HO CHI MINH UNIVERSITY OF SCIENCE
FACULTY OF INFORMATION TECHNOLOGY
SOFTWARE ENGINEERING DEPARTMENT
ADVANCED PROGRAM IN COMPUTER SCIENCE
COURSE: **PROGRAMMING SYSTEMS**
LECTURER: Dr. ĐINH BÁ TIẾN

WEEK 04

INHERITANCE

- TRƯƠNG PHƯỚC LỘC
- HỒ TUẤN THANH

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1 Exercises

1.1 Exercise 01: University

A university X has 3 different kinds of staff members: teaching assistants, lecturers and researchers. Due to the differences in their work, each of them receives their salaries differently:

- Teach assistants: they are working in the labs to help students to do their lab exercises. They receive their salaries based on the number of hours that they have done in that month. The formula to calculate the salary is:
    - Salary (TA) = 0.8 * Number_Of_Work_Hours * Base_Salary
- Lecturer: they are doing the lectures and also research in the school. The salary paid for lecturers based on the number of hours that he/she has taught and the number of papers that he/she has published in that month:
    - Salary (L) = 1.2 * Number_Of_Lecturing_Hours * Base_Salary + Paper_Support * Number_Of_Papers.
- Researchers: they are only doing their research work. Their salaries are based on the number of projects that they are working and the number of papers that they have published in that month.
    - Salary (R) = Number_Of_Research_Projects * Project_Salary + 1.1 * Paper_Support * Number_Of_Papers

The Base_Salary, Paper_Support or Project_Salary is basic amount of money for teaching and researching that the school decided based on the government's policies. They were set up and known beforehand

You are asked to do the followings:

- Draw a class diagram to show the design of classes and their relationships for this problem.
- Define at least 5 constructors for each class
- Write the source code to allow the school to input a list of N staff members. When inputting each staff member, the program will asked which type he/she is and input other related information: name, number of hours, number of projects or number of papers accordingly.
- Write the source code to print out list of staff members.
- Write the source code to print out the total amount of money that the school has to pay for all of its staff members.

1.2 Exercise 02: Console

Which information will be printed out the console screen?

In-class assignment (I01): Exercise 01

Homework (H01): Exercise 01, Exercise 02