Ministry** class.

Exercise 2:

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



Government class:

- Attributes:
 - **country**: the country of the government.
- Methods:
 - **Government(country: String)**: constructor
 - **addMinistry (m: Ministry)**:this method adds the ministry *m* to the government . It returns *true* if the *ministry m* is successfully added. Otherwise, it returns *false*.
 - **addMinistry (arM: Ministry[])**:this method adds all the ministries in the array *arM* to the government. It returns the number of ministries successfully added to the government.
 - **largeMinistries(x: int, n: int)**:this method returns an array containing the ministries which include exactly *x* departments having more than *n* employees.

QUESTION: Translate into Java code the class **Government**.

Exercise 3:

Let's consider the same classes described in exercise 1 and 2.

Write a class with a main method doing the following:

- Create the following 2 departments:
 - dep1: ID = 111, nbEmployee = 200;
 - dep2: ID = 222, nbEmployee = 100;
- Create the ministry of "Education" with 10Millions SAR as budget and 5 departments.
- Add the department dep1 and dep2 to the ministry of "Education".
- Create a Government of the country "Peace".
- Add the ministry of "Education" to the government.
- Display all information of the department, of the ministry of "Education", having the ID = 123.