KAZAKH KBTU BRITISH TECHNICAL UNIVERSITY

Object-Oriented programming
Project (SIS3 & SIS 4)
University system

For your project you will need to create university (intranet) system. You should have **classes** (*superclasses, subclasses, abstract* ones), **interfaces**, **enumerations, your own exceptions** – all object-oriented programming techniques that we've studied.

Before coding you will need to design your system and create UML diagrams (*Use Case*, then *Class Diagram*). This is your SIS3 part A.

General notes

- Your classes **must be serializable** (write methods for serialization/deserialization).
- You need to use Comparable, Cloneable, Serializable interfaces, realize equals(), hashCode(), toString() methods.
- It is **obligatory** to have the following classes: `User`, `Employee`, `ORManager`, `Teacher`, `Student`, `Admin`, `Course`, `Mark`, `CourseFile`, `Executor` or `TechSupportGuy` (person that executes orders of employees).
- Any user should access the system via authentication.
- Try to take into account as many details as possible.
    - For example, you can use *Enumeration* to represent teachers' titles – TUTOR, LECTOR, SENIOR_LECTOR, PROFESSOR, etc.
    - Remember that, for any additional detail you will get extra credit.
- For SIS 3 part B, you ARE NOT obliged to simulate the system at work you will just create beans (classes, interfaces, etc.).
- I omit the description of details, because that is not only a programming task, but also **DESIGN** task, so it is up to you which fields/methods your classes will have.
- You can take some ideas from Lab 5 (Problem #2)

This is important:

- Properly & efficiently working serialization
- OOP structure
- Consistency with UML
- Intuitive interface
- Functionality

Functionality

Teacher:

- Add courses
- Manage courses (view courses, add/delete course files (e.g. labs)
- View students for specific courses, information about students

- Put marks
- Send order to IT support guys

Student:

- Register for a course
- View courses
    - View files of courses
    - View information about the teacher of specific course
    - View marks for specific course
- View transcript

Admin:

- Manage users
    - Add user
    - Remove user
    - Update info about the user
- See log files about users' actions

Manager:

- Add courses for registration
    - You will need to specify for which specialty/year of study the course is intended
- View info about students and teachers (in different orders – sorted alphabetically, by gpa, etc.)
- Send messages to teachers

TechSupport Guy:

- View new orders
    - After choosing this option, he can either accept or reject it. In case of accepting the order, the order is not "new" anymore
- View done & accepted (but not yet done) orders

Bonuses

Implement smth like this:

- Search by different patterns
- Schedule
- Attendance
- Report generation option for teachers (about students' marks)
- … any valid idea

Requirements for the report

- The report must be complete, detailed and well-structured.
- Prepare soft copy (in pdf-format).
- It has to have detailed description of your classes, interfaces, etc.

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GOOD LUCK ☺