

## Homework assignment 2

### Chapter 3

#### Problem 1

##### 3.16

Which combinations of attributes have to be unique for each individual SECTION entity in the UNIVERSITY database shown in Figure 3.20 to enforce each of the following miniworld constraints:

- a. During a particular semester and year, only one section can use a particular classroom at a particular DaysTime value
- b. b. During a particular semester and year, an instructor can teach only one section at a particular DaysTime value.
- c. During a particular semester and year, the section numbers for sections offered for the same course must all be different.
- d. Can you think of any other similar constraints?

#### Problem 2

Show an alternative design for the attribute described in Exercise 3.17

that uses only entity types (including weak entity types, if needed) and relationship types. (This is a continuation from problem 3 from the homework assignment 1)

#### Problem 3

Consider the ER diagram in Figure 3.23. Assume that an employee may work in up to two departments or may not be assigned to any department.

Assume that each department must have one and may have up to three phone numbers. Supply (min, max) constraints on this diagram. State clearly

any additional assumptions you make. Under what conditions would the relationship HAS\_PHONE be redundant in this example?