Practice Lab #3

Date: 06/18/2020

# **Student Schema Structure**

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| **Entities** | **Primary Keys** | **Foreign Keys** | **Foreign Key Parent** | **Unique Attribute** |
| STUDENT | STUDENT\_ID | ZIP | ZIPCODE |  |
| ZIPCODE | ZIP |  |  |  |
| ENROLLMENT | STUDENT\_ID, SECTION\_ID | STUDENT\_ID, SECTION\_ID | STUDENT, SECTION |  |
| INSTRUCTOR | INSTRUCTOR\_ID | ZIP | ZIPCODE |  |
| COURSE | COURSE\_NO | PREREQUISITE | SECTION |  |
| SECTION | SECTION\_ID | COURSE\_NO (**Unique**), INSTRUCTOR\_ID | COURSE, INSTRUCTOR | SECTION\_NO |
| GRADE\_TYPE\_WEIGHT | SECTION\_ID, GRADE\_TYPE\_CODE |  | SECTION, GRADE\_TYPE |  |
| GRADE | STUDENT\_ID, SECTION\_ID, GRADE\_TYPE\_CODE, GRADE\_CODE\_OCCURENCE | STUDENT\_ID, SECTION\_ID. GRADE\_TYPE\_CODE | ENROLLMENT, GRADE\_TYPE\_WEIGHT |  |
| GRADE\_TYPE | GRADE\_TYPE\_CODE |  |  |  |
| GRADE\_CONVERSION | LETTER\_GRADE |  |  |  |

# **Student Schema Relationship**

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| --- | --- | --- | --- |
| **Entity - Relationship** | **Cardinality** | **Relationship** | **Business Rule** |
| STUDENT - ZIPCODE | M:1 (Mandatory) | Lives | Many students may belong to 1 ZipCode, but One student can have only one zipcode. |
| INSTRUCTOR - ZIPCODE | M:1 (Optional) | Lives | Similar to student – zipcode relationship. Only difference is this is a weak relationship. Zipcode is nullable in INSTRUCTOR table. |
| STUDENT - ENROLLMENT | 1: M (Mandatory) | Enrolls | One student can be enrolled in zero, one or many sections. |
| SECTION - ENROLLMENT | 1: M (Mandatory) |  | Section can have zero, one, or many enrollments. |
| INSTRUCTOR - SECTION | 1: M (Mandatory) | Teaches | INSTRUCTOR must be always assigned to one section. INSTRUCTOR can teach zero one or many sections. |
| COURSE - SECTION | 1: M (Mandatory) | Completes | A course can have zero, one or many sections. Every section must have a corresponding row in COURSE table. |
| ENROLLMENT - GRADE | 1: M (Mandatory) | Scores | Student can have grade only they enrolled in the section listed in enrollment table. |
| GRADE\_TYPE\_WEIGHT - GRADE | 1: M (Mandatory) | Belongs | Section can have zero, one or many rows in GRADE\_TYPE\_WEIGHT table. SECTION\_ID value in GRADE\_TYPE\_WEIGHT table there must be one and only value in Section table. |
| GRADE\_TYPE\_WEIGHT - SECTION | M:1 (Mandatory) | Belongs | GRADE\_TYPE\_WEIGHT is a junction entity between SECTION and GRADE\_TYPE to create M:M relationship. |
| GRADE\_TYPE\_WEIGHT - GRADE\_TYPE | M:1 (Mandatory) | Belongs |