

SOFTWARE FOR MOBILE DEVICES (FALL 2019)

ASSIGNMENT 1

Instructions

Deadline: Sunday 1st September 2019, 11:55 pm.

Follow submission guidelines in lecture slides.

Question 1)

(10 points)

There are 3 different type of employees in a software house:

1. Project Managers
2. Software Developers
3. Interns

All these type of employees enjoy certain Benefits. e.g. Project Managers get Health Insurance etc. Interns have some **basic benefits**, Software Developers have those benefits + some of their own i.e. **dev benefits** and Project Managers have all the benefits i.e. **manager benefits**.

a) Draw the hierarchy of Employees and give code for it in Java(use an Array to store benefits in string form). (5 points)

Every employee is paid at the end of every month. For this purpose, we have a `void calculatePay()` method which is run in order to update the balance of an employee.

b) Write this method in its appropriate class. (2 points)

The company's software runs like this:

There is an array that stores all the employees in it. A simple loop is run in which each employee's pay is calculated.

c) Write code for this. (3 points)

Question 2)

(10 points)

Flex Student module at FAST crashes every time the course registration button is clicked while the registration period is active and some code error was displayed. Correct the following code that was found so that a proper error message is displayed.

```
public class Main {  
    public static class Student{  
        void openRegistrationPage(){  
            long coursesOffered[] = new long[1000000000];  
        }  
    }  
    public static void main(String[] args) {  
        Student currentStudent= new Student();  
        currentStudent.openRegistrationPage();  
    }  
}
```

We also want that no matter if there is an error or not, the message "Registration period active" is displayed on top of page.

Question 3)

(10 points)

There are 2 classes: Class A and Class B.

We want that class B has access to some methods of class A but not all of them. i.e. if A has methods `doThis()` and `doThat()`, B can call `doThis()` somehow but can't call `doThat()`. Write code for this.

Question 4)

(10 points)

There are 2 type of Students in a university.

1. Type A: The ones who receive a scholarship.
2. Type B: The ones who pay full fee.

We have to calculate the due fee of each category of students.

Calculation is done in the following manner: number of courses * per course fee.

The one's who receive a scholarship get a 50% deduction on this calculated fee.

Write a method `calculateFee()` for both the type of students.

Question 5)

(10 points)

You have created an application which as soon as a process starts (i.e. if you start playing a game).

It sends a "Stop wasting time" message to that process every 60 seconds. Upon receiving that message, you can either `exitGame()` or keep `continuePlaying()`. Write a prototype for this application.