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**Report Lab 1, CZ2007**

First of all, we chose Stakeholders, Staff, Professors and Students to be the subclasses of the entity set People, so that all of their common attributes can be addressed to People. This prevents us from repeating the common attributes, hence avoiding redundancy. The unique attributes can simply be addressed to their respective subclasses. The "Person ID" is used as the key attribute. This way, one person can belong to several subclasses.

Moreover, we have chosen the types of staff to be subclasses instead of attributes because the two different types of staff has a relation to another entity, as described in the later part of the assignment. For example, only technical staff is assigned to at most one laboratory (which is a many-to-one relationship). Later, we will also see that the two types of laboratories have different specifications（have its own relationship with others）, which means the types of laboratories have to be defined as subclasses. Concluding the second bullet of the assignment, we decided to have Equipment as an entity set. More specifically, since Equipment needs the keys of the Laboratory (i.e. name and school of Laboratory) to be defined, Equipment was set to be a weak entity. Since there are many equipment in one laboratory, and all of the equipment has to be placed in one of the laboratories, a rounded arrow was drawn towards "Laboratory".

Moving onto the third bullet, we chose "Course" to be an entity set. As there are at least one professor for a course, this tells us it is a many-to-one relationship, and hence, the pointed arrow was used. Students "take" the courses (many-to-many). Since undergraduates and graduates have different specifications, we chose to define them as subclasses of "Students". Undergraduates attend different experiments and are marked by Date/Time which we had chosen to be the key of Experiments. Besides Date/Time, there is also another key attribute "Room Number", as there may be more than one experiments going on at the same time. This way, when a student attends an experiment, the date linked to this experiment is automatically linked to the student's attendance.

We then chose "Research" to be an entity set. This way, we can include all information about research easily and neatly. First of all, the rounded arrow pointing to Research Lab indicates that every research has to be done in at least one research lab. The researches are supervised by at least one professor, so a rounded arrow is also used here. We decided to set the "topic" of the research to be the key attribute of Research. As the topic of the research alone is not enough to define research, Research is therefore a weak entity set which needs the key attributes of Professors, Graduates or Research Lab to be defined(because we want to identify the relationships with those entity and weak entity is good at identifying relationship among several entities).

The entity set "Course" has a many-to-one relationship (timetable) with Professors. The Course contains key attributes Index # and datetime. The index number confines all information about what exact course this is and just as important, what exact index the course has (just like at NTU). We set date/time as another key attribute because if there is only index as a key, it can never show a course (which is divided into tutorial and lab) can be taught by a professor at several different time in a week.

Finally, stakeholders can give comments/suggestions. We had represented this as an entity set and the key for this entity is date and topic.