

Online Spring 2020 Assessment2 – F1

Evaluation:

IMPORTANT! You must complete this experiment during your scheduled lab period. All work for this experiment must be demonstrated to and verified by your lab instructor before the end of your scheduled lab period.

Step	Percentage	Score
Person class	25	
Nurse class	25	
Doctor class	25	
Main	25	

Signature of Evaluator: _____

Academic Honesty Statement:

“In signing this statement, I hereby certify that the work on this experiment is my own and that I have not copied the work of any other student (past or present) while completing this experiment. I understand that if I fail to honor this agreement, I will receive a score of ZERO for this experiment and be subject to possible disciplinary action.”

Name:

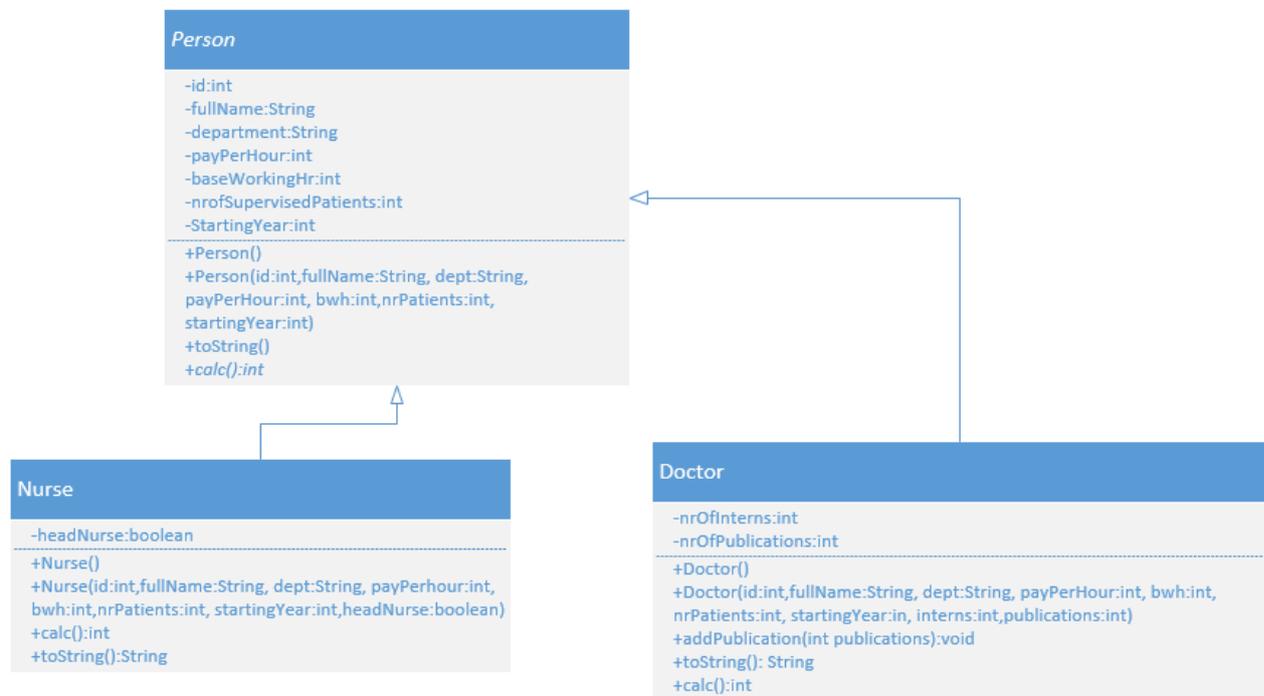
ID:

Section:

Date:

1. Programming Task (100 marks)

Given the UML diagram below implement the code in NetBeans.



Create abstract class Person, and classes Nurse and Doctor.

Define all attributes and implement all necessary getters and setters for Person, Nurse, and Doctor.

- Implement the methods in class **Person** with the following specifications:

-Method **calc ()** is abstract.

-Method **toString()** will return a string with all the information about the person, as in the example below:

- “John Doe - 1234 - works in Heart surgery department since 1995, 40 hours/week, for 25 KD/hour. There are currently 30 patients under the supervision.”

-Method **equals (Object obj)** should check if the startingYear of the current object and (Person) obj is the same, and return true in this case, false otherwise. (Note: the method is not showing in the UML above)

- Implement the methods in class Nurse with the following specifications:

-Method **calc()** will calculate the salary of the nurse by multiplying baseWorkingHours * payPerHour. If the nurse is a headNurse, 100 KD are added to the salary.

-Method **toString()** will return a string with all the information about the Nurse as in the example below:

- “John Doe - 1234 - works in Heart surgery department since 1995, 40 hours/week, for 25 KD/hour. There are currently 30 patients under the supervision. Head Nurse? False”

- Implement the methods in class Doctor with the following specifications:

-Method **toString()** will return a string with all the information about the Doctor as in the example below:

“John Doe - 1234 - works in Heart surgery department since 1995, 40 hours/week, for 25 KD/hour. There are currently 30 patients under the supervision and 45 interns. John Doe has 51 publications”

-Method **addPublications(int publications)** will increase the total number of publications by *publications*.

-Method **calc()**, will calculate the final salary of the doctor. Salary= number of publications *10 + payPer hour * baseWorkingHours.

- In the **main()** method, create four People.

Person p1 is a Nurse with the following values:

Id: 1234, fullName: Ali AlKandari, department: Emergency, baseSalary:800, baseWorkingHr:40, nrOfSupervisedPatients: 23, starting year: 2012, headNurse: false

Person p2 is a Nurse with the following values:

Id: 3215, fullName: Noura AlObaid, department: Physiotherapy, baseSalary: 900, baseWorkingHr: 45, nrOfSupervisedPatients: 37, starting year: 2005, headNurse: True

Person p3 is a Doctor with the following values:

Id: 2154, fullName: Naif AlMutairi, department: Heart, baseSalary: 1300, baseWorkingHr: 37, nrOfSupervisedPatients: 37, starting year: 2009, number of surgeries: 137, number of interns: 17, number of publications: 21

Person p4 is a Doctor with the following values:

Id: 2154, fullName: Fatma Muqem, department: NeuroSurgery, baseSalary: 1600, baseWorkingHr: 30, nrOfSupervisedPatients: 27, starting year: 2012, number of surgeries: 87, number of interns: 20, number of publications: 19

Print the information for all Persons (p1, p2, p3, p4).

Print the salaries of the nurses.

Check if the nurse p1 and p2 are head nurse.

Print the salaries of the doctors.

Add two publications for doctor p3; print the result.

Add a publication for doctor p3; print the results.

Compare the salaries of the doctors after the update and print the Doctor who has the higher salary.

Submit **your project** in zip or rar format in your section's page.