CSF202 – Lab Class 2 – Wednesday 30/10/2020

The lab work for this session is pen and paper work, as opposed to programming. You can work in a small group for this (2 to 4 people) in order to discuss the modelling and bounce ideas around..

☐ Task 2.1

Create a UML class diagram that captures the system described below. Remember to make use of classes, associations, multiplicities, attributes, operations, types and visibility. Add any appropriate setters/getters and constructors.

Partial transcript from an interview with Prof Schrödinger PVC of the University That Theoretically Exists (UTTE).

In a dark candlelit study full of many leather bound books...

PROF. SCHRÖDINGER : Here at UTTE we only worry about three things; lecturers, students and modules. After all universities aren't really **that** complicated! We like our students very much and so we record their names, title and age. We can get a student's title, name and age and we can change a student's name and title. Our students are magical and once they join our university they never age so it is not possible to change their age.

INTERVIEWER : What about modules?

PROF. SCHRÖDINGER : A module is quite simple really, it is something that has a name, a number of credits and a year. We like to keep things fairly relaxed here at UTTE so any of this information can be changed at any time.

INTERVIEWER : Is that really it? It sounds too simple to be true!

PROF. SCHRÖDINGER : Oh, well I suppose that you also can get a textual description of a module, sometimes it is easier to have all the details in one place.

INTERVIEWER : You mentioned lecturers, what are these mystical creatures?

PROF. SCHRÖDINGER : Now lecturers are quite like students as they have a name, title and age. We can get a lecturer's name, title and age but unlike students we don't let a lecturer's name, title age change.

INTERVIEWER : That sounds a bit mean.

PROF. SCHRÖDINGER : Well they're a rowdy bunch and keeping them under control is like herding cats! Why can't they just do what they are told?

INTERVIEWER : Fair enough... you were talking about lecturers?

PROF. SCHRÖDINGER : Oh yes, sorry I got distracted by complaining. Well lecturers can also mentor other lecturers.

INTERVIEWER : Interesting, how many lecturers can a lecturer mentor?

PROF. SCHRÖDINGER : Well, they don't have to mentor any I suppose but we allow them to mentor up to 2 other lecturers.

INTERVIEWER : Very gracious of you. How do lecturers relate to modules and students?

PROF. SCHRÖDINGER : Oh, a lecturer can teach modules or I suppose they can coordinate modules.

INTERVIEWER : Those are different things?

PROF. SCHRÖDINGER : Yes, yes very different. Lots of admin or something. (PROF. SCHRÖDINGER *whispers*) To be honest I haven't taught anything in 50 years.

INTERVIEWER : I'll pretend I didn't hear that. How many modules would you get lecturers teach or coordinate?

PROF. SCHRÖDINGER : As many as possible really. There isn't an upper limit but we make sure that every lecturer teaches at least 2 modules.

INTERVIEWER : How many lecturers would teach or coordinate a module?

PROF. SCHRÖDINGER : One! You think we are made of money!?

INTERVIEWER : My sincerest apologies, I meant no offence.

PROF. SCHRÖDINGER : None taken. We also make sure that our lecturers tutor students outside of modules. We like to give them 5 to 10 students to tutor although a few sneaky lecturers manage to ignore the emails end up with none! Students should always have one tutor. We consider this to be one of our best ideas!

INTERVIEWER : Is that everything?

PROF. SCHRÖDINGER : Probably...

INTERVIEWER : I might be mistaken but don't students take modules? Isn't that somewhat the point of a university?

PROF. SCHRÖDINGER : Of course! It was so obvious I forgot to mention it. Yes, every module can be taken by students, in fact a student must be always be taking 6 modules at any time. We require a module to have at least 10 students on it otherwise we get rid of it. There isn't really a limit on how many students can take a module, our underwater basket weaving module has over 11,000 students!! We can also register a student on a module, we tell a student what module they are doing and if they tell us if they can or cant take that module. I don't know how it works they remember it somehow!!!

INTERVIEWER : This sounds like a terrible system and I think that you may be unwell, let's end the interview there...

PROF. SCHRÖDINGER : Have you seen my cat anywhere? I think I last saw it in a box, I wonder if it is ok.

Try to make sure your class diagram reflects what has been said about the university system. Some things will not be defined completely. You are welcome to make some assumptions as long as they aren't counter to what is said in the text.

☐ Challenge Task 2.2

There are various software tools that allow you to draw UML diagrams. One free option is

draw.io is a free online diagramming tool that can be used to create class diagrams. `https://app.diagrams.net/`

Try out **draw.io** (use the link above) and reconstruct your University model.