Technical Assignment

TEST #3 • Back-End • English

Version 1.0, July 2017

Introduction

Following test comprises a single technical task, which must be implemented in .NET or Java. Instead of a multiple choice quiz, in this assignment we expect you to write, test, and document code.

You can use any IDE of your choice. Please test the code thoroughly before submitting your solution (please comment parts of the code that do not fully correspond to the requirements).

Recommendations:

● Your solution should be efficient and concise, and follow common .NET or Java coding guidelines.

● Application errors should be handled appropriately.

● Resource management should be implemented correctly, as demanded by .NET or Java.

● Namespaces of your project (.NET) or packages (Java) must be well formatted and have coherent structure.

● Avoid writing entire application code in a single class. Instead, split code into multiple classes according to its intent.

● All code should be commented appropriately.

Task 1 – OOD

Description

There is a company; the company can have staff members. Staff members are characterized by their name, date when they joined the company, and base salary (to keep it simple, consider this value to be equal for all staff member types by default.)

There are 3 types of staff members: Employee, Manager, Sales. Any staff member can have a supervisor. Any staff member except for Employee can have subordinates.

Employee salary - base salary plus 3% for each year they have worked with the company, but not more than 30% of the base salary.

Manager salary - base salary plus 5% for each year they have worked with the company (but not more than 40% of the base salary), plus 0.5% of salaries of their first level subordinates.

Sales salary - base salary plus 1% for each year they have worked with the company (but not more than 35% of the base salary) plus 0.3% of salaries of their subordinates of any level.

Staff members (except Employee) can have any number of subordinates of any type.

Requirements

Create a class library that describes this model, and implement an algorithm that calculates salary of any staff member at an arbitrary time (as well as calculate the sum of salaries of all staff members of the company).

The system must be verified by unit-tests (100% code coverage is not necessary, but the tests should demonstrate that the business logic works correctly).

In addition, prepare a brief description of the solution for the test assignment, including description of its architecture, its advantages and drawbacks (what can be changed or improved in the solution to make it ready for real-world usage.)

A DBMS is not necessary; the data model is transient.

Submitting Your Solution

Before sending the solution for review, please make sure all requirements and recommendations were met.

Step-by-step instruction for solution submission:

1. Collect all files into a **single archive** (including several test files.)

Note: if the archive is larger than 10MB, upload it into the cloud (Dropbox, Google Drive, etc.)

2. **Reply** to the email in which the assignment was sent to you, and attach the solution or a link to the solution.

Note: attach the solution description document together with the solution archive, and describe how to build and run the project