Project -part 1

a. Identify the main entity types.

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Description | Aliases | Occurrence |
| Department | General term describing all departments belong to this university | Dpt | Each department has specific chair, offers one or more majors, and hosts one or more events. |
| Student | General term describing all students belong to this university | Std | Each student has at least one major and attend one or more event. |
| Major | General term describing all majors offered by each department | Mj | Each major belongs to a specific department. |
| Event | General term describing all events hosted by departments. | Evt | Each event is host by one or more departments and attended by one or more students. |

b. Identify the main relationship types between the entity types identified in "a".

Department offer major

Department host event

Student declare major

Student attend Event

c. Determine the multiplicity constraints for each relationship identified in "b".

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity name | Multiplicity | Relationship | Multiplicity | Entity name |
| Department | 1.. 1  1.. \* | offer  host | 1.. \*  0.. \* | Major  Event |
| Student | 1.. \*  1.. \* | declare  attend | 1.. \*  1.. \* | Major  Event |

d. Identify attributes and associate them with entity **or** relationship types.

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Attribute | Description | Data Type & Length |
| Department | Department\_name  Chair\_name  Num\_faculty | The name of department  The name of the department chair  The number of total faculty in this department | 15 variables characters  30 variables characters  integer |
| Student | Name  Initials  Major\_name | The name of this student  more than one character long initial characters of this student name  The name of this student’s Major | 30 variables characters  5 variables characters  15 variables characters |
| Major | Major\_name  Department\_name  Code | The name of major  The name of the department this major offered by  The three characters major code | 15 variables characters  15 variables characters  3 variables characters |
| Event | Start\_date  End\_date  Event\_name  Department\_name  Student\_name | The start date of this event  The end date of this event  The name of this event  The names of the departments this event hosted by  The names of the students attending this event | Date  Date  30 variables characters  15 variables characters  30 variables characters |

e. Determine candidate and primary key attributes for each (strong) entity type.

Department (Department\_name, Chair\_name, Num\_faculty)

CK: {Department\_name}

{Chair\_name, Num\_faculty}

Student (initials, Major\_name, Name) (the name may repeat)

CK: {initials, Major\_name}

{Major\_name, Name}

Major (Code, Major\_name, Department\_name)

CK: {Code}

{Major\_name}

Event (Event\_name, Start\_date, End\_date, Department\_name, Student\_name)

CK: {Event\_name, Start\_date}

{Event\_name, End\_date}

f. Generate the E-R diagram for the conceptual level (no FKs as attributes).

Diagram

Description automatically generated