Database Analysis Worksheet

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity |  | Attributes |  | Primary Key |
| students | ID, SSN,  lastName,  MI,  firstName,  address,  zipCode,  phoneNumber,  birthDate,  gender |  |  | ID |
| courses | ID, courseCode; title,  difficultyRating (Intro, Inter, Adv.) |  |  | ID |
| subjects | ID, subjectCode, textDescription,  courseCode(fk) |  |  | ID |
| studentsCourses | studentsCoursesID,  courseCode(fk),  SSN(fk) |  |  | studentsCoursesID |

# 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** | A student can take many courses.  A course can be taken by many students. | M: N |
| courses | **subjects** | A course belongs to more than one subject area.  A subject can fall under several courses. | M: N |
| students | **subjects** | There does not appear to be a direct relationship. (One can be inferred via other relationships)  \*[A student can study to many subjects.  \*[A subject can be taken by many students.] | ------  \*[M: N] |
| \*Ignore any inference that comes after (\*[]) | | | |

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

N

students

courses

N

N

N

subjects

1

1

1

1

N

studentsCourses (Enrollment)

E

N

N

N

coursesSubjects

# 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 |
| SSN  lastName | Char(10)  char(20) |
| middleInitial  firstName | char(1)  char(15) |
| address  zipCode | long char(100)  char(5) |
| phoneNumber  birthDay | char(10)  Date/Time; char(28)(ISO-8601) |
| Gender  ID\*\* | char(15)  int(autoincremented) |

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

|  |  |
| --- | --- |
| Field Name | Data Type |
| courseCode | char(10) |
| title | long char(30) |
| difficultyRating (Intro, Inter, Adv)  ID\*\* | enum(Intro, Inter, Adv)  int(autoincremented) |

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

|  |  |
| --- | --- |
| Field Name | Data Type |
| subjectCode | char(10) |
| textDescription | long char(30) |
| courseCode (fk) | char(10) |
| ID\*\* | int(autoincremented) |
|  |  |

Name of 4th Table: \_\_studentsCourses\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Field Name | Data Type |
| courseID (fk) | int |
| studentID(fk) | int |

Name of 5th Table: \_\_coursesSubjects\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Field Name | Data Type |
| courseID (fk) | int |
| subjectID(fk) | int |