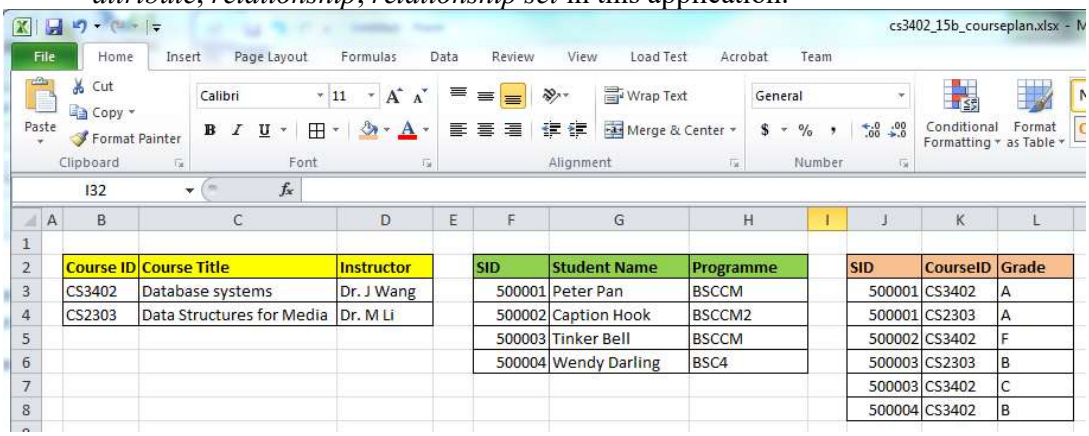
# CS3402 Tutorial 1 (Introduction and ER Model):

1. Below are some sample data stored in an Excel file. Identify *entity*, *entity set*, *attribute*, *relationship*, *relationship set* in this application.




| Course ID | Course Title | Instructor |
|---|---|---|
| CS3402 | Database systems | Dr. J Wang |
| CS2303 | Data Structures for Media | Dr. M Li |

| SID | Student Name | Programme |
|---|---|---|
| 500001 | Peter Pan | BSCCM |
| 500002 | Caption Hook | BSCCM2 |
| 500003 | Tinker Bell | BSCCM |
| 500004 | Wendy Darling | BSC4 |

| SID | CourseID | Grade |
|---|---|---|
| 500001 | CS3402 | A |
| 500001 | CS2303 | A |
| 500002 | CS3402 | F |
| 500003 | CS2303 | B |
| 500003 | CS3402 | C |
| 500004 | CS3402 | B |

2. Construct an ER diagram for a car insurance company with a set of customers, each of whom owns a number of cars. Each car has a number of recorded accidents associated with it.

3. Construct an ER diagram for a hospital with a set of patients and a set of medical doctors. A log of the various conducted tests and results is associated with each patient.

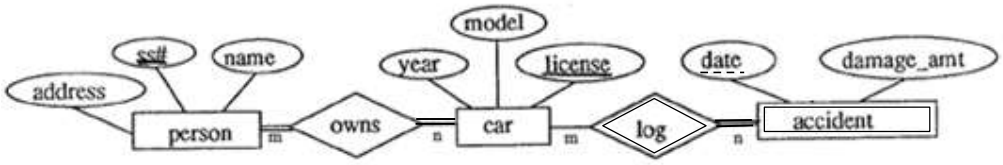
Note the questions (2 & 3) do not contain sufficient information for building the two E/R diagrams. So you can have your own assumptions when drawing your ER diagrams.

# CS3402 Tutorial 1:

1. **Answer**:

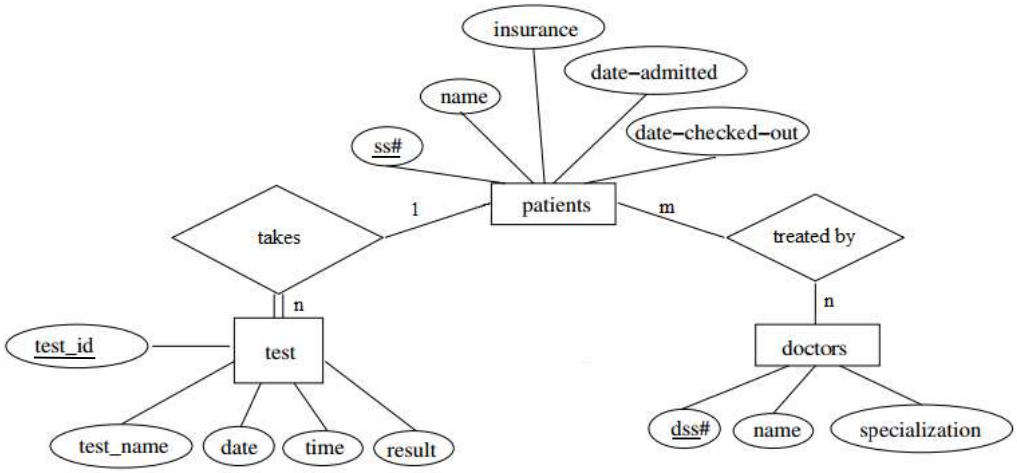
   *Entity*: every single course, each individual student, each instructor
   *Entity set*: the set of students, the set of courses, and the set of instructors
   *Attributes*: CourseID, Course Title, Student ID, Student Name, Student Programme, Student Grade (an attribute of a relationship), Instructor Name
   *Relationship*: Dr. J Wang teaching CS3402, Dr. M Li teaching CS2303, student Peter Pan taking course CS2303, student Caption Hook taking course CS3402 …
   *Relationship set*: the set of relationships of which students taking which courses, the set of relationships of which teacher teaching which course

2. **Answer**:




It is assumed that one car may be owned by multiple customers (like family members). An accident may involve more than one car and a car may have several times of accidents or no accident.

3. **Answer**:




It is assumed that a patient may have more than one doctor； a doctor can treat many patients. Some patients may be not treated by any doctor yet; and a new doctor has not treated any patient yet. Each test has a unique test ID.

Note the questions (2 & 3) do not contain sufficient information for building the two E/R diagrams. The answers are only samples.

For Q2, it is assumed that one car may be owned by multiple customers (like family members). An accident may involve more than one car. Some car may be not involved in any of accidents.

For Q3, a patient may have more than one doctor； a doctor can treat many patients. Some patients may be not treated by any doctor yet; and a new doctor has not treated any patient yet. Each test has a unique test ID.

To TA：Please explain some key points in Q2&Q3 answers to our students, including weak entity set, identifying relationship, full participation, cardinality constraint, and key attributes.