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ISAT 340

Database Analysis Worksheet

# Step 1: Identify Entities, Attributes, and Primary Keys

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity |  | Attributes |  | Primary Key |
| Students |  | **ssn**, last\_name, first\_name, middle\_initial, address, zip\_code, home\_phone, dob, gender |  | **ssn** |
| Courses |  | **course\_code**, course\_title, difficulty\_rating |  | **course\_code** |
| Subject Areas |  | **subject\_code**, subject\_description |  | **subject\_code** |
|  |  |  |  |  |
|  |  |  |  |  |

# Step 2: Define Relationships Between the Entities

|  |  |  |  |
| --- | --- | --- | --- |
| Entity 1 | Entity 2 | How Related?  (2 sentences) | Relationship Type (1:1, 1:N, M:N) |
| Students | Courses | Each student can be enrolled in several courses. Each course can be taken by several students | M:N |
| Courses | Subject Area | A course can belong to more than one subject area. Then, several courses can fall in the same subject area. | M:N |
| Students | Subject Area | The does not appear to be a direct relationship between students and subjects (although one might be inferred via other relationships) | - |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Step 3: Draw your Entity-Relationship Diagram (Hand-drawn is okay!!!)

M N M N

Students

Courses

Subject Area

Students

Courses

Subject Area

1 1 1 1

N N N N

Courses.SubjectArea

Courses.Students (Enrollment)

# Step 4: Specify Tables, Fields, and Data Types

Fill out a chart for each table to be included in the database. YOU MAY NEED MORE TABLES THAN THERE ARE HERE. The ones here are just to get you started. Mark the primary key with a double asterisk (\*\*). Mark any foreign keys with the letters “fk” in parentheses, (fk).

Name of 1st Table: \_\_\_Students\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Field Name | Data Type |
| ID\*\* | Integer (auto incrementing) |
| Ssn | string |
| last\_name | String(20) |
| first\_name | String(15) |
| middle\_initial | String(1) |
| address | String(100) |
| zip\_code | String(5) |
| gender | String(15) |
| dob | string(28) (ISO 8601) |
| home\_phone | String(10) |

Name of 2nd Table: \_\_\_Courses\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Field Name | Data Type |
| ID\*\* | Integer (auto-incrementing) |
| Course\_code | String(10) |
| course\_title | String(30) |
| difficulty\_rating | Enum(“Introductory”, “Intermediate”, “Advanced”) |
|  |  |
|  |  |

Name of 3nd Table: \_\_\_Subjects\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Field Name | Data Type |
| ID\*\* | Integer (auto-incrementing) |
| Subject\_code | String(10) |
| subject\_description | String(100) |
|  |  |
|  |  |
|  |  |

Name of 4nd Table: \_\_\_Courses\_students\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Field Name | Data Type |
| Student\_id\*\* (fk) | Integer |
| Course\_id\*\* (fk) | Integer |
|  |  |
|  |  |
|  |  |
|  |  |

Name of 5th Table: \_\_\_Courses\_subjects\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Field Name | Data Type |
| Student\_id\*\* (fk) | Integer |
| Course\_id\*\* (fk) | Integer |
|  |  |
|  |  |
|  |  |
|  |  |



