**IS 441 Database Management Systems Class Outline**

**Week 1**

**Dr. Yüe Jeff Zhang**

I. Given entities, identify their main attributes, and primary key – the unique identifier of rows

1. Things: Bottled water

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | *Attribute values* | **Attributes** | *Attribute values* |
| Volume (given as an example) |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

2.1 Individuals: Student 【Think about the treatment of the Name field】

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | *Attribute values* | **Attributes** | *Attribute values* |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

2.2 Individuals: Patient

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | *Attribute values* | **Attributes** | *Attribute values* |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

What can we say about the attributes of the same person in different business scenarios? – the same individual in school/store/accident (business situations) will have \_\_\_\_\_\_\_\_\_\_\_\_\_ attributes.

3. Organization: Company

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | *Attribute values* | **Attributes** | *Attribute values* |
| Name |  |  |  |
| CEO |  |  |  |
|  |  |  |  |
|  |  |  |  |

Note: “DEPARTMENT” and “EMPLOYEE” wrt entity COMPANY: … So: >>>

Department:

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | *Attribute values* | **Attributes** | *Attribute values* |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

(Think: University, College, Faculty, Student, Course – do all these appear in UNIVERSITY?)

(Think: Company, Department, Employee, Product – do all these appear in COMPANY?)

Another line of the type “organization”: Country, State, City. Brief discussion:

4. Events/activities: Campus student org-sponsored events

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | *Attribute values* | **Attributes** | *Attribute values* |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Accident

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes** | *Attribute values* | **Attributes** | *Attribute values* |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

II. Expression of tables in text representation (and Primary key, foreign key)

Example: CAMPUS\_EVENT and STUD\_ORG

III. Building Databases

Key points:

1. Data types:
2. Primary key; composite key;
3. Input mask; validation rule/validation text
4. Foreign key; referential integrity
5. NULL value/Required; Domain